Constructing Investment Open Data of Chinese Listed Companies Based on Read-Write Linked Data

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ABSTRACT

This article describes how China’s capital market development has had a big disparity compared with developed countries, which creates many problems: investors cannot get effective decision-making information; enterprises must report information in different forms to separate regulators; and that role confusion among institutions may lead to financial market risk. An efficient solution of above problems relies on cross-border information sharing among institutions. Linked Data is key factor to improve supervision of capital market. Furthermore Read-write Linked Data can implement cooperation among institutions. This article drew lessons from foreign linked data in the research of data source selection and financial data integration. Through selecting data from listed company, China securities regulatory commission and stock exchange, the article constructed investment open data of Chinese listed companies based on Read-write Linked Data. This work could provide accurate insight for investors, meanwhile contributing to reducing the administrative burdens of enterprise, realize the effective supervision of financial regulators.

KEYWORDS
Extensible Business Reporting Language (XBRL), Linked Data, Linked Data Platform (LDP), Open Data, Read-Write Linked Data

INTRODUCTION

With the continuous development of economic globalization, investors are paying more attention to international investment, cross-border stock investment is growing steadily. From the development of China’s capital market, we also can see the efforts in this behalf. In April 2012, China increased the investment quota of qualified foreign institutional investors from $30 billion to $80 billion. On November 17, 2014, China opened Shanghai–Hong Kong Stock Connect, which was the first market mechanism connecting China’s mainland with the outside world and made iconic progress in the open and internationalization of China’s capital market. However, China’s capital market development had a big disparity compared with the developed countries (such as United States, United Kingdom) (Feng Yanjie et al, 2013). The government hopes to learn experiences of improving information open and fair from the developed countries, so as to improve the international competitiveness of China’s capital market.

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Capital market is a complex system composed of many interconnected and interactional parts (Pan, 2009), including a variety of institutions and all kinds of information. Each institution has a lot of investment related data under its jurisdiction: China securities regulatory commission is responsible for maintenance of industry information; enterprise website shows company information and financial reports; stock exchange provides stock information of listed companies. Although independent data published by each institution can benefit investors, data integration from different institutions can lead to greater potential innovative usage. Next, the complexity of the relationships and role confusion among institutions can lead to financial market risk. Lack of systematic and specialized information sharing among financial market regulators was seen as a key contributor to the financial crisis in 2008 (FSB, 2011; Pardo, Sayogo & Canestraro, 2011). Furthermore, enterprise needs to provide diverse information to the regulators under the law. Since most regulators are autonomous and independently define their information needs, enterprise must report information in different forms to various regulators.

The efficient solution of above problems relies on cross-border information sharing among capital market institutions. Once information sharing has been realized, according to shared information investors can assess financial products more thoroughly and make more sensible investment decisions. Enterprise also no longer needs to report information in different forms to regulators, uniformly submits to the platform, reducing administrative burdens. Information sharing also contributes to effective oversight of regulators and accountability.

However, it isn’t easy to build the infrastructure to realize cross-border information sharing in capital market. Djoko Sigit Sayogo et al. (2014) pointed out that understanding the challenges of cross-border information sharing among financial regulators was a key step to build an efficient market and reduce the risk of future crises. These challenges included the lack of data access and availability, data format (data was not in the form of digital) and data quality. At the same time, the financial filed is becoming a knowledge intensive area. As a result, the financial filed needs more accurate and powerful strategies to deal with data, the comprehensive and dynamic data access to different sources. Traditional data management technology usually can only access the internal customized data pool, unable to realize these functions. Linked Data has the ability to meet the specified requirements. Standardization and Linked Data were known as the key factors to improve the supervision of financial market (Tarullo, 2010).

In 2006, Tim Berners-Lee proposed Linked Data. A big advantage of Linked Data is that it can realize the unconscious reuse of information. Users can begin from any interested web resource that contains links, and then follow their nose from a link to the next to query data from multiple sources, so as to realize the rapid positioning of resource. How Linked Data can do this? The key reason is that Linked Data uses HTTP URIs to name things and gets data through HTTP protocol. Linked Data provides links to other URIs as much as possible. It can not only link to the data in the data storage system, as well as other data out of the data storage system. So Linked Data breaks the bondage of the original data storage.

In the process of opening up government data, Linked Data plays an important role. Linked Data makes people better use of open government data and fully enjoys the results and benefits of open government data, improves the level of the government’s credibility and service. As the first adopters of “open government data”, U.S. data portal Data.Gov publishes government data in Linked Data form. However open government data in the financial field is very few. Djoko Sigit Sayogo et al. (2014) pointed out that data sets published by financial regulators were limited, efforts to develop the financial Linked Data had been focused on.

Although Linked Data can achieve semantic level information integration, Linked Data is also flawed. It’s only applicable to “read” data, not possible to “write” data. While Read-write Linked Data can provide a collaborative space, in this space institutions can not only access to data, but also modify data. So, Read-write Linked Data can promote the coordination among institutions.
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