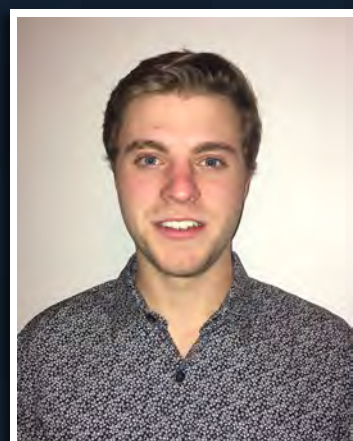


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## Evaluation and Comparison of the Quantitative Easing Programs of the US and UK: Macroeconomic and Currency Market Effects

Eric Huang and Matthieu Laurin

### Abstract

This paper analyses the unconventional monetary policy response to the 2008 financial crisis by the Federal Reserve and Bank of England. Specifically, this paper discusses the design, implementation, goals, along with the macroeconomic and currency market effects of Quantitative Easing (QE) employed by these central banks from 2008 to 2013. Using established results of QE on financial variables, namely the compression of the long-term bond yield spread, we employ a Vector Autoregression, and conduct a counterfactual estimation to quantify the macroeconomic and currency market impact of QE insofar as it has been transmitted via this specific channel. The results suggest that for the macroeconomic impact, the US program found more success in the long run, while the UK program experienced slightly more desirable results in the short run. For the currency market impact, our results suggest that the relationship between the exchange rates and the bond spread strengthened during the financial crisis, and that QE appreciated the dollar index in the US and depreciated the UK Sterling index. Finally, the effects in the US were much less clear cut compared to the UK, as the US financial system is more complex and susceptible to speculation.

### Acknowledgements

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Faculty Members Consulted: Rui Castro, Jim MacGee, Igor Livshits, Alan Bester, Simona Cocuiba

### 1. Introduction

Quantitative Easing (QE) is an Unconventional Monetary Policy (UMP) that was first widely used by central banks around the world during the 2008 financial crisis. Through different transmission mechanisms, such as decreased term premiums and creating liquidity in the financial market, it raises aggregate demand and stimulates the economy back to the desired state. As the effects of the financial crisis come to end, there has been little research done analyzing the effectiveness of this program on the economy



## The Case for Heterogeneous Investor Beliefs: Evidence from U.S. Seasoned Equity Offerings

Parker Liu and Tom Qiao

### Abstract

This paper examines the effect of heterogeneous beliefs and short-sell constraints on the long-run post seasoned equity offering stock returns in the US. We find that SEOs with high abnormal trading volume prior to the offering and high relative offering size exhibit significant and negative returns after one year. Firms in the highest quartile of market adjusted turnover and relative offering size had an average abnormal buy and hold return of -19.18% one year after the issue date. These results further support the previous theoretical works that tried to show short-sale constrained stocks with high divergence in opinion were likely to be overvalued due to short-sellers being absent in the market.

Faculty Consulted: Professor Rui Castro and Professor Lars Stentoft

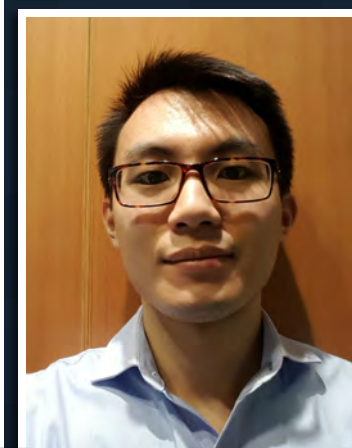
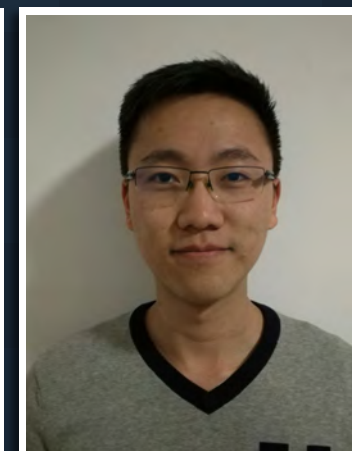
### I. Introduction

#### A. Background

Modern financial economics assumes that investors have homogenous expectations but ignores the implications of investor divergence of opinion.<sup>1</sup> Mayshar (1983) points out that both William Sharpe and John Lintner thought heterogeneous beliefs could be closely approximated by homogeneity if it was the average investor's opinion that determined asset prices. The capital asset pricing model (CAPM) developed independently by Sharpe and Lintner has subsequently contributed to the prevailing view today that markets are efficient. Yet Mayshar (1983) also notes that earlier works by John Maynard Keynes and John Burr Williams had argued it was the marginal investor who determined asset prices and thus divergence of opinion should be essential to any financial theory. Intuitively, investors likely have different estimates of the future cash flows of a company as some investors are no doubt more optimistic than others about a company's future prospects which are veiled by uncertainty. Miller (1977) proposed that when there are short-sale constraints<sup>2</sup> preventing pessimistic investors from participating in price discovery, stock prices would reflect only the beliefs of the optimistic investors.

<sup>1</sup> Note: "divergence of opinion" and "heterogeneous beliefs" are used interchangeably throughout this paper as referring to a state where investors have different estimates of the value of a publicly traded company.

<sup>2</sup> Short selling involves borrowing a stock and selling it immediately at the market price with the intention to buy back the stock at, ideally, a lower future price to make a profit. Short-sale constraints exist when it is difficult to short sell due to high shorting costs, usually the result of limited availability of stocks to borrow.



## Modeling Efficiency Units of Electricity in Production

Nadezhda Peretroukhina and Siddharth Untawala

### Abstract

"Raw energy" in traditional Cobb-Douglas production models is assumed to be homogeneous in both value and productive capacity among producers. In this paper, we describe a new method to model heterogeneous and parsimonious preferences, as well as the constraints of various industries. Simple and versatile, "efficiency units of electricity" is able to significantly model cross-industry variation in energy productivity using principles of statistical physics to mitigate the introduction of several parameters. Our findings demonstrate that the introduction of efficiency units of electricity in production improves the statistical efficiency of estimators for labour and capital. We recommend that supplementary literature should explore the economic significance of the Boltzmann weighted parameter ( $\theta$ ) using alternative proxies and datasets for efficient labour using industry level considerations.

Keywords: Efficiency Units of Electricity, Cobb-Douglas Production Model, Heterogeneous Preferences, Total Factor Productivity, Cross-Industry Variation, Boltzmann distribution

Faculty Consulted: Dr. Charles Saunders and Dr. Rui Castro

### 1. Introduction

The production function is a key economic idea that expresses the relationship between physical inputs and the output produced. Convention dictates that the factors of production feature labour (L) and capital (K), exclusively. However, after extensive research and interest in the field of Econophysics, the goal of this paper is to explore how efficiency units of electricity can account for differences in the use of raw energy in production among industries. The economic question that we are exploring examines how the heterogeneous preferences and constraints, faced by various industries for raw 'energy', can be modeled in production functions.

Our interest in the role of energy stems from the integration of key principles in both economics and physics; whereby the behaviour of matter and properties of energy in physics can describe economic preferences and constraints. Specifically, the idea of energy conservation can mirror the behaviour of industries in cost-minimization problems associated with production. In addition, the variances in productivity among industries will be represented by industry-specific labour force controls that mirror the

