A new ESG Index Futures Contract Based on the CNI ESG 300 Index

Pengyuan Tang[1,a], Mucen Ni[1,b], Tangmingjie Tan[1,c]

[1]Finance Management School, Shanghai University of International Business and Economics, Shanghai, China.

[a]21078012@suibe.edu.cn
[b]21078006@suibe.edu.cn
[c]21078020@suibe.edu.cn

Abstract. With the popularity and importance of ESG (environmental, social, and governance) concept in the global scope, more and more investors are paying attention to the ESG performance of enterprises to evaluate their long-term investment value and risk. However, there is a lack of ESG-related derivatives in China, which makes it difficult for ESG investors to hedge the risks brought by market fluctuations and information disclosure. To fill this gap, this paper refers to the CSI 300 index and CNI ESG 300 index to design a CNI ESG 300 index futures contract, aiming to provide an effective risk management tool for ESG investors. This paper first introduces the origin and development of ESG concept, as well as the advantages and challenges of ESG investment; then analyzes the current situation and demand of ESG investment in China, as well as the existing problems and difficulties; then elaborates the design idea and method of CNI ESG 300 index futures contract, as well as its main parameters and characteristics; finally discusses the implementation effect and significance of the contract, as well as the possible risks and suggestions. This paper aims to provide a useful attempt and reference for the design of ESG derivatives in China.

Keywords: ESG, Futures, Green Finance, Derivatives, Risk Management

1 Introduction

Sumit investigates the basic applicability of Derivatives in ESG Implementations study and finds that ESG derivatives play a crucial role in overall ESG promotion and potentially can be used in future for ESG risk mitigation, said by Kumar, S., 2023.[1] Apart from risk mitigation, ESG derivatives can also be used to hedge the financial risk of a fund that is meant to be utilized for funding Green, Social or Sustainable projects. According to Kumar, R., in 2022, ESG derivatives are financial instruments which draws its value from an underlying instrument.[2] In the context of the significant capital raising and investing that will be required to transition to a low carbon economy, ESG derivatives are the most efficient way to manage the associated interest rate and other risks of these investments, according to Lannoo, K., & Thomadakis, A. in 2020.[3]

L. Moutinho et al. (eds.), *Proceedings of the 2023 International Conference on Management Innovation and Economy Development (MIED 2023)*, Advances in Economics, Business and Management Research 260,
https://doi.org/10.2991/978-94-6463-260-6_44

The literature reviewed demonstrates the growing importance of ESG factors as an underlying asset for financial products. The research suggests that integrating ESG considerations can enhance financial performance, improve risk management practices, influence asset allocation decisions, foster financial product innovation, and be influenced by regulatory and reporting frameworks. As the field continues to grow, ESG has the ability of being a good underlying asset of a financial product.

However, in China, the development of the ESG investment market has lagged behind, resulting in a lack of effective hedging tools for ESG investors. One of the main reasons for the lack of ESG derivatives in China is that the country's ESG market is in a relatively nascent stage. While China has made significant progress in incorporating ESG factors into its corporate governance and reporting framework, the market for ESG investments and products is still in its early stages. The lack of a well-developed, standardized ESG ecosystem presents challenges in creating derivative products that can accurately capture potential ESG risks and opportunities. In addition, regulatory factors play a role in the limited availability of ESG derivative products in China. The Chinese government imposes strict controls on financial markets and derivatives to manage systemic risk. The regulatory environment may not be entirely conducive to the development and trading of complex ESG derivatives, which require specialized expertise and risk management. In addition, the lack of standardized ESG metrics and reporting practices in China hinders the creation of ESG derivatives. While progress has been made in ESG reporting standards, there is still a lack of consistency and comparability in ESG data, which makes it challenging to construct reliable and accurate derivatives. Overall, the lack of ESG derivatives in China is due to a number of factors, including the early stage of the ESG market, regulatory constraints, and the lack of standardized ESG metrics. As the ESG ecosystem in China continues to develop, efforts may be made to develop and introduce ESG-related derivatives to meet the growing demand from ESG investors.

2 Status of ESG between China and Foreign Countries

With growing global concerns about climate change, environmental damage and social inequality, investors are increasingly aware of the importance of sustainability. They want to invest in companies that are environmentally and socially responsible and promote sustainable economic development. At the same time, traditional financial indicators cannot fully assess the long-term value and risk of a company. The ESG Index, which stands for Environmental, Social and Governance, is a way to assess the sustainability performance of companies. Compiled by third-party organizations, these indices measure the performance of companies on ESG indicators and include them in the index, said by Li, S., Chen, X., Huang, J., & Xu, B in 2021.[4] Investors can use ESG indices to assess the sustainability risks and opportunities of companies and use them for investment decisions, according to Friede, G., Busch, T., & Bassen, A in 2015.[5]

The foreign ESG investment market is relatively mature, and the early ESG investment concept has been deeply rooted and widely accepted. In 2017, Riedl, A., & Smeets, P said that investors have a stronger awareness and demand for sustainable development, which has driven the widespread use of ESG indices.[6] The reason why there are so many ESG indices available overseas is that the ESG investment market is relatively mature and the early ESG investment concept has been widely accepted. Investors have a stronger awareness and demand for sustainable development, which has driven the widespread use of ESG indices. At the same time, governments have also pushed the envelope. According to S&P Global Ratings, in 2019, some foreign markets have clear laws and regulations that require public disclosure of ESG information or have regulations on companies' ESG performance.[7] For example, the EU's Non-Financial Reporting Directive requires large companies to disclose their ESG information. Such legal and regulatory support has prompted companies and investors to take a more active interest in ESG and to use ESG indices as references and tools, according to Hale, T., & Palumbo, R in 2020.[8] Another point is the difference in investor thinking. Foreign investors are more focused on long-term value and risk management, and ESG factors are seen as important indicators of a company's long-term sustainability and performance.

Foreign countries are leading in the application and development of ESG indices. With the increasing awareness and demand for ESG in China, the domestic ESG investment market is gradually developing and growing, said by Cao, L., & Shi, S in 2020.[9] We have selected the CSI ESG300 index as a reference, and the CSI ESG300 index has a certain influence in the domestic ESG investment field. However, the practical application of ESG indices for carbon trading in China is still in its infancy, and the carbon trading market itself is relatively new in China. At present, the domestic carbon trading market mainly relies on the government-managed quota allocation and trading system, rather than directly based on the ESG index. Although the CSI ESG 300 is widely used and focuses on the environmental performance of companies, it is currently not directly used for carbon trading operations. In such a context, companies trade carbon quotas based on government allocation and trading rules without involving the introduction of ESG indices. This makes the existence of ESG indexes have very little impact on carbon trading.

However, with the development of domestic carbon trading market and the popularization of ESG investment concept, the prospect of this application is positive. Support from the domestic government and financial institutions will play a key role in driving this, and the future may see a wider application of ESG indices in domestic carbon trading. In the future, it can be expected that the domestic ESG index and carbon trading market will gradually integrate. the ESG index may be used as a reference factor to assess the carbon emission level and carbon management performance of enterprises, and as a reference factor for carbon quota allocation and trading. According to Zuo, X., & Liu, L, in 2021, the government may also introduce relevant policies and regulations to encourage the use of ESG-compliant companies to participate in carbon trading.[10]

3 Product Designing

ESG investment is a new long-term investment concept that helps to implement the new development concept and better manage the relationship between the economy, nature and society; it helps to promote reform and high-quality development; and it guides the real economy and financial assets to work together to promote sustainable corporate development.

ESG has an impact on corporate value through intrinsic mechanisms. In terms of the numerator, ESG can have an impact on share prices by improving the profitability and dividend yield of listed companies, which is the profit improvement mechanism of ESG. In the denominator, ESG can influence the discount rate by reducing the systemic and idiosyncratic risks of listed companies.

3.1 Selection of Underlying Assets

According to overseas experience, the strategies that are currently used to integrate responsible investment into the investment system are ESG exclusion strategy, thematic investment and ESG integration strategy.

In terms of the value of the index investment, firstly, the index is more risk resistant, with a smaller number of constituent stocks losing money, reflecting the value of corporate governance. Secondly, the index's earnings have been rising steadily. Thirdly, the index has a significant valuation advantage at this stage and a high margin of safety.

Considering the process of investing in individual stocks, it is inevitable that the companies represented by the individual stocks will engage in ESG investment behavior. We believe that ESG investments by different companies will have different impacts to different degrees.

We believe that for manufacturing companies, ESG investment may have a negative impact on the income statement in the short term, but in the long term ESG investment can be more profitable for the company.

We believe that the impact of ESG investments on other industries is not as significant as that of manufacturing, but the impact of short-term and long-term ESG investments cannot be ignored and needs to be analyzed on a case-by-case basis.

Therefore, we believe that for risk management purposes, when buying stocks with ESG investment, you can take a trading position in ESG index-related futures to avoid the short-term negative impact of ESG investment. Therefore, from a risk hedging perspective, we find that there are currently more ESG-related indices in China, but a lack of ESG index-related futures products. We believe this may be due to the fact that financial investment in the ESG sector in China is still in its infancy and is therefore relatively immature and lacks corresponding products. We therefore choose the relatively mature CNI ESG 300 Index as the underlying and construct a futures contract for the CNI ESG 300 Index.

Fig. 1. CNI ESG 300 Index is an index that comprises 300 companies with top ESG performance in A-Share market.

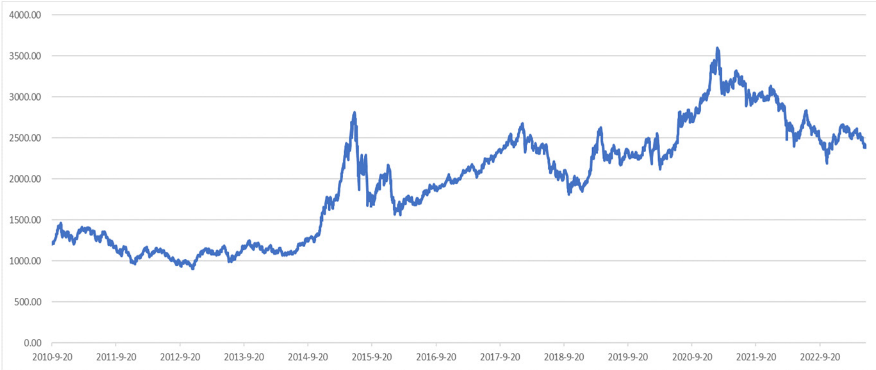

Fig. 1. CNI ESG 300 Index

The index universe of CNI ESG 300 is A-shares. The selection criteria is choosing top 300 stocks with highest ESG scores upon ESG risk and industry screening. The calculation method is based on adjusted Free-float Market Cap.

The index capping is 0.1, and the review frequency is semi-annually. Base point is 1000. Base date is 2010-06-30 and the launch date is 2010-09-20.

3.2 Contract Standardized-designing

In terms of contract specifications, we believe that the CNI 300 ESG Index futures contract should be set at one index point as the minimum unit of variation, representing 300 RMB, with reference to the CSI 300 Index at 300 RMB per point, in order to allow institutional investors such as enterprises to participate in the futures trading market and to attract a greater degree of participation from small and medium-sized investors. The margin rate will be set at 8% with reference to the CSI 300 stock index futures contract.

Contract Name: CNI ESG 300 Index Futures Contract
Contract Underlying: CNI ESG 300 Index
Contract multiplier: 300 per point
Unit of quotation: number of points
Minimum unit of change: 1 point
Contract month: Minimum January
Minimum trading margin: 8% of contract value
Trading method: Cash settlement
Last day of trading: the last day of the trading day of each delivery month
Final settlement date: the third trading day after the last trading day

3.3 Application of CNI ESG 300 Index Futures Contract

Suppose Investor A holds shares in Company B and, based on the latest ESG disclosure, Investor A expects Company B's earnings to decline in the short term, generating a high degree of certainty of a decline in profits. Investor A therefore chooses to buy a long buy hedge on the CNI ESG300 index futures contract in order to mitigate the risk of a short term downside in Company B's share price.

Assuming the current index of CNI ESG300 is 1000 and the share price of Company B is RMB100 per share, A holds 300,000 shares of Company B. If A expects the share price of Company B to fall by 10% after the ESG disclosure, the exposure is expected to be RMB3 million. The cost of going long one CNI ESG300 Index futures contract is $300,000 and A needs to buy 10 contracts.

If the CNI ESG300 Index is 1200 at the hold-to-maturity date and the share price falls by 5%, A loses $1.5 million on Company B shares and makes a profit of $600,000 on the CSI ESG300 Index contract, ultimately hedging a loss of $300,000.

Suppose Investor C is short Company D's shares and based on past ESG disclosures, Investor C expects Company D's earnings to rise in the near term, generating a higher degree of certainty that profits will rise. Investor C therefore chooses to sell a short sale hedge by selling a CNI ESG300 Index futures contract in order to mitigate the risk of an upside in Company D's share price in the short term.

Assuming the current index of CNI ESG300 is 1250 and the share price of Company D is $100 per share, A is short 300,000 shares of Company B. If C expects Company D's share price to increase by 10% after the ESG disclosure, the exposure is expected to be $3 million. The cost of shorting one CNI ESG300 Index futures contract is $375,000 and C needs to short eight contracts.

If the CNI ESG300 Index is 1000 at the holding maturity date and the share price rises by 5%, C loses $1.5 million on shorting Company D shares and makes a profit of $600,000 on the CNI ESG300 Index contracts, ultimately hedging a loss of $235,000.

3.4 Shortcomings and prospects

1. Limitations of the CNI ESG 300 Index

Considering that the CNI ESG 300 Index only takes the CNI 1000 Index as its sample space, it only serves as a reference for the fluctuation of the ESG investment value of the underlying stocks of high-quality enterprises, and does not cover most of the industries and individual stocks. Therefore, if you need to hedge against smaller stocks, the CNI ESG 300 Index may not be suitable. Therefore, we believe that more relevant ESG indices should be included in the selection of the underlying.

2. Lack of investor expertise

As we believe that the CNI ESG 300 futures contracts are more suitable for risk hedging purposes, investors who participate in the market may trade the contracts for speculative purposes and may lack knowledge of the ESG index and derivatives, so there may be cases where the average investor does not have the confidence to participate in the contracts or where investors blindly trade the contracts and incur large losses. Therefore, we believe that futures exchanges and financial companies should make ESG-related investment knowledge and derivatives knowledge more widely available.

3. Lack of market capacity

Globally, derivatives trading based on ESG indices is quite rare, and there are still a lot of gaps despite the gradual growth stage. The lack of ESG index-related derivatives market needs more investors' attention and time to develop and grow.

And here are the Prospects of the CNI ESG 300 Index futures contract and suggestions for improvement.

1. Increase the research on ESG indices

In the financial market, more attention should be paid to the impact of ESG on the development prospects of enterprises in various dimensions, rather than just quantifying the explicit impact of ESG investment on corporate earnings. More research should be done to quantify the various implicit impacts of ESG on companies.

2. Knowledge dissemination to investors by financial institutions

Futures companies should establish a database on ESG indices, starting with the cultivation of relevant futures personnel, to ensure the reliability and openness of the relevant index values. Exchanges and relevant financial institutions should establish a professional advisory service system to popularize ESG-related knowledge and knowledge of futures derivatives for investors, so that they will feel comfortable trading ESG index futures to expand the market capacity and fill the blank areas in China.

3. Keep up with the pace of policies

Follow the policy trend closely, strengthen the publicity of the importance of ESG investment and encourage enterprises to make ESG investments. Also introduce ESG index-related derivatives as appropriate to promote the development, promotion, application, innovation and development of ESG index futures.

4 Conclusions

ESG indices as a tool to assess the sustainability performance of companies have been widely used and formed a mature market in foreign countries. This is because foreign investors have a stronger awareness of and demand for sustainability, the government has clear regulations on ESG disclosure and regulation, and investors are more focused on long-term value and risk management. In contrast, the development of domestic ESG indices is still in its initial stage, but with the growing awareness of sustainable development in China, the ESG investment market is gradually developing and growing.

Domestic ESG indices, such as the CNI ESG 300 Index, have a certain influence in the ESG investment field, but the application in carbon trading is still relatively small. At present, the domestic carbon trading market mainly relies on the government-managed quota allocation and trading system, rather than directly based on ESG indices. However, with the development of the domestic carbon trading market and the popularization of ESG investment concepts, the prospect of the application of domestic ESG indices in carbon trading is positive in the future.

In order to promote the application of domestic ESG indices in carbon trading, the support of the government and financial institutions is crucial. By introducing relevant policies and regulations, encouraging the use of ESG-compliant companies to participate in carbon trading, and using the ESG index as a reference factor to assess the performance of corporate carbon emissions and carbon management, the carbon management level of domestic companies can be improved and sustainable development promoted.

Although the application of domestic ESG indices in carbon trading is still in its infancy, with the development and promotion of the domestic ESG investment market, we can expect the integration of ESG indices with the carbon trading market to achieve more sustainable economic development.

We selected the CNI ESG 300 Index as the underlying among a number of ESG indices and constructed a futures contract based on this underlying, the CNI ESG 300 Index Futures, which we normalized by setting a multiplier of $300 per point. We then hypothesized contract usage scenarios for hedging purposes, i.e. buy hedge and sell hedge, and simply calculated the exposure and hedge amount for the respective scenarios. Finally, we reflect on the anticipated difficulties and proposals for the implementation of the CNI ESG 300 index futures contract in China and present our outlook and improvements for the CNI ESG 300 index futures contract.

We believe that CNI ESG 300 Index futures contract will contribute to the development of the ESG-related financial derivatives market, filling the gap in the market eventually. Despite all the unknowns, it is the future that is going to be pioneered.

Reference

1. Kumar, S. (2023). ESG DERIVATIVES AND FACTORING SUSTAINABILITY IN INVESTMENT MANAGEMENT. Academy of Marketing Studies Journal, 27(3).
2. Kumar, R. (2022). ESG, Sustainability, and Path Forward.Volume 11, Issue 02, Pages: 130-136.DOI: 10.48047/IJIEMR/V11/I02/17.
3. Lannoo, K., & Thomadakis, A. (2020). Derivatives in sustainable finance. CEPS-ECMI Study; Centre for European Policy Studies: Brussels, Belgium, 3, 1-40.
4. Li, S., Chen, X., Huang, J., & Xu, B. (2021). The significance of ESG investment: A review. Frontiers of Business Research in China, 15(1), 1-23. DOI: 10.1186/s11782-021-0081-1
5. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210-233. DOI: 10.1080/20430795.2015.1118917
6. Riedl, A., & Smeets, P. (2017). Why do investors hold socially responsible mutual funds?. Journal of Finance, 72(6), 2505-2550. DOI: 10.1111/jofi.12509
7. S&P Global Ratings. (2019). The evolution of ESG investing: A rating agency perspective. Retrieved from https://www.spglobal.com/ratings/en/research/articles/190626-the-evolution-of-esg-investing-a-rating-agency-perspective-10916425
8. Hale, T., & Palumbo, R. (2020). Mapping the world of sustainable investing. Oxford Review of Economic Policy, 36(S1), S189-S216. DOI: 10.1093/oxrep/graa026
9. Cao, L., & Shi, S. (2020). Developing ESG investing in China: Opportunities and challenges. China Finance Review International, 10(2), 124-140. DOI: 10.1108/CFRI-07-2019-0104
10. Zuo, X., & Liu, L. (2021). The development and challenges of ESG investing in China. Sustainability, 13(9), 4986. DOI: 10.3390/su13094986