



The Impact of Fintech on Investment Banks

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Abstract. With the development of the times, emerging technologies such as big data and artificial intelligence are widely used in traditional industries, including traditional financial services. The combination of finance and emerging technologies has spawned the new financial tool known as fintech, providing continuous support for the investment banking operations of major institutions. This article will take the perspective of investment banks to focus on the impact of financial technology on the inclusiveness of investment banking services, information processing efficiency, and business capabilities centered on due diligence and target valuation. It will provide a thorough analysis of the influence of financial technology on investment banks, using specific examples from Goldman Sachs' Marcus online lending platform, JPMorgan's COIN system, and Huatai United Securities' INSGHT service. Research has found that financial technology can significantly enhance the inclusiveness of investment banking operations, greatly improve the efficiency of information processing in investment banks, increase the efficiency and accuracy of due diligence, and diminish the impact of off-balance-sheet factors on asset valuation. The conclusion is that the widespread use of financial technology in investment banking will be an irreversible trend.

Keywords: Investment Banks, Financial Technology, Digital Transformation.

1 Introduction

Scientific and technological innovation has always been the primary driving force behind economic development. With the advancement of technology, emerging technologies such as big data and artificial intelligence are widely applied in traditional industries, providing strong development momentum for them. For example, with the assistance of internet platforms, offline physical sales are gradually transitioning to online platforms, significantly enhancing the breadth and depth of sales; by leveraging artificial intelligence, many companies have developed intelligent customer service systems, thereby reducing labor costs; through big data and cloud computing, companies can easily obtain user profiles, thus better targeting potential customers and improving marketing efficiency. Furthermore, the financial sector, as the economic hub of the country, has also been empowered by advanced technology. Among these, financial technology has emerged as a new star in the contemporary financial market.

FinTech refers to the industry sector that transforms or optimizes traditional financial services through technological innovation. Its core involves the use of cutting-edge

technologies such as artificial intelligence, blockchain, big data, and cloud computing to enhance financial efficiency, reduce operational costs, and create new business models. Being a conglomerate of technological innovation, fintech, as an emerging concept, has injected new vitality into major financial institutions, especially investment banks. In fact, the combination of science and technology with investment banking is not a completely new concept. For instance, when China's securities market was established in the 20th century, Chinese stock exchanges utilized digital technology for information processing, transmission, and matching, facilitating the automation and digitization of trading. However, there are some shortcomings in the in-depth processing of information [1].

With the development of financial technology, the securities industry has also encountered new opportunities in the current era. It has been pointed out that the investment and financing ecology of the capital market will be profoundly altered by the application of new technologies such as big data, cloud computing, artificial intelligence, and blockchain [2]. For example, the traditional financial industry cannot separate itself from trading institutions that serve as transaction centers. However, with the introduction of blockchain, the trading and issuance of securities can be conducted without intermediary institutions, significantly enhancing the flexibility and simplicity of financial markets, thereby improving market efficiency [3]. Whether it is data analysis and processing, the generation of market trend visuals, or the collection of information prior to investment, financial technology is capable of handling all these tasks, significantly transforming the operating and development models of the financial industry.

However, current research primarily focuses on the macro impact of financial technology on the overall financial industry, or on the specific applications of technologies such as big data and artificial intelligence within investment banking. There has not yet been an analysis of the impact of financial technology itself on the entire investment banking industry. This article will address the limitations of previous research on financial technology, using specific case studies to discuss the impact of financial technology on the investment banking business from the perspective of investment banks. The following text will be divided into three parts: an analysis of the new developments in investment banking empowered by financial technology, focusing on the inclusiveness of investment banking, the efficiency of information processing in investment banking, and the due diligence and valuation of assets required for investment banking operations.

2 Enhancing the Inclusiveness of Investment Banking Services

The inclusiveness of finance can be simply understood as the degree of ease with which individuals or enterprises can access financing [4]. The higher the inclusiveness of finance, the easier it is for individuals or enterprises to obtain financing.

Under the traditional financial model, the asymmetry caused by the difficulty in obtaining information often leads investment banks to struggle in accurately identifying the actual value of enterprises, which can result in overestimations or underestimations,

consequently leading to various investment risks. This has an adverse impact on investors, investees, and financial intermediaries involved in investment activities.

For investors, due to information asymmetry combined with risk aversion, they may forgo some high-quality investment opportunities, and they may also fall into the risk of adverse selection due to limited understanding of the true state of the enterprises [5].

For financiers such as individuals or small and micro enterprises, those who in urgent need of funds may find it difficult to obtain timely financial support due to the investors' hesitation or even refusal, thus falling into a predicament of financial risk. This situation is relatively common in the rural economy [6].

For financial intermediaries, such information asymmetry will also result in their inability to provide timely and accurate services to clients, thereby increasing the potential costs of financial intermediaries.

Due to information asymmetry, inclusive finance finds it difficult to balance the "universal accessibility of financing", "affordability of financing costs for borrowers", and "safety of investors' assets", which constitutes the "impossibility triangle" of inclusive finance. It is precisely because of the existence of this impossibility triangle that investors and investment banks tend to invest in enterprises that are already of considerable scale, significantly limiting the inclusiveness of finance.

However, with the aid of technologies such as big data, investment banks can collect corporate information more efficiently, quickly, and at a lower cost than before in the context of corporate information disclosure. This addresses issues of low efficiency and high costs in information collection, potentially enhancing the inclusiveness of investment banking services [7]. At the same time, leveraging financial technology, investment banks can enhance the efficiency of resource allocation while indirectly reducing financing costs by minimizing investment risks arising from information asymmetry. By fully utilizing government data, financial data, corporate operational data, and internet behavioral data, financial technology can accurately assess the risks of borrowers and create precise profiles, thereby enhancing the credibility of borrowers, lowering the barriers to entry for inclusive finance, and allowing more individuals or small and medium-sized enterprises the opportunity to receive assistance from investment banks, thereby improving financial inclusivity [8].

In addition to breaking the 'impossible triangle' of inclusive finance, financial technology can also assist investment banks in enhancing service offerings, improving service quality, and meeting the personalized needs of different clients. For example, Goldman Sachs launched the Marcus online lending platform in 2016. The interest rates and terms of the loans are determined solely based on the customer's credit, allowing individuals to obtain loans ranging from \$3,500 to \$30,000 for a term of 24 to 72 months, with interest rates between 5.99% and 22.99%, all without the need for collateral [9]. This platform combines the personalized customer experience brought about by financial technology with the stability of traditional financial services, thereby broadening the scope of inclusive finance. Research findings indicate that fintech platforms can significantly impact the relationship between investment returns and consumption, particularly evident in cities with inadequate banking services. This suggests that the more limited the options are in traditional banking sectors, the more valuable fintech platforms become as a substitute for traditional financial intermediaries [10].

In summary, financial technology can effectively address the shortcomings of traditional finance and enhance the accessibility of financial services in investment banking.

3 Improving in Information Processing Efficiency - Taking JPMorgan Chase's COIN as an Example

Information is the core of investment banking. Those who can ensure the highest efficiency in information processing will be able to seize the forefront of the investment banking industry. Due to the limited level of technology, investment banks in the past were compelled to expend significant human, material, and financial resources on data processing and analysis. Valuable resources were allocated to tedious and cumbersome tasks. Furthermore, high labor costs necessitated time for rest and adjustment, which, coupled with the potential for human error, greatly delayed the operational efficiency of the entire investment banking sector. However, investment banks today can leverage financial technology to process information, significantly enhancing the efficiency of information processing.

Taking JPMorgan Chase as an example. Leveraging artificial intelligence and large language models, JPMorgan Chase has developed the Contract Intelligence (COIN) tool, primarily used for parsing terms and data in financial contracts such as loan agreements and derivative contracts. According to the information that has been made public, after testing, the COIN software can complete the work that originally required 360,000 hours of relevant staff to complete, but only a few seconds [11]. This is undoubtedly an effective corroboration of how financial technology significantly enhances information processing efficiency.

4 Strengthening the Business Capabilities of the Investment Bank

The business of investment banks can primarily be classified into three categories: market-making activities, brokerage services, and their operations as institutional investors. Regardless of the type of business, the ability to conduct due diligence and value the target asset is essential, as this facilitates decision-making for investment banks. This article focuses on the core business areas of due diligence and target valuation in investment banking, analyzing the enhancing effects of fintech on investment banking operations.

4.1 Improving the Efficiency and Accuracy of Due Diligence - Taking Huatai United Securities INSIGHT as an Example

Due diligence is integral to all aspects of investment banking operations. Whether acting as financial service providers or institutional investors, investment banks must conduct due diligence to mitigate the adverse selection resulting from information asymmetry. Before the development of financial technology, the due diligence conducted by

investment banks was time-consuming and inefficient, requiring a substantial amount of time for ongoing data tracking and analysis, which occupied significant human resources. With the development of financial technology, artificial intelligence, big data, language models, and other tools have the capability to analyze corporate financial statements and produce results in a very short time. Despite the limitations such as the influence of false data and the inability to discern market sentiment, this approach saves time in data collection and analysis, while also avoiding errors that may arise from manual calculations.

Taking Huatai United Securities' INSIGHT as an example, INSIGHT leverages technologies in big data storage and real-time analysis to provide various financial groups with a range of data services for financial markets, including market access, push notifications, back testing, calculations, and analysis functions. According to the information published by the Huatai Securities INSIGHT Financial Data Service Document Center, the INSIGHT tool can provide clients with consulting data across nine major categories and 44 subcategories, including stocks, funds, and bonds. It can also push market-derived indicators, encompassing over 150,000 information records from more than 400 companies across more than 17 industries. Additionally, artificial intelligence methods are employed to assess trading opportunities in the entire financial market. According to relevant research, the development of financial technology can enhance the information environment of local markets, reduce information asymmetry, and thereby improve the accuracy of due diligence [12]. As a result, it can be inferred that Huatai Securities INSIGHT can improve the accuracy of due diligence.

In general, the due diligence process in investment banking takes several weeks. During this period, investment banks need to gather and synthesize analytical information, with most of the time spent on the repetitive task of information retrieval and synthesis, while the actual analytical decision-making that tests the professional capabilities of the investment bank constitutes only a small fraction. With the INSIGHT tool, investment banks can directly access the corporate information already recorded in the database, reducing the workload from weeks to just a few hours, significantly enhancing the operational efficiency of investment banks.

4.2 Mitigating the Impact of Non-Quantifiable Information on the Valuation of the Target Assets and Investment Decisions

The rational agent hypothesis posits that every individual engaged in economic activities strives to obtain their maximum economic benefit at the minimum possible cost. However, in general economic activities, the rational agent hypothesis often fails to perfectly explain investor behavior. Even when two assets have the same book value, they may still be subject to discrimination by investors due to factors beyond book value, such as investor preferences, market sentiment, and the actions of stakeholders related to the assets. Such discrimination often not only affects investors' valuation of the underlying assets but may also directly influence their decisions, leading to some irrational measures. But financial technology will not be swayed by emotions; thus, it can utilize intelligent information retrieval to diminish the influence of non-financial factors, quantify the objective value of underlying assets, reduce emotional decision-

making among investors, enhance the rationality of investments, and consequently mitigate irrational investment behaviors caused by cognitive biases or emotional fluctuations [13]. This does not imply that investors will lose their right to choose personal investment preferences. Financial technology is merely a tool; it will only aid investors in simplifying the difficulty of decision-making. Ultimately, the decisions still lie with the investors themselves. Moreover, with the continuous development of financial technology, robo-advisory systems will transition from theory to practice, leveraging algorithms to provide personalized investment advice based on investors' risk preferences, investment goals, and market conditions, which helps investors make investment decisions on the premise of ensuring rationality [13].

However, the financial market environment is constantly changing. While financial technology can mitigate the impact of non-book value and strengthen the rational agent hypothesis, investors' irrationality may also be reflected in the volatility of market prices [14]. However, financial technology is unable to distinguish whether this volatility arises from investor sentiment or the inherent characteristics of the asset. In the market for securities that are easily influenced by market sentiment, financial technology is unable to accurately quantify the price range of the underlying assets due to the inherent distortions in market data, which in turn affects investors' decision-making behavior. This is a current limitation of financial technology.

5 Conclusion

This article adopts the perspective of investment banking and focuses on the impact of financial technology on investment banks. It emphasizes how financial technology can enhance the inclusiveness of investment banking services, improve the efficiency of information processing within investment banks, and analyzes the strengthening effects of financial technology on investment banking services from two aspects: due diligence and target valuation. Ultimately, it gets a conclusion that financial technology will be a driving force for the future development of investment banks. Indeed, financial technology has some negative impacts on investment banking, such as undermining the role of investment banks as financial intermediaries, increasing the pressure on the network information security of investment banks, and exacerbating the moral hazards inherent in investment banks themselves. At the same time, due to the lack of relevant cases, this article does not address the impact of fintech on the ESG of investment banking. However, it is foreseeable that with the vigorous development of financial technology, along with the continuous improvement of relevant laws, regulations, and regulatory frameworks, financial technology will not only assist traditional banks, borrowers, and investors but will also elevate investment banking operations to a new level. Although the position of investment banks as financial intermediaries may be weakened due to financial technology's reduction of information asymmetry, the proprietary trading of investment banks will compensate for this shortfall. Furthermore, it will be a long time before financial intermediaries completely withdraw from the historical stage, and ultimately, the impact of financial technology on investment banks is more beneficial

than detrimental. It is believed that in the future, the close integration of investment banking and financial technology will be an irreversible trend.

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