

The Role of Financial Technologies in the Global Economy

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ABSTRACT

The article analyses the global trends in the development of financial technologies, and their role in the development of global economy. We tried to research the existing trends in the development of financial sector and highlight the nature of the new-coming innovations.

KEYWORDS: *financial technologies, innovations, venture funds, angel investors, global economy*

INTRODUCTION

Today the role of innovation is enormous in the rapid economic development. Especially, services sector is thirsty for new ideas. Even though services are increasingly dominating the world economy, contributing over 70% of employment in OECD countries and 58% of worldwide gross national product¹, relatively small number of systematic research work has been carried out on service innovations. In general, innovation is seen as a persuasive avenue for organizations to create value and competitive advantage². With the growth of services in organizations and economy, attention has been focused on innovation in the context of services over the last two decades³. One of the leading service innovator -the Catalan restaurant El Bulli, named for several years amongst the world best restaurants and famed as a radical innovator in the sector, developed over time as one component of a broader platform of activities which included upstream collaborations with the science base as well as downstream interactions, amongst others, with food manufacturers and the hospitality sector⁴.

The process of economic digitalization further enables world economy to expand through service innovations. Here the role of emerging financial technologies (fintech) is crucial as they have the potential to enhance economic productivity and ultimately foster a more inclusive and resilient financial system. Policymakers may play a key role in unlocking the benefits of financial innovation, while seeking to safeguard a level playing field for market participants, consumer and investor confidence, trust and overall resilience in the financial system⁵.

¹ Baltacioglu T, Ada E, Kaplan MD, Yurt O, Kaplan YC (2007) A new framework for service supply chains. *Serv Ind J* 27(2):105-124

² Pitelis CN (2009) The co-evolution of organizational value capture, value creation and sustainable advantage. *Org Stud* 30(10):1115-1139

³ Chan A, Go FM, Pine R (1998) Service innovation in hong kong: attitudes and practice. *Serv Indus J* 18(2):112-124

⁴ Chesbrough, H., 2011. *Open Service Innovation: Rethinking Your Business to Grow and Compete in a New Era*. Jossey Bass, San Francisco, CA.

⁵ G20/OECD High-Level Principles on SME Financing, <https://www.oecd.org/finance/G20-OECD-High-Level-%20Principles-on-SME-Financing.pdf>.

The concept of fintech has matured greatly since its inception. Early innovation area such as payments and lending have seen strong maturation, with more established fintechs (businesses applying new financial technologies) now looking to move beyond niche markets to offer adjacent services and, in some cases, full stack solutions. For example, Europe has seen a number of fintechs (e.g. Klarna, Zopa and Revolut) apply for banking licenses in order to expand their product offerings. Meanwhile, countries such as Australia and the US are mulling the introduction of fintech-focused banking licenses, which could spur investment over time should they move forward⁶. The Financial Services industry is transforming with the emergence of innovative new products, channels and business models. This wave of change is primarily driven by evolving customer expectations, digitalization, as well as continued regulatory and cost pressures.

In recent years the rise of fintech in the developing countries has contributed to the faster expansion of digitalization and development of financial system. If we look into the situation in former Soviet republics, we can observe attempts to leapfrog into innovational economy. Crowdfunding has already gained significant traction in a growing number of emerging economies, including in some African countries where credit constraints are particularly severe. These early successes suggest that there could be considerable potential for fintech to enable these economies to leapfrog to a financial system where entrepreneurship and innovation may thrive⁷. It has become obvious that without resilient and effective financial system, it is hard to imagine creating national innovation system. The experience of China, India and Singapore shows that balanced growth of financial services with industrial growth, R&D, development of education system and other areas may create opportunity to foster national innovation system.

Literature Review

Interestingly, a service approach to business is not limited to subsectors of the economy that are classified as services in standard industry statistics. Services are also economic activities that can be performed by product-based businesses. Several manufacturing firms are significantly expanding the range of services they provide in combination with their core products as a way to enhance value creation and customer retention opportunities. Companies such as IBM, Xerox, and Rolls Royce now derive growing shares of their total revenues from service activities, although they are not considered as service businesses, and they often develop

⁶ The Pulse of Fintech Q4 2017. Global analyses of investment in fintech. P.5

⁷ L.Casanova, P.K.Cornelius, S.Dutta –“*Financing entrepreneurship and innovation in Emerging Markets*”. P.22

their service profile by partnering with external knowledge sources⁸.

Another point of view in support of the assumption that resilient financial system can foster innovational companies is difficulties of financing startups in their early stages of development in emerging economies, where financial system is not diversified as it is in the advanced economies. Unless startups have sufficient tangible assets to pledge as collateral, bank loans are generally not available to them. Even if they have such assets, banks in emerging economies are often reluctant to lend in the absence of sufficient credit information and ill-defined legal rights pertaining to secure transactions. Not surprisingly, therefore, loan-to-GDP ratios in these economies generally fall far short of those in advanced economies, suggesting that a significant number of companies are underserved or even unserved by banks and must rely on their founders' resources or those of friends and family. Unless external finance becomes available, startups are unable to grow and reach the stage where they become profitable due to the limited and unpredictable nature of these resources. While startups in advanced economies face the same challenge, they are more likely to be able to bridge the so-called Valley of Death by tapping into alternative funding pools, such as angel investing, venture capital, and emerging forms of financing. As with their banking systems and organized financial markets, most emerging economies' alternative funding pools have yet to achieve similar penetration levels to advanced economies⁹. So new types of financing such as crowd-funding, angel investing and other forms assist potential startups to grow to the self-sustaining level. However, the attractiveness of emerging economies for angel investors or incubators is low because of poor infrastructure, high level of corruption, low level of transparency in financial transactions and other negative factors. But continuous development of science and technology through state programs carefully designed for the development of innovative activity has proved to be effective in the example of China and India. The wide range of S&T policies that China has implemented and adjusted in the past three decades has directly affected its innovation outcomes. From 2002 to 2012, China's GDP more than quadrupled, leaping from \$2 trillion to \$8.7 trillion. The data reveal that these policies have effectively advanced the development of an innovation ecosystem; they have also brought about a large, educated workforce, laying a solid foundation for the future development of innovation capacity in the country¹⁰.

India has developed a stable foundation for scientific, technological, and business education by setting up centers of excellence such as the Indian Institutes of Science (IISc), the Indian Institutes of Technology (IITs), and the Indian Institutes of Management (IIMs). Admission to these premier Indian institutions has consistently been competitive, with a 50 to 1 application to admitted student ratio for IITs¹¹. In

⁸ A.Mina, E.B.Bascavusoglu-Mareau, A.Hughes-Open service innovation and the firm's search for external knowledge

⁹ L.Casanova, P.K.Cornelius, S.Dutta – "Financing entrepreneurship and innovation in Emerging Markets". P.14.

¹⁰ L.Casanova, P.K.Cornelius, S.Dutta – "Financing entrepreneurship and innovation in Emerging Markets". P.73

¹¹ Basu, S.D., 2014. Race to IITs just got tougher; number of candidates who qualified in JEE advanced 6,360 more than last year. The Economic Times, 20 June. Available at <http://articles.economictimes.indiatimes.com/2014-06->

addition, 150 to 1 ratio of applications to admitted students for IIMs. This competition for admission is even fiercer when compared to admission rates in the top U.S. schools such as the Massachusetts Institute of Technology (MIT), where the applicant to admitted ratio stands at around ten to one¹². This competitive landscape and the increasing number of strong students have provided India with a natural advantage, positioning its top institutions as some of the best in the world. Average scores at top universities have been in India's favor for a superior innovation ranking, not only among its peers but also among all nations¹³.

Financial development is a critical and inextricable part of the economic growth process. Well-functioning financial systems help mobilize savings, promote information sharing, improve resource allocation, and facilitate diversification and risk management¹⁴. Recent research shows that the relationship between finance and growth is probably nonlinear, there is substantial evidence that financial development significantly boosts economic growth in the earlier phases of the development process following a virtuous cycle: financial development encourages savings, which in turn fosters real activity, and as real activity expands, finance grows in response to increasing demand for its services from the nonfinancial sector¹⁵.

Analysis

Advancements in digital finance affect other areas, too. For instance, entrepreneurs can more easily access capital from friends and family over longer distances, even overseas, due to technological progress in money transfer services. At the same time, new forms of financial intermediation have emerged thanks to increased investments in financial technology (fintech). While consumer lending dominates the crowd-funding market, business lending is the second largest category measured by transaction amounts.

20/news/50739176_1_1-26-lakh-students-jointentrance-exam-iit-seat.

¹² PwC (PricewaterhouseCoopers), 2012. India—Higher Education Sector: Opportunities for Private Participation. Available at

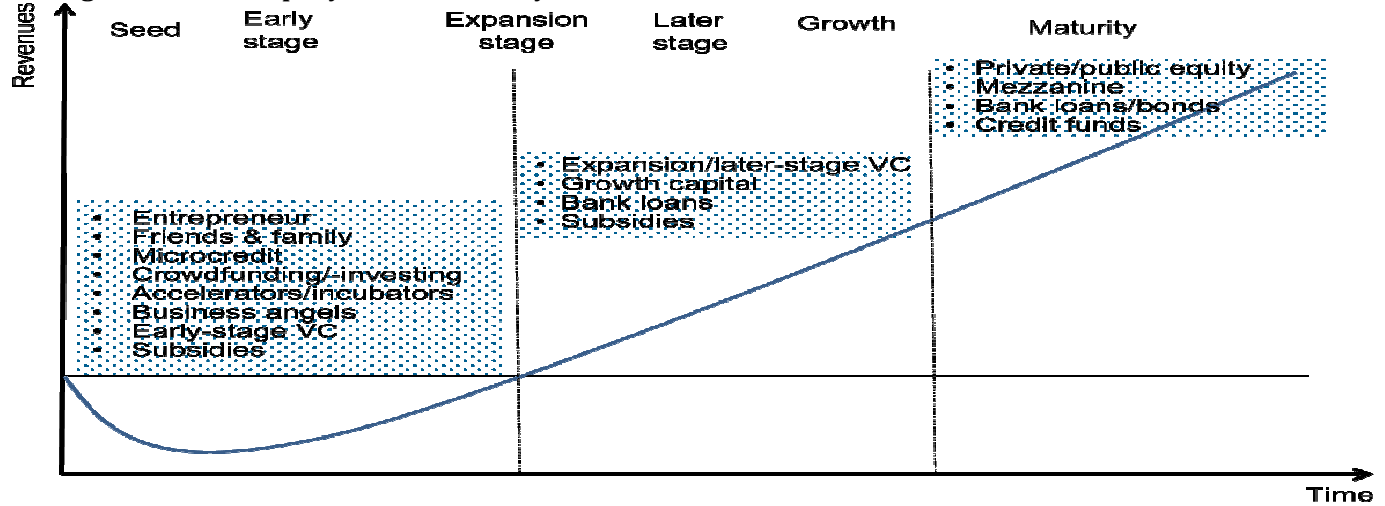
https://www.pwc.in/en_IN/in/assets/pdfs/industries/education/services.pdf.

¹³ L.Casanova, P.K.Cornelius, S.Dutta – "Financing entrepreneurship and innovation in Emerging Markets". P.121

¹⁴ Levine, R., 2005. Finance and Growth: Theory and Evidence. In: Aghion, P., Durlauf, S. (Eds.), Handbook of Economic Growth. Elsevier Science, Amsterdam, pp. 866–934.

¹⁵ Sahay, R., Cihak, M., N'Diaye, P., Barajas, A., Bi, R., Ayala, D., Gao, Y., Kyobe, A., Ngyyen, L., Saborowski, C., Sviryzdenka, K., Yousefi, S.R., 2015. Rethinking financial deepening: stability and growth in emerging markets. IMF Staff Discussion Note, SDN/15/08. International Monetary Fund, Washington, DC.

Funding sources of company over their life cycle



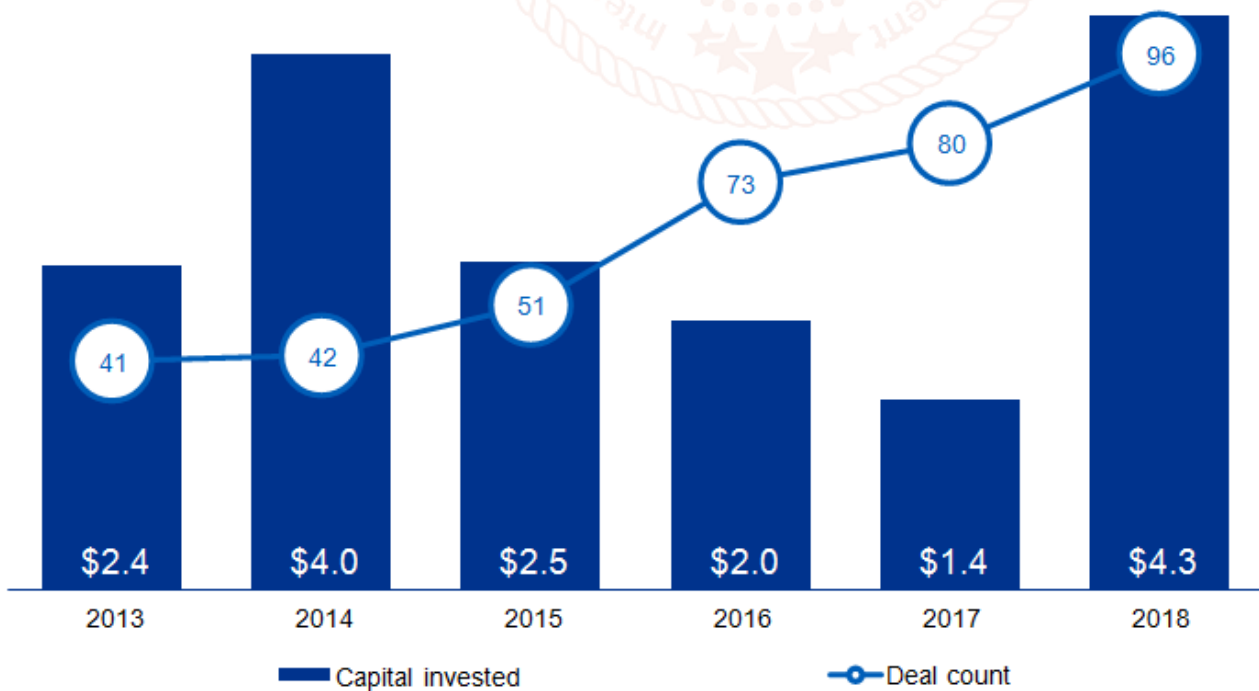
Source: L.Casanova et al – “Financing entrepreneurship and innovation in Emerging Markets”. P.15

There is only a loose correlation between economic prosperity and the proportion of external funding of firms’ investment expenditures, suggesting that other factors also play a role. One such factor is regulation. Using data from more than three million firms across Europe, Klapper and others found that compliance with superior accounting standards and property rights protection is associated with improved access to external finance and has a positive effect on firm entry and growth¹⁶. Given startups’ contribution to innovation, it is not surprising that the World Bank’s “Doing Business” reports have long advocated financial sector reforms as a prerequisite for easier access to entrepreneurial finance and hence technological progress and economic growth.

Mobile and digital technologies facilitate payment transactions by providing easy access to digital wallets, and users, especially those in remote areas, may save considerable travel time and cost, and reduce the risk of theft. At the same time, these technologies provide access to a broader range of digitally delivered financial services. These services include savings accounts, and to the extent that households switch from cash and other forms of savings to digital bank accounts, financial intermediaries’ ability to provide loans to individuals and companies increases.

Banks are usually reluctant to lend to startups that have few, if any, tangible assets, little repayment history, and negative cash flows. This is true in the United States and other advanced economies; for startups in emerging economies, this challenge is often insurmountable.

Global PE (private equity) activity in fintech 2013-2018



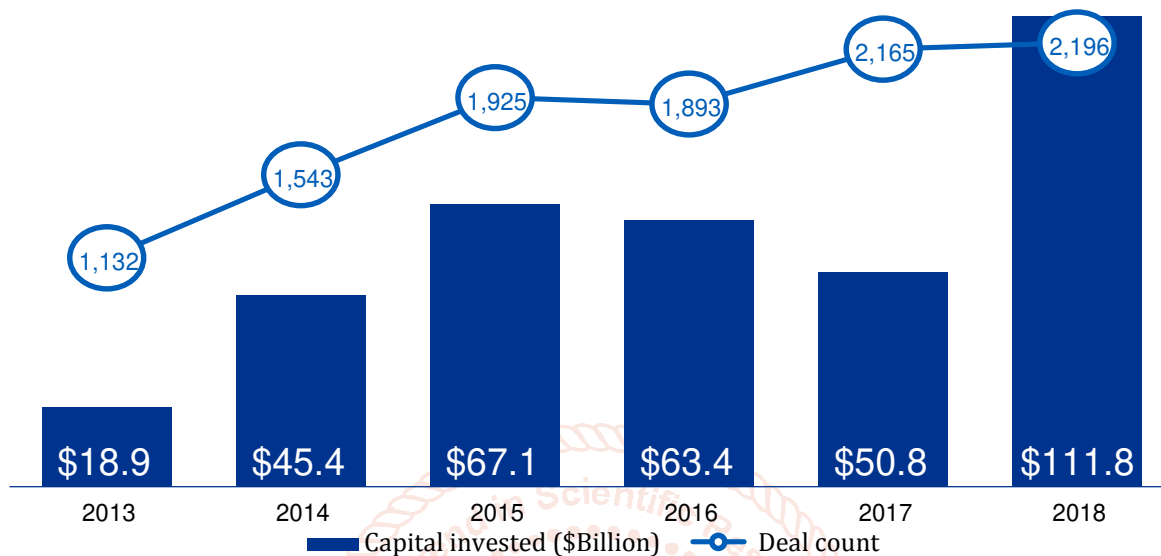
Source: Pulse of Fintech 2018, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook) January 4, 2019.

Among the general M&A cycle, financial sponsors’ activity is most intriguing to unpack, as it often lags both venture

¹⁶ Klapper, L., Laeven, L., Rajan, R., 2006. Entry regulation as a barrier to entrepreneurship. J. Financ. Econ. 82 (3), 591–629.

As a result, the success of entrepreneurial firms often depends on whether they are able to find external investors willing to fund their projects. In this chapter, we look at the role that independent venture capital (IVC) firms can play in connecting entrepreneurs who have good ideas, but little capital, with investors who have money and are looking for good ideas. Investors in IVC funds are generally institutions, such as endowments, foundations, pension funds, and sovereign wealth funds (SWFs), whose commitments to IVC funds are motivated by expected financial returns. These investments should be distinguished from corporate venture capital groups (CVC) that invest in startups to complement their internal Research and Development (R&D) programs usually driven primarily by strategic considerations.

Total Investment activity (VC, PE, M&A) in fintech 2013-2018



Source: Pulse of Fintech 2018, Global Analysis of Investment in Fintech, KPMG International (data provided by PitchBook) January 4, 2019.

Note: refer to the Methodology section at the end of the document to understand any possible data discrepancies between this edition and previous editions of The Pulse of Fintech.

Venture capital (VC), IVC, as well as CVC are exceptional sources of entrepreneurial finance; very few startups are backed by VC funding. In the United States, the cradle of venture investing and by far the deepest VC market worldwide, only about one startup firm out of 500 receives venture capital. On the other hand, those companies that do receive VC funding make up a disproportionately large share of companies that undergo initial public offerings (IPOs). Of all the U.S. companies that made it to the public stage between 1980 and 2015, 37% were VC-backed; for technology IPOs, this ratio was 58% (Ritter, IPO database, 2016). Gornall and Strebulaev (2015) estimate that public companies in the United States that previously received VC funding account for one-fifth of the market capitalization and 44% of the R&D spending of U.S. listed companies¹⁷. This set of companies includes some of the world's largest and most innovative companies, such as Adobe Systems Inc., Amazon.com Inc., Apple Inc., Cisco Systems Inc., eBay Inc., Facebook Inc., Genentech Inc., Google (Alphabet Inc.), Microsoft Corp., Skype, and Yahoo! Inc. While all these companies are publicly listed, venture capitalists have also funded today's "unicorns"—tech companies such as Uber Technologies Inc., Airbnb Inc., Palantir Technologies Inc., and Pinterest Inc. that are still privately held but whose

valuations have already reached \$1 billion or more. Thus, although VC funding is small, its macroeconomic impact is significant.

Venture capital funds typically focus on funding tech startups in two broad industry groups:

- 1) Information Technology (IT)
- 2) medical/health/life science.

Investments in startups operating in these areas accounted for 88% of all VC deals in the United States in 2015, although these sectors represented less than 20% of U.S. GDP.

A key concern for foreign VC firms venturing into emerging markets has been the legal protection of their investments. Lerner and Schoar found that in structuring deals in low-enforcement countries, venture capitalists have often relied on equity and board control as opposed to convertible preferred stock with covenants, a more common form in high-enforcement countries¹⁸. At the same time, foreign VC firms have put significantly more emphasis on implicit relationships. Such relationships played a particular role in syndicated transactions with local venture capitalists in countries where an indigenous VC industry had already emerged¹⁹.

¹⁷ Gornall, W., Strebulaev, I.A., 2015. The economic impact of venture capital: evidence from public companies. Unpublished Working Paper. Stanford University. <https://www.Gsb.Stanford.Edu/Faculty-research/working-papers/economic-impact-venture-capital-evidence-public-companies>.

¹⁸ Lerner, J., Schoar, A., 2005. Does legal enforcement affect financial transactions? The contractual channel in private equity. *Q. J. Econ.* 120, 223–246.

¹⁹ Allen, F., Song, W.-L., 2003. Venture capital and corporate governance. In: Cornelius, P., Kogut, B. (Eds.), *Corporate*

While VC funding of startups in Brazil, Russia, and several other emerging economies also rose during this period, the increase in investments outside of China and India was significantly more moderate. Chinese and Indian entrepreneurial firms absorbed around 95% of all VC investments in emerging markets in 2014–16. As a result, their economies are substantially more deeply penetrated than their peers at a similar stage in their development process. In fact, Finland, Singapore, the United States, and Israel, which are classified by the Global Competitiveness Report (GCR) as innovation-driven economies, are the only countries that are similarly deeply or even more deeply penetrated than China and India.

The literature suggests a variety of factors that may help explain cross-country differences in VC investing. Lerner et al. (2009) tested these hypotheses in a large cross section of countries. Their results were consistent with the arguments of Black and Gilson (1998) and the findings of Jeng and Wells (2000): functioning local financial markets for VC investments are important, as they provide an exit route for VC investors via IPOs. Further, Lerner, Sorensen, and Strumborg found that minority shareholder rights are important for VC (as well as growth equity) deals. This finding is consistent with the exit story, in the sense that for new minority shareholders to buy stock in an IPO, it is critical that their rights are adequately protected. However, in contrast to what might be expected, the authors find little evidence for the hypothesis that barriers to entrepreneurship undermine VC investments.

Finally, VC has gained traction in Africa, as mobile and Internet penetration has increased. In Nigeria, the most populous African country, 77% of the population uses a mobile phone, while 43% have access to the Internet (ITC; data refer to 2015). In Kenya, penetration rates are similar, while South Africans and Egyptians have on average more than one mobile phone per person. Not surprisingly, e-commerce is increasingly popular, opening up new investment opportunities. A good example is Jumia, a Cairo-based online retailer specializing in electronics, fashion, home appliances, and children's items especially for the Nigerian market. Founded in 2012 by three individuals, it now employs more than 1000 people.

Conclusion

Bright and Hruby (2015) argue that the term 'e-commerce' should be replaced by 'm-commerce' in Africa, as so much of local e-commerce comes from activity on mobile devices. In fact, African countries are leading the world in the development and use of mobile money. Probably the most significant innovation has been M-Pesa, a mobile phone-based money transfer and financing service that was launched in 2007 by Vodafone Group L.L.C., for Safaricom, Ltd. and Vodacom Group, Ltd., the largest mobile network operators in Kenya and Tanzania. Since its launch, M-Pesa has expanded to several other African countries, as well as Emerging Asia and Emerging Europe. Today, there are tens of millions of users who are able to transfer money to other users, pay bills, purchase goods and services, save, earn interest, and borrow, all from a basic mobile phone. While M-Pesa has revolutionized financial services in emerging

markets, there are substantial opportunities for Internet-driven growth and productivity in other sectors as well. The transformative potential of the Internet in Africa is particularly large in education, health, agriculture, government, and retail (McKinsey, 2013). Although retail may attract the greatest interest from venture capitalists, other sectors may also benefit from an emerging VC industry in Africa.

Below in figure 1 one can observe upward trend in the number of deals on investments in emerging methods of finance. In 2018, the total investments amounted 111 billion dollars, which is a great breakthrough relative to previous years. As the world economy is on the way of digitalization, the number of venture capitalists, angel investors will probably rise in future because of increasing market demand for capital.

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