

报告 15

大数据如何帮助理解中国金融市场的风险

How Big Data Help Understand Risks in China's Financial Markets

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报告摘要 Abstract

信息技术的发展带来数据的丰富性，多属性、多频率、多方位的数据整合有助于更深层次地考察金融市场，理解市场现象背后的行为逻辑。本报告试图用三个具体的案例，展示通过大数据可以对中国金融市场不同层面的风险行为有更深刻的认识。案例 1: 频频出现的暴涨暴跌困惑着中国的股票市场，机构投资者在其中是推波助澜，还是抑浪平涛？我们将沪深两市 2006-15 年 6 月份所有上市公司的股票价格数据、机构持有数据、公司财务数据、公司治理数据、股票分析师数据等整合起来，实证发现机构投资者的持有量增加显著降低暴涨暴跌的发生，并且对暴跌的抑制更为显著。这种抑制作用，在股权结构集中、信息透明度高及市场波动率大的股票中更为明显，机构投资者持有量的变化也可以显著地预测股价暴涨、暴跌的发生。这些发现很好地说明了机构投资者对于市场有监督作用。案例 2: 2015 年股市剧烈震荡之后，数名政府官员因信息泄露被查处。那么宏观政策信息泄露是否是孤立事件，影响程度如何？我们以「降息降准」为自然实验，利用股市的高频数据和分笔交易数据，实证发现 2015 年股市激荡过程中「降息降准」之前存在着足以影响市场信息泄露现象，系列证据显示知情的机构投资者更早得知泄露信息并用于调整买入、卖出策略进而获得额外收益。中国股市的政策信息泄露可能远远比被查处的情況严重。案例 3: 商业银行的工作职位是中国年轻人的心仪之地，大批高校毕业生选择到各地的商业银行工作。银行业是员工的地域多元化程度最高的行业之一。那么本地信贷经理与外来信贷经理谁有更好的表现？我们利用商业银行微观信贷数据和信贷经理的人事数据，发现本地信贷经理审批的贷款有着更低的违约率和利率，而且本地信贷经理更加依赖于价格和违约预期的软信息。当客户公司的信息不对称程度更强时，本地信贷经理与外地信贷经理的表现差距越大。因此可以看到信贷风险管理上，软信息起着非常重要的作用。三个案例说明，大数据的使用有助于勾画不同金融市场参与者的行为特征，深化对金融市场各种风险的认识。因此，需要加强基于大数据金融风险研究，为金融风险提供更深层次的理论和更先进的管理工具。

The significant progress in information technology breeds the richness of data. Extracting information from a combination of big data, such as multi attributes data, multi frequencies data, and multi dimensions data, helps investigating financial markets on a deeper level and revealing the underlying logic behind the behavior observed in markets. This presentation attempts to use three specific cases to show that we can strengthen the understanding of risk behaviors in China's financial market from different facets. Case 1: As China's stock market is be wildered by frequent price surge and slump, the extreme stock price movement does confuse the market participants, government, and academics. What is the role of institutional investors behind price surge and slump? Adding fuel or water to the fire? We merge several data sets on public firms listed in Shanghai and Shenzhen stock exchanges, including stock price information, institutional holding information, financial statement variables, corporate governance information, financial analyst coverage and etc., and the sample spans from Jan 2006 through to June 2015. Our empirical evidence reveals that the entry of institutional holdings can significantly reduce the occurrence of extreme stock price movements. This effect will be stronger for risk of stock price slump and more pronounced for firms with more concentrated ownership, more information transparent, and higher market volatility. Moreover, the change in institutional ownership can also predict the stock price surge and slump. These findings facilitate our understanding on the monitoring role of institutional investors in China. Case 2: After the recent China's stock market turbulence in 2015, a handful of government officials are investigated due to a leak of sensitive information. The interest rate cuts and required reserve rate cuts were employed by the central government as tools to stabilize the turbulent markets. Regarding the events as natural experiments, we empirically investigate if there are some obvious evidences to show the information leakage. Our findings consistently reveal that informed institutional investors will adjust their trading strategies in advance to earn abnormal returns. Based on our findings, we conclude that the leakage on policy change in stock market is far more serious than the cases observed in extant investigations. Case 3: The job opportunities in commercial banks are the favorite choices for Chinese young people and a number of graduates start their career in commercial banks located in different places. Geographical diversification of employees is quite significant in banking industry. The natural question arises whether local credit managers outperforms non-local ones. Using the micro loan level data and manager's profile data in one

large commercial bank of China, we find that the loans approved by local managers have lower default rates and enjoy lower cost of loan. Moreover, the local managers are more intended to rely upon soft information they accumulated in previous activities. The advantage of local managers will be more pronounced when the borrowers suffer more information asymmetry. The implications of this research is to show the importance of soft information during credit risk management. To sum up, the above three cases support that mining the big data is helpful to characterize the behavior patterns of market participants in different financial markets, and deepen our understanding on potential risks hidden in financial markets. Thus, it is necessary and important to reinforce the research on financial risks with the weapon of big data, building related theoretical foundations and providing advanced tools for financial risk management.