

2014

# BioTechnology

*An Indian Journal*

FULL PAPER

BTAIJ, 10(22), 2014 [13833-13838]

## Finance teaching reform and innovation path under financial crisis

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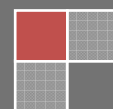
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### ABSTRACT

The joint efforts of many countries in the world finally stabilized the overall situation in the second quarter of 2009 and since then the earth has stepped into the "post-crisis era". However, the impact caused by financial crisis hasn't completely disappeared yet. In such general background, training qualified financial talents poses new challenges to financial mathematics. This paper discusses the current situation of China's economic development in the post-crisis era, points out the existing problems of financial teaching in our colleges and universities as well as proposes are proposed paths of financial teaching and innovation from teaching mode, talents training mode and construction of teaching staff. It is aimed at improving the quality of financial teaching and training high-quality comprehensive financial talents who adapt to the requirements proposed by world and the development of China's financial industry.

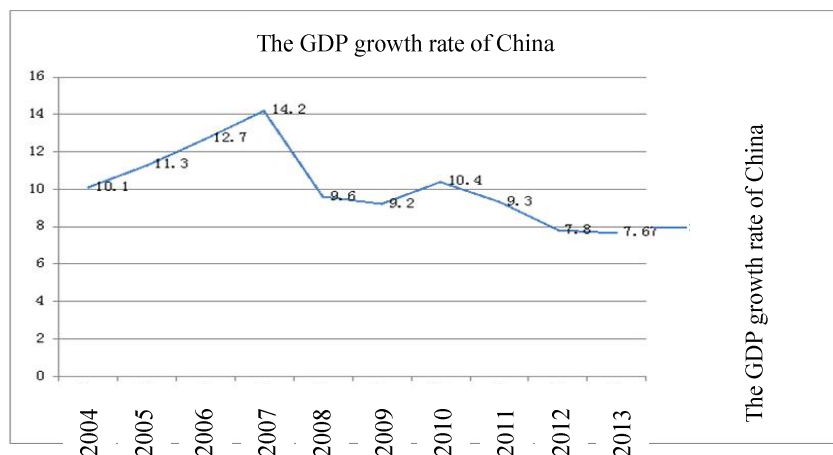
### KEYWORDS

Financial crisis; Financial mathematics; Teaching reform; Innovation path.



## INTRODUCTION

China's economy has maintained a high growth rate since the reform and opening up and the Per Capita GDP from 1993 to 2011 remained at around 10%. The paper selects China's GDP growth rate 5 years before and 5 years after the financial crisis for comparison. As shown in Figure 1.



**Figure 1 : The China's GDP growth rate 5 years before and 5 years after the financial crisis**

As can be seen from Figure 1, 2007 was a turning point. China's GDP growth rate was above 10% and rose year by year before the sub-prime crisis. However, during the sub-prime crisis and subsequent global financial crisis period, although there were a variety of support policies to stimulate domestic demands by government, China's economy was still influenced to a great extent. From 2008 to 2013, China's GDP growth was at the lower level with exception of 2010 whose GDP growth rate was over 10%. TABLE 1 shows China's main macroeconomic indexes in recent 10 year.

**TABLE 1 : China's main macroeconomic indexes in recent 10 year**

	2004	2005	2006	2007	2008
Per capita GDP (yuan)	12335.58	14185.36	16499.7	23708	20169
GDP (100 million yuan)	159878.34	184937.37	216314.43	265810.3	314045.4
Total export-import volume (100 million dollar)	11545.5	14221.2	17606.9	21738.3	25616.3
Gross fixed asset investment (100 million yuan)	70477.4	88773.6	109998	137323.9	172828.4
	25608	29992	35181	38459.47	41907.59
Per capita GDP (yuan)	340902.8	401202	473104.05	519470.1	568845.21
GDP (100 million yuan)	22072.2	29727.6	36420.6	38667.6	41603.1
Total export-import volume (100 million dollar)					
Gross fixed asset investment (100 million yuan)	224598.8	278121.9	311485.1	374694.74	--

It can be seen from the data in TABLE 1, despite the economic crisis, China's per capita GDP, GDP and total export-import volume still maintained a rapid growth. At the same time, total fixed investment of the whole society also increased year by year. It reflects that the financial crisis has caused a huge blow towards China's economy, but didn't completely shatter the investment confidence of customers. On the whole, the development trend of China's economy is pretty good.

## EXISTING PROBLEMS OF FINANCIAL TEACHING UNDER FINANCIAL CRISIS

### Financial Teaching Mode can't timely change

In terms of the teaching mode, there are some characteristics of financial teaching contents arrangement in colleges and universities that differ from foreign developed countries: first, the macro curriculum holds dominant position in the teaching system; second, there's no teaching mechanism can be in touch with economic development situation in the real world, which makes students cannot actually understand the important role of risk control and management played in the actual operations of modern finance during learning period. Meanwhile, many of our financial teaching materials and cases are derived from western countries, which lead to the insufficient recognition on internal risk characteristics and risks in the

financial system. The microscopic theory has made considerable progress in the whole financial field since Markowitz proposed asset organization theory. Under the promotion of information technology, financial engineering, which focuses on insurance market analysis, bank loans and other issues by using economical tools, has got rapid development. It suggests that compared with managers who master modern financial theories, operators who understand the actual operation and master modern financial skills are more likely to receive the recognition and preference of the society.

### **Talents training mode needs to be optimized**

In western developed countries, there are mainly two systems in terms of financial talents training mode: education training mode in colleges and universities, certificate training mode of vocational technology. Using financial information talents training as an example, the University of London cultivates financial information talents from three levels: undergraduate, master and doctor with emphasis on the master level. Two master directions are designed according to the difference of academic background: generalist training target is for students whose first degree are not computer science, while specialist training target is for students whose first degree are computer science or related majors. Meanwhile, both master directions can study for doctor degree or engage in technical work in the financial field. As for our country, the financial information technology talents are mainly telecommunications engineering, software engineering, computer and other majors from universities of science and technology, which lacks financial and related practical knowledge. But after the financial new century, some key institutions in China have also begun to explore the training of financial information technology talents, in which Xi'an Jiaotong University established financial information engineering in 2000 and Peking University established financial information engineering in 2005. But this academic education way is rather single, while ordinary vocational schools have no teaching staff and teaching facilities for talents training of teachers. The focus of university reform this year is to transfer more than 600 top-up colleges after the enrollment in 1999 into high-level vocational education institutions with emphasis on training engineers, senior technicians and qualified workers. Although it seems that the general direction is to further promote training technical personnel, the policy on financial talents training is not clear yet.

### **The teaching staff training couldn't be timely changed**

The teaching model has not been changed timely, which makes financial teachers pay too much attention to the macro courses in the teaching plans and have no time or experience to delve into the new financial micro theories. Even financial engineering, investment, financial management and other teaching courses are added into teaching plans in colleges and universities, these courses are still not regarded as the main courses to arrange the learning plan of students. In most cases, in order to reflect its response to the development of financial theories, quantities of new microscopic courses are added to the original teaching plans, but most of them extend on the basis of macro courses. It further aggravates students' academic burden and their learning on micro courses is far from comprehensive, in-depth and only floats on the surface.

## **FINANCIAL TEACHING REFORM AND INNOVATION PATH UNDER FINANCIAL CRISIS**

Based on above-mentioned analysis, in the post financial crisis era, the financial teaching reform and innovation path should be conducted from three aspects: teaching mode, talents training mode and construction of teaching staff.

### **Reform and innovation of teaching mode: insurance experiment teaching mode based on situational simulation exercise**

As a social science with strong practice, insurance introduces simulation experiment teaching mode into its teaching activities to allow students to obtain personalized learning experience under certain circumstances. It increases the learning interest of students and enhances their problem analysis and resolution capacity by transferring knowledge to actual situation. According to the author's field investigations and interviews, it is believed that the key to successfully carry out insurance situation simulation experiment teaching lies in the three following links.

The first link is the selection of teaching contents. The teaching contents should be contextualized accordingly, and its contextualized achievements should be positively correlated with teaching effectiveness, because not all teaching contents are suitable for contextualization. For example, the underwriting analogue for auto insurance should be contextualized so that the students can get to know not only the theories but also the actual operation of auto insurance. In that way, their ability to handling underwriting and claims will be improved significantly. The teachers should never limit their teaching material into some certain points. They can never pay enough attention to the diversity and multiply levels. As for choosing the teaching content, they should predict the points the students might use in the analogue. The connection between the points should also be taken into consideration. According to the importance level and difficulty, the teacher should set the points into different layers and teach accordingly, from different perspectives and levels. In the underwriting analogue for auto insurance, knowledge points like insurance types, insurability, insured liability and premium calculation and so on are included.

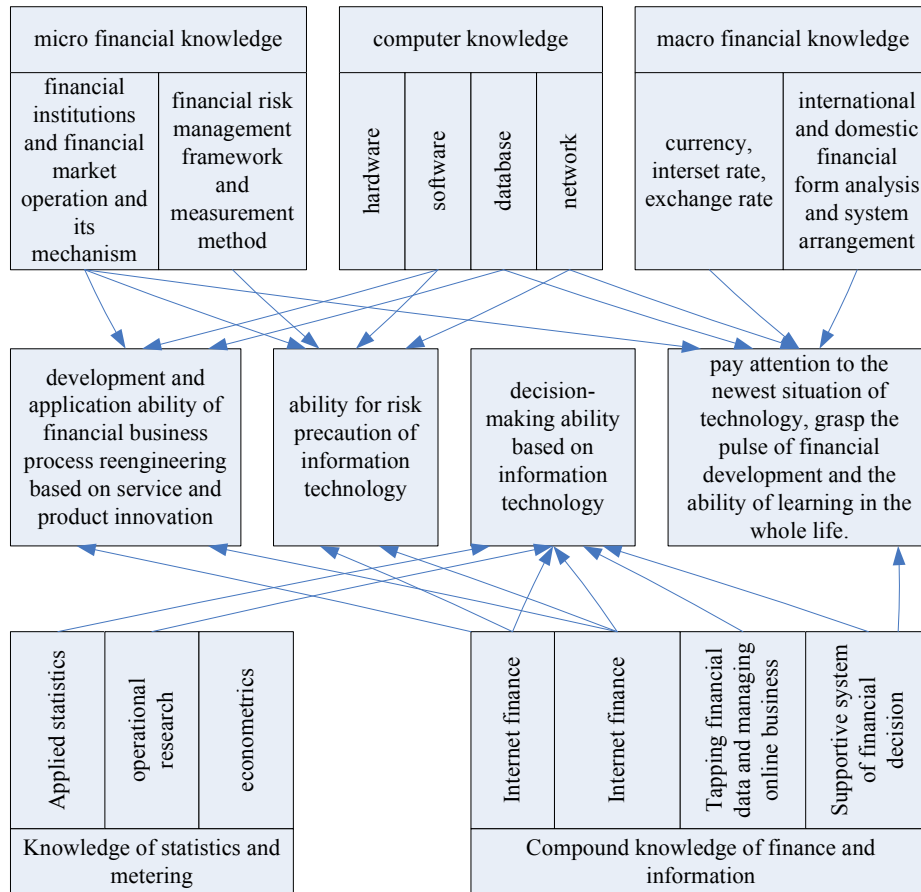
The second link is the setting up of an analogue. The analogue should be just like the real situation. At the same time it should be interesting and challenging. In teaching, to lead in by the newest case happening in real life is a good way. For example, in the underwriting analogue for auto insurance, the teacher can use a case material which is new alive and typical selected from an insurance company. The materials can be taken from the internet.

The third link is the participating roles. In this analogue, the students take their roles. The students get the chance to know the whole process of underwriting for auto insurance. By combining the basic theories and other related knowledge

with the actual situation, they will have a deeper understanding of the textbook knowledge. In the analogue, the students should also change their roles to experience the process from different perspectives to gain a whole knowledge of the operation.

**Training interdisciplinary talents on finance and information is a great perform and innovation**

These interdisciplinary talents refer to the talents who have acquired the knowledge of information technology and its application and at the same time, they can do tasks to analyze, develop, test, and manage in financial service and innovation, risk management, data management. Usually they have the knowledge background which includes macro and micro finance theories, computer technology, statistics, financial information and so on. This thesis design Figure 2 which shows the knowledge structure and ability transmission.



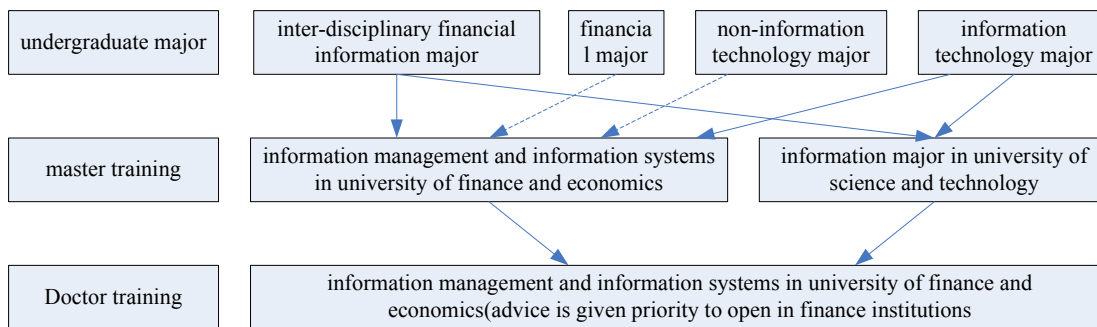
**Figure 2 : Figure of knowledge structure and ability transmission**

As shown in the chart, the interdisciplinary talents should be equipped with the following abilities. Firstly, it's the ability to develop and apply in service and produce innovation. In the post financial crisis period, the economy recovers gradually and people's living standard improves. Consequently, the requirements of financial clients change from time to time and interplinary talents who master financially informative knowledge are urgently needed to develop financial products which are safe, convenient and need low switching cost. The second is the ability to avoid risks of information technology. Risk management under whatever circumstances, is the key of finance. In the complex market of today, the ability of avoiding information technology risks can never be emphasized enough. The interplinary talents should be equipped with safeguarding measures in terms of software and hardware to get rid of the unsafe factors as much as possible. The third is the ability to decide based on information technology. The ability to get, organize and analyze data is required in the decision process. The data should be excavated deeply by all kinds of methods and skills. Last but not least, it's the ability to learn in the whole life. It asks the interplinary talents to grasp the most advanced knowledge of technology and finance and when change occurs, to react quickly accordingly.

**Training inter-disciplinary financial information talents needs to implement the following aspects**

The first aspect is the training level. As mentioned earlier, inter-disciplinary financial information talents can be trained in telecommunications engineering, software engineering, computer and other majors in university of science and technology, and also can be trained in information management and information systems in university of finance and economics. The goal of university of science and technology is to train "professionals", while the goal of university of finance and economics is to train "generalist." As shown in Figure 3, the academic education training for inter-disciplinary

complex financial information talents gives priority in the master stage, while undergraduate, doctor and grassroots are supplementary. It forms diversified and multi-level training mode whose emphasis on computer applications and financial practices practice. At the same time, it should build a complete and continuous practice teaching system, set up more complex programs and focus on the teaching application of case type and project type.

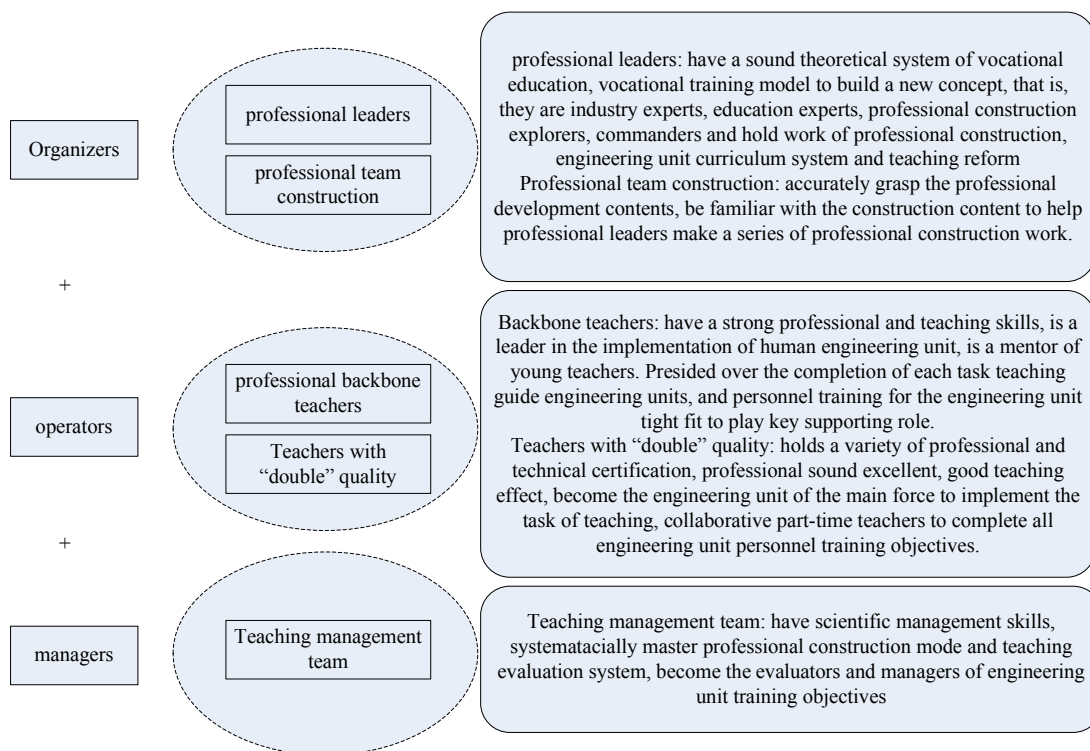


**Figure 3 : The academic education training path of inter-disciplinary financial information talents (Note: full line is for reasonable path and dotted line is for unreasonable path)**

**Training mode reform and innovation of the teaching staff: strengthening teaching construction of "double" quality**

From 2006 to 2009, China's Ministry of Education and Ministry of Finance started and implemented the "National Model Vocational College building program." After several years of development, as of 2010, China has established 100 backbone colleges, has formed a relatively complete professional training programs and curriculum, which greatly promoted the development of China's vocational education. This year has introduced a new policy to more than 600 undergraduate colleges once again transformed into a high-level vocational education institutions, focus on training engineers, training senior technicians, highly qualified workers, "technology" talent to become a hot topic again. Correspondingly, the "Double" Quality Teachers received the attention again.

As shown in Figure 4, in general, university teaching staff in China's colleges and universities includes organizers, implementers and managers. In addition, there are some colleges and universities will employ JO business or part-time teachers from the school community, co-founded a faculty of colleges and universities. This paper holds that, starting from the national macroeconomic policy, especially in the context of the financial crisis, the financial market is no longer just a lack of talent macroscopic theory to understand the theory of knowledge, more professional and technical personnel. The "professionals" training inseparable from the "dual role" quality of teachers, by strengthening the "Double" quality of teachers in the building, helping to train to meet the market demand, adapt to changes in the market of professional talent.



**Figure 4 : Constitution of teaching staff**

Currently, the "Double" quality of teachers teach mainly in vocational colleges, colleges and universities in order to make financial education more ground gas, more in line with market tastes, the urgent need to strengthen the financial "double" the quality of teachers. Article, you can take the following measures:

(1) We suggest establishing a multi-channel training mechanism. With the development of social production, the training of vocational teachers to improve their level of education is to follow the trend of the times. At present, Chinese universities especially financial Teachers in Higher Vocational Colleges Teachers 'lack of proportion in the two urgent requires to broaden the training channels, such as participation in business practices through the organization of teachers, learning at home and abroad to participate in forums, participate in relevant training, etc., improve teachers' double teacher knowledge and quality.

(2) Establish incentive mechanisms. The first is the material conditions of teachers should be linked to treatment and double division, to promote the rapid development of double teacher of teachers, improve their professional practice. Followed by the establishment of teacher exit mechanism for non-current financial professional dual-qualified teachers, given a certain period of time, to promote its conversion to double teacher of teachers, if the time limit has not been converted to double teacher teacher can dismiss. In this way, you can increase pressure on the non-dual teacher teacher and enthusiasm.

(3) Establish a double teachers' practice base. Through the establishment of off-campus practice base, strengthen cooperation with financial-related businesses, thereby improving teachers' practical ability to protect, truly dual division and corporate joint training teachers, improving the overall level of financial professional teachers.

### ACKNOWLEDGEMENT

The research is supported by Xi'an Social Science Planning Project "The Feasibility Study on the Construction of Western International Financial Center of Xi'an" (Grant No. 12WL05), the key subject project "Business Management" of Xi'an University of Arts and Science, Xi'an Social Science Planning Project "The Research on Opening Mode in Local Colleges and Universities under the Background of International Metropolis" (Grant No.12WL04), Xi'an Social Science Planning Project "Study on Suitable Specialty between Professional settings of Modern Service Industry Institutes and Colleges and Social and Economic Development in Xi'an" (Grant No. 12Y46).

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