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# Finance Meets the Internet

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**Abstract.** Since July, 2013, the outbreak of Internet finance has rapidly occupied the focus of the financial industry, Terms such as Ali Micro Credit, Financial 360, Renrendai, and Crowdcapitaling have become the hot words of the moment which has already exerted a greater impact on the original business models of traditional financial institutions such as banks, securities companies and insurance. Based on the theory of property rights economics, this paper clarified the relationship between the Internet, finance, and Internet finance from a theoretical perspective, and what is the essence of Internet finance? What changes and impacts has the Internet brought to traditional finance?

## The Development of Internet Finance

Human history has experienced three industrial revolutions so far: the steam technology revolution of the 1760s, the power technology revolution of the 1870s, the information control technology revolution that we are experiencing today which began in the 1940s(Refer to table one). Although the technologies that drive each industrial revolution are different throughout the three industrial revolutions, a common result is to reduce the cost of material and information transmission which shorten the distance between people that spawn new transaction model of production. Internet finance is a new financial business model based on the emergence and rapid development of information control technology.

Table 1. The three industrial revolution

| Field | The first industrial revolution | The second industrial revolution | The third industrial revolution |
|---|---|---|---|
| Historical time | 1760s ~19 century 40s | The early ~20 century in 1870s | From 1940s to today |
| Connotation | Revolution of steam technology | Electric power technology revolution | Information control technology revolution |
| Origin country | U.S.A | Germany, Britain, the United States, etc | The United States, the Soviet Union, China, France, etc. |
| Marking technology | Textile machines transform cotton spinning, steam engines transform transportation (Fulton invented ships, Stephen Sun invented steam locomotives). | The wide application of electric power (SIEMENS generator, Gram motor), the internal combustion engine change vehicle (Karl Benz invented the engine driven car, the Wright brothers invented the aircraft, the radio technology change communication means (Baer invent the telephone, Marconi invention radio) | Four new formats: intelligent manufacturing, interconnected manufacturing, customized manufacturing, green manufacturing (electronic computers and Internet, cloud computing, large data, Internet of things, new energy technology, new materials technology, biotechnology, space technology, and marine technology) |
| Result | Bring up the city core area and the factory | The birth of the real estate industry and the industrial prosperity | Four major democracies: Democratization of management, democratization of finance, democratization of information and democratization of industry. |

Integrating existing literature data, Internet finance usually is seen as a combination of traditional financial industry and modern information technology which with the representative spirit of "openness, equality, collaboration, and sharing", with the representative major forms in the traditional finance online, the Internet penetration of enterprise and the financial performance of ecosystem, with emerging field of payment methods, information processing, and resource allocation as the core models.

## The Essence and Features of Internet Finance

### The Theoretical Framework of Property Economics

In the analysis system of property economics, the essence of any phenomenon of economic activity is transaction which is the exchange of property right, namely the allocation of resources. The transaction cost determines the contract form and the choice of the organization structure, the reality contract forms such as market contracts, relational contracts, and vertical integration all are the result of adaptation to transaction costs, while asset specificity, transaction frequency, and uncertainty and other aspects are important dimensions in determining transaction costs. Specifically, the minimization of transaction costs is the sole criterion for the selection of governance structure (Williamson, 1979). The premise of the transaction is that the revenue generated by the transaction is higher than the corresponding transaction cost. Half a century ago, Hayek (1945) pointed out the influence of the specialization of knowledge and the separation of knowledge on resource allocation efficiency. He pointed out in this paper that any individual in the social and economic life is impossible to master all the knowledge about some kind of resource use, therefore a set of antigenic spontaneous social economic order whose goal is to achieve the optimal allocation of resources is necessary to solve the problem is how to use knowledge effectively, which means how to ensure that individuals who have mastered the most important knowledge can govern the use of such resources to maximize its value. Therefore, increasing the efficiency of resource allocation requires more people to participate in the transaction while reduce the transaction costs as much as possible.

### The Essence of Financial Industry

The nature of finance is the integration of capital that is the investors need to provide the capital needed by the financiers, and at the same time obtain the transaction process of the reward and revenue of the financiers. It requires at least two conditions in completing such transaction successfully: First, the investment and financing parties can make a reasonable measurement of the value of the transaction within the acceptable margin of error. Second, investment and financing can find or come to feasible measures to ensure that each transaction can implement its own rights: Financing parties can freely use capital within the agreed scope, and investors can receive corresponding reward according to prior agreements. While in order to realize the cost incurred in the above two conditions, the transaction costs cannot exceed the revenue generated by the transaction. We know that the three main dimensions affecting transaction costs in the analysis of this paper are the degree, frequency, and uncertainty of transaction specificity; however the root of the three dimensions is the information asymmetry between the parties. Taking the traditional financial credit business as an example, there are differences in the information owned by the borrower and the loaner. Compared with the capital provider, the funders has more information about the risks and benefits associated with the project to be financed, when investors are in an informational disadvantage, it faces great uncertainty in measuring the value of the loan which leads to high measurement costs. This moment rational investors will make adverse selections to protect their interests as far as possible. At the same time, both investors and financiers may have moral hazard due to difficulty in supervising their performance after contracting: investors will delay or incompletely fulfill the obligations provided by capital, and financiers may become lazy or change the way in the use of capital, they may seek more benefits for themselves by using the information advantage of their own behavior. The difficulty in measuring pricing in the transaction process caused by the financing party's information advantage relative to the investor will inevitably lead to adverse selection. George A. Akerl of pointed out "Lemon Market: Product Quality Uncertainty and Market Mechanism" in the article, adverse selection will result in bad currency expelling good currency, in extreme circumstances, the transaction will stop shrinking and does not exist; and the existence of moral hazard makes the parties to the transaction have great uncertainty about the future behavior of the other party's choice, which in turn leads to high execution costs. Therefore, the existence of information asymmetry will eventually lead to the rise of transaction costs which seriously will make the transaction disappear, financial markets will promote capital financing, and the role of resource allocation will not be fully realized. Thus, we have seen the emergence of banks which have a stronger ability to collect and process information, as well as monitor the ability of financiers to implement loan contracts as professional financial intermediaries, and because of the existence of economies of scale, banks have obtained Earnings can make up for the costs of collecting pricing related information and supervising execution.

In conclusion, from the economics of property rights, as shown in figure one, the essence of the financial industry is to reduce the transaction costs caused by the information asymmetry due to both parties of the financing process and promote the realization of the transaction between the two parties and thus improve the efficiency of society resources allocation, while other intermediary and financial services such as capital management, investment banking, payment, insurance, and financial management all extend around this essential function, or it's all about the transaction governance model that is based on the ultimate goal of reducing financial transaction costs of the objective transaction environment.

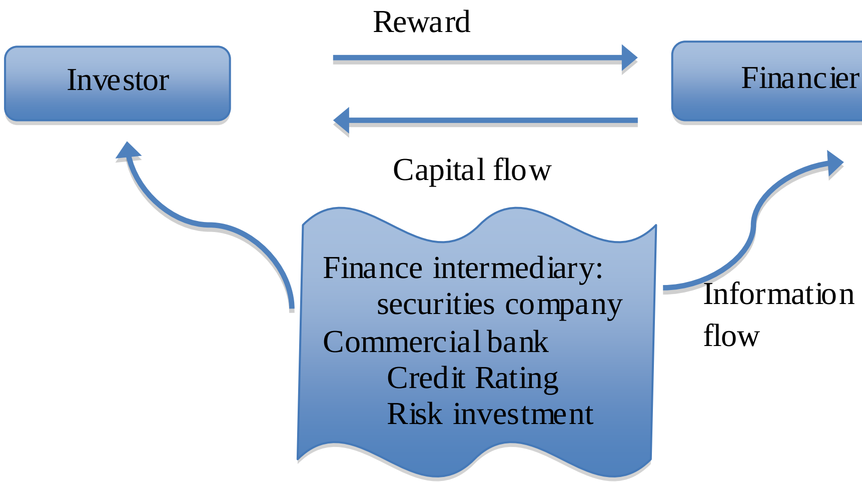


Fig1. Figure one the essence of financial industry

## The Essence of Internet Finance

When finance meets the Internet, what changes have happened? What new features have emerged?

### The Connotation of the Internet

Internet is also known as the Internet, or transliteration of the Internet, is a vast network of networks and networks that are linked together by a common set of protocols to form a huge logically large international network. This method of interconnecting computer networks with each other can be referred to as "network interconnection." On the basis of the developed covering global Internet is the Internet around the world which is connected with the network. The Internet is only an innovation of network technology in its essence, but it has an inestimable and important influence on all aspects of human life and even the development of society which bring the biggest and most fundamental change in communication, interaction and information transfer between people; It can exchange information without space constraints; information exchange is time-domain (fast update) which is interactive (people and people, and people can interact with information) and low cost (through information exchange, instead of physical exchange) while tending to be personalized development (easily to meet everyone's personalization demand);Moreover, it has numerous users, valuable information integrated by resources which is stored in large quantities, efficient, and fast; and it can exist in many forms (videos, pictures, articles, etc.).In a word, we can move beyond the limitations of time and space to reach out to other individuals and to send and receive all kinds of information, and all the changes that the Internet brings to our lives are derived from this.

### The Features of Internet Finance

The features of Internet finance, or to put it another way: What did the Internet bring to finance? The answer can help us make a painstaking investigation of the essence and features of the Internet finance which can help us better understand and analyze the impact of the Internet on the financial industry. In general, the Internet provides a more convenient platform for the communication of people and a more convenient and rapid channel for information transmission. In detail, the Internet has brought following financial features: extremely low transaction costs and more effective big data analytical methods, Renren organization and the effectiveness of bilateral platforms which all have spurred the financial capital transactions and brought about the prosperity of Internet finance today.

Table 2. Chart one the features of Internet finance

| The features of Internet finance | Connotations |
|---|---|
| Low cost | There is no need for traditional online stores, manpower, marketing, etc., the cost of acquiring customers and their information was significantly reduced. The Internet and mobile Internet has not only further reduced the explicit economic costs, but also reduces the hidden costs, including time cost, and significantly increased the availability of information and services. |
| Big data | Internet finance has the ability to acquire customers and all aspects of their information at low cost, so it can quickly build up the information advantage of big data thus three-dimensionally “characterizing” customer characteristics and can solve "longer" customer which core is the core issue of "information asymmetry" costs than traditional finances, and it exerts the essential functions of the financial industry. |
| Renren organization | The rise of Renren organization further makes transform into a “personalized financial service” became possible among individual financial asset transactions and services which help build big data. |
| The effiency of platform | Through shopping, socializing, and paying for Internet access to pool users and capital to form a platform to serve users by using big data. The increasing of users also help further improve the platform's service functions which resulting in bilateral externalities. |

### Internet-Based Financial Thinking

As mentioned above, financial and the Internet brings down the cost of financial transactions. How to use the Internet to promote financial development first requires financial practitioners to change the traditional mode of thinking and accepts new "Internet thinking." This is the most popular vocabulary at present. Although the concept of its definition has not yet formed a consistent statement, the so-called Internet thinking is to accept the impact of the Internet on the traditional financial business model, actively understand the essence of the Internet and its impact on the financial industry, at the same time in the process of designing from the business model, we has consciously incorporated the influence of the Internet into its own thinking system and fully utilized its features to form its own competitive advantage. At the moment we believe that at least three Internet-based thinking dimensions should be remembered by financial practitioners.

**Platform Competition Becomes the Core**

The bilateral platform will be at the core of competition in the Internet finance. The reason is that :First ,the platform is the only sustainable source of data monopoly capabilities, but data resources are the core of future financial business competition. Second, Through the platform, companies can keep close contact with customers. Third, The platform has obvious natural monopoly which leads to new financial game rules for winners take all.

We can see that the banks that firstly suffered from the Internet financial crisis have realized the importance of the platform and have begun to gradually build their own financial e-commerce platforms such as China Merchants Bank and Ping An Bank, and so on. The intention of Internet companies to enter the financial sector by relying on platform advantages is also very clear. To get the platform, get the world. Having a strong platform not only can significantly reduce the transaction costs of existing financial services, but more importantly, the big data accumulated by the platform is a fertile ground for various financial innovations.

**Winners Take All**

Under the traditional financial model, because of the high transaction costs, the market is fragmented, the market share of competing players is relatively decentralized, and most organizations only have a share. However, the competitive structure under the Internet finance will be completely different, the economies of scale on hardware and software, as well as the natural monopoly of platforms and big data, will make the 70-20-10 law fully play its role in various subdivided areas thus forming winners takes all. In other words, financial institutions that have no weaknesses or unique advantages will struggle in Internet finance. Based on such a shift in thinking, practitioners in the securities industry are necessary to adopt a more differentiated strategy which is exploring and forming their own competitive advantages in existing businesses, while actively exploring new businesses to seize new segments of financial markets.

**Cross-Border Competition**

The introduction of new technologies and new business models have led to a blurring of the boundaries between financial and Internet companies, financial industry segments under the Internet finance model. Because of the role of Novig's law one, the dominant Internet companies' entry into the financial industry with a significantly higher ROE will continue, The weakening of the new economic model created by the Internet has lowered the barriers to enter in the financial industry and various sub-sectors. Those all mean intense cross-border competition. The increasingly intense cross-border competition in the future will significantly intensify the competitive pressures in China's financial industry. Financial institution practitioners cannot simply defend their existing businesses, and they need to have more open horizons to strengthen cooperation with different financial entities to be the winners in the future competition.

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