

## Thesis abstract

# Information and noise in stock markets: evidence on the determinants and effects using new empirical measures

Thanh Huong Nguyen

Abstract of a thesis for a Doctorate of Philosophy submitted to University of Technology Sydney, Australia

The thesis comprises four studies relating to stock market efficiency, its measurement, its effects, and its determinants.

The first study proposes novel empirical measures that separate different types of information and noise as drivers of stock return variance. Specifically, the new methods disentangle four components: market-wide information, private firm-specific information revealed through trading, firm-specific information revealed through public sources, and noise. Overall, in US stocks, 31% of the return variance is attributable to noise, 37% to public firm-specific information, 24% to private firm-specific information, and 8% to market-wide information. Since the mid-1990s, there has been a dramatic decline in noise and an increase in firm-specific information, consistent with increasing market efficiency.

The second study examines how noise affects inference in existing empirical measures, such as idiosyncratic volatility (one minus the  $R^2$  of a market model) and decompositions of cash flow and discount rate news. This thesis finds that after accounting for noise, cash flow information plays a considerably larger role in driving individual stock returns than previously believed and discount rate information plays a smaller role. Furthermore, the decrease in idiosyncratic volatility (increase of market model

$R^2$ ) since 1997 is the result of a decrease in noise during this recent period. The evidence indicates that the market has become more efficient in the past two decades, contrary to what is implied by standard interpretations of  $R^2$  as an inverse measure of efficiency.

In the third study, this thesis examines the real effects of stock market efficiency by analysing the relation between noise in stock prices and the efficiency of corporate investment and capital allocation at both the firm and industry levels. The analysis uses a long time-series of data from 1963, as well as a cross-section of 42 countries. Consistent with the notion that noise decreases investment efficiency, this research finds strong evidence that noise is negatively associated with the sensitivity of corporate investment to firms' growth opportunities and the sensitivity of industry-level investment to value added. These findings highlight the important real effects of secondary market quality in determining firms' investment behaviour and the efficiency with which capital is allocated.

The fourth essay provides evidence on how individual investors' behaviour, in particular investors' gambling activity in stocks, affects stock market efficiency. We develop novel measures of the amount of gambling in stock markets based on the turnover differences between lottery stocks and non-lot-

tery stocks, and validate the measure. Using a global sample, we examine how much gambling occurs in different countries, what determines these levels, and how the gambling that occurs on stock markets affects a country's capital markets. We find that culture and economic factors are all significant drivers of a country's gambling propensity in both traditional venues and stock markets. Interestingly, we find a substitution effect — restrictions/bans on traditional gambling lead to a spillover of gambling onto stock market(s). Exploiting regulation of traditional gambling as an instrument, we find that increased gambling on stock markets makes them more liquid and efficient. Our findings have implications for using gambling regulation as a policy instrument to affect financial market quality.

Collectively, these studies contribute to our understanding of market efficiency, how to measure it, what drives its variation through time and across stocks, and how it affects resource allocation across companies and sectors.

Dr Thanh Huong Nguyen  
Department of Finance  
University of Economics, The University  
of Danang  
Danang 50000  
VIETNAM

E-mail: [huongnt@due.edu.vn](mailto:huongnt@due.edu.vn)

URL: <http://hdl.handle.net/10453/140911>