

## An Innovation Searching for Prospering Financial Reformation like ETF and Economy GDP Enhancement with Some Various Regions on Scientists by Sustainability

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Article History	Abstract
<b>Original Research Article</b>	<p><i>The financial reformation like ETF (exchange traded fund) as a funds enables to educate in subject for learner to grasp its content so that he can process funds dealing behavior. It has an advantage pursuit in an exchange and for decreasing risk somewhat with portfolio concept. Moreover it may trace one defining index like Hushen 300 index representing all the composition ones with that index of 300 ones actively in exchange. On the other side, the national &amp; regional GDP with different ones can monitor the entire economy activities within one year and more than one year like ten years. As for enhancing that one the economy activities including consuming business behavior and working at advance factories for earning money and even retirement salary simultaneously. Thereby the working position will become an important thing for us to earn more money for the sake of using after retirement. Certainly our consuming behavior can increase the goods quantity and quality that may activate economic thriving one. Thereby enhancing GDP has to promote high-technology product with owning a better beneficial price for us to earn more money for stabilizing our old years. Please try to consider if one has no enough money how he may live normally and happily many years later, hereby we must put our capital into the Social Security Bureau with enough money and time more than 20 years. At the same time the scientist must write their papers continually to famed journal so as to maintain some achievement in research activity. Hence he may acquire titled as an academician in China academy of Science &amp; Engineering maintaining a permanent title which may carry out bonus permanently per month after he becomes old. We must continually process our research on innovation field to find new phenomenon and project in detail subject. Don't forget to cooperate with others already grasping some internal cause-effect relation to enlarge the relevant skill into products which may bring in new wind on the searching route of technology.</i></p> <p><b>Keywords:</b> prospering economy' GDP enhancement, financial reformation, ETF, innovation, scientist, by sustainably, China &amp; Germany sates, Chengdu &amp; Hangzhou province, USA states.</p>
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### 1. Introduction

The GDP (gross domestic product) which indicates national economic status has provided an important role in every aspect in the world. So that the population increasing rate would be maintained for the sake of raising high-technique product with the entire industrial chain constantly which might enhance our new-quality-productivity. Hence we should consider the effective factors for example the population quantity, new quality productivity with high-technique etc. Like big planę electric vehicle battery AI

robot quantum computer medicine making disease diagnosis AI(artificial intelligence) ocean source space exploration etc. other ones. Low population is enable to offer high life & quality with improving GDP per capita value. Meanwhile, it can enhance the national whole GDP value and help us to boost the economic recovery and many things to do. So the certain population is about to improve our national confidence some degree and make us to become priority one as early as possible even the super-

country to lead the world to leadership right.

In contrast, the GDP increasing rate may play a significant role with regulating population increasing rate mutually and cooperatively. Hence the two aspects may be emphasized and paid attention to in thriving the whole national economic developed degree through enough wielding our generations positively and efficiently by our government institution endeavor and evaluation. For the sake of making relevant policies and allocating capital into the necessary industries the corresponding strategic plan needs to be made under various background and entities. Then the according monitor and estimation will be followed and estimated periodically and frequently by the observer in government's institution. At last as to the developed speed in one nation the corresponding population increasing quantity and high-technique product producing will be discussed and considered more preciously and correctly according to the near past years experience and variation.

Therefore, the high-technique products will be completed through wielding our scientist & senior Engineers coordination tightly for the sake of reviving the industrial and tertiary modernization. We should constantly look for and seek the new quality productivity sustainably so as to take place of our traditional industry becoming modernity. An innovation industry like new energy electric generator will be in front of our path forwards, so that the corresponding tactic must be put up and seek the opportunity and fortune in order to burden our responsibility quickly and not to forget recommend the fitting one to appoint new occupation. Like the Bole identified horse or Maosui self-recommended the recommendation will be represent one aspect for our human resource department to consider and evaluate the recommended included a full research room with a set of computer high-technique instrument & device, subordinate, subsidiary staff, salary, house, welfare etc. a series of work so as to appoint his new occupation reasonably and willingly. [1~7]

## 2. Discussions

The GDP might be significant with exciting our scientist and engineers confidence for the sake of enhancing our high-technology product constantly with an innovation view. As knew it can take up new industrial innovative result for us to pursuit and grasp knowledge and experience armed by new technology spirituality which may last long time until next generation innovation exhibition completely and clearly. We can image the world one hundred years later we know some scenarios from the novel story and movies. There will be many ship-crafts that is to be created with advance technology and they fly from one place to another for the sake of completing save human mission. Maybe our

earth-out-space & planet will be conquered somewhat so as to save earth resource and safe they have to transit into near planet for the reserving another route once the earth risk occurring we must get away the earth, or we will die in earth. No matter what will be we primarily seek to enhance our industrial product for promoting our GDP value, that is best way to want doing firstly. [8~13]

### 2.1 Analysis of the Mechanism Innovation of ETF and Its Engineering Application in Modern Financial System Abstract [1]

Exchange Traded Funds, as an important innovation in the field of financial engineering since the 1990s, integrates the dual characteristics of open-ended funds and stock trading, and constructs an efficient, transparent, and low-cost asset allocation tool. Its core mechanism achieves the standardization of the investment portfolio, the dynamic balance of liquidity, and the improvement of market pricing efficiency through the packaging of "a basket of assets" and the design of "dual trading structures". From a financial engineering perspective, this paper systematically analyzes the operation mechanism, arbitrage mechanism, and market functions of ETFs, deeply explores their engineering application paths in cross-market investment, risk hedging, and intelligent investment advisory, and combines current challenges and cutting-edge technologies to envision their future development directions. The research reveals that ETFs are not only an innovation in investment tools but also a model of engineering thinking in the financial system, providing important support for the stability, efficiency, and inclusiveness of the modern financial system. They have profound theoretical and practical significance for asset management, market structure optimization, and the integration of financial technology.

### 2.2 The Financial Engineering Nature of ETFs: The Synergistic Effect of Structured Design and Dual Trading Mechanism

The essence of ETFs is a structured product designed based on financial engineering principles. The core innovation lies in the "asset portfolio modularization" and "dual trading mechanism". Firstly, ETFs track specific indices (such as the S&P 500, CSI 300, Nasdaq 100, etc.) and package multiple securities into a single trading unit, achieving the standardization and modularization of the investment portfolio. This design not only reduces the cost for investors to construct complex portfolios but also diversifies non-systematic risks through the indexation strategy. Secondly, the "primary market physical subscription and redemption + secondary market continuous trading" dual mechanism of ETFs has constructed a unique liquidity supply and price discovery system.

In the primary market, authorized participants (APs) act as the bridge connecting the primary and secondary markets, balancing supply and demand through the "physical subscription and redemption" mechanism: when the secondary market price is higher than the fund's net asset value (premium), APs can purchase a basket of securities at a low price in the primary market and form ETF shares, then sell them at a high price in the secondary market to obtain arbitrage profits; conversely, when the price is lower than the net asset value (discount), APs buy ETF shares at a high price and redeem securities in the primary market, prompting the price to return to the net asset value. This process, through the spontaneous arbitrage behavior of market participants, forms a natural "price anchoring effect", effectively narrowing the premium/discount space, and reflects the negative feedback control principle in the financial system.

Moreover, the engineering design of ETFs also manifests in cost and transparency advantages: compared to actively

managed funds, ETFs adopt a passive tracking strategy, with significantly lower management fees; the daily disclosed holdings list and real-time net asset value (IOPV) ensure information transparency, reducing information asymmetry risks. This "low cost + high transparency" characteristic makes it a favored asset allocation tool for institutional and individual investors, promoting the rise of the global passive investment trend.

### 2.3 Economics, business & management relationship

The relation among economics, business & management subjects for example Figure 1 where the business will be pillar role helped by economics & management ones may operate the enterprises administration daily and yearly. Then the GDP (gross domestic product) value enhancement can be completed by those enterprises where the economist makes the strategic plan, at the same time the manager finishes the market investigation, which may create the entire system for us to pursue a better GDP value.

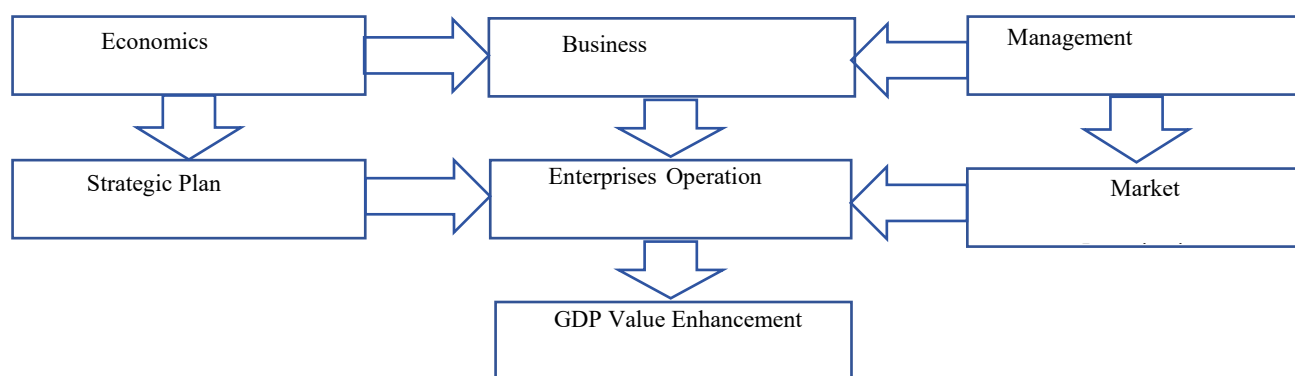


Figure 1 The relation among Economics, business & management relation.

### 2.4 The USA states GDP comparison

The US top ten states GDP ranking in 2017 showed 2,770 billion dollars~554 billion dollars by California~New Carolina state accordingly in Figure 1. Herein, the states exceeded 1,000 billion dollars had four that were Texas New York Florida states in turns following California.

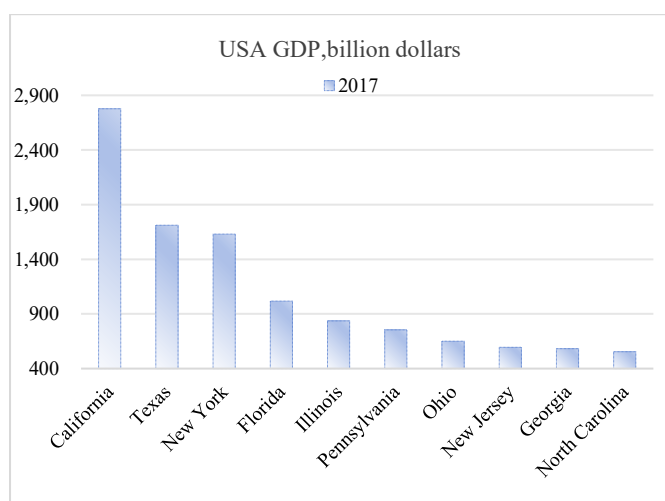


Figure 1 The US top ten states GDP ranking in 2017. [2]

At the same time, the US eleven~eighteen states GDP ranking in 2021 showed 542 billion dollars~360 billion dollars by Massachusetts~Minnesota accordingly in Figure 2. Herein, the states exceeded 500 billion dollars had five that were Washington Virginia Michigan Missouri states in turns following California.

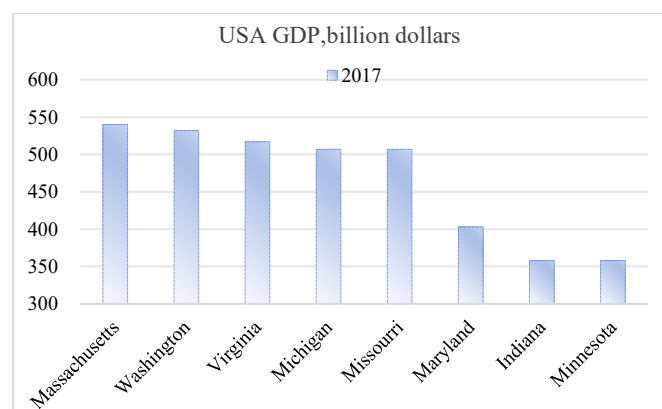


Figure 2 The US top eleven~eighteen states GDP ranking in 2017.

Moreover, the US top eleven~eighteen states GDP ranking in 2015 showed 505 billion dollars~335 billion dollars by

Massachusetts~Indiana accordingly in Figure 3. Herein, the states exceeded 400 billion dollars had four that were Virginia Michigan Washington states in turns following Massachusetts.

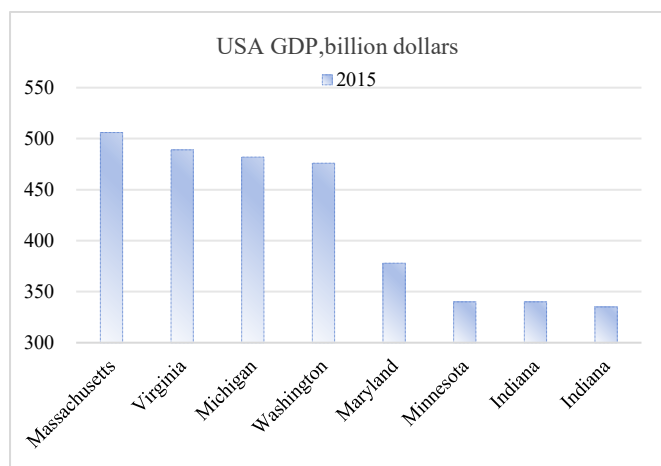


Figure 3 The US top eleven~eighteen states GDP ranking in 2015

At last, the US top eleven~seventeen states GDP ranking in 2012 showed 447 billion dollars~278 billion dollars by Virginia~Wisconsin accordingly in Figure 4. Herein, the states exceeded 400 billion dollars had four that were Massachusetts Michigan Washington states in turns following Virginia.

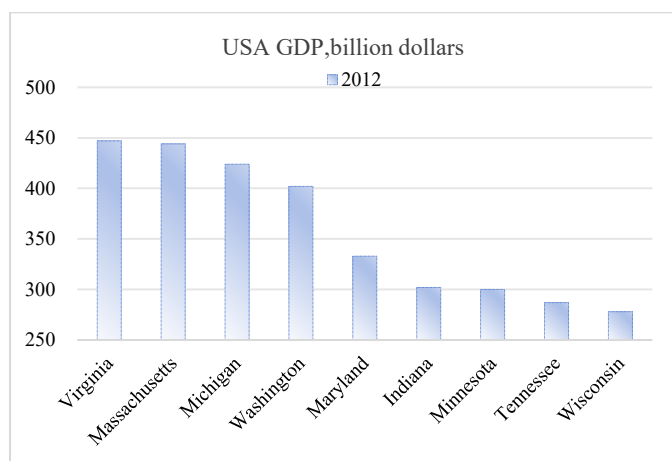


Figure 4 The US top eleven~nineteen states GDP ranking in 2012

## 2.5 The Chengdu & Hangzhou GDP comparison

The Chengdu & Hangzhou ranking in 21991~2011 showed 826~774 billion dollars by them accordingly in 2011 in Figure 5 while their y-y 2011 recorded 106%~105% respectively exhibited the quickest development speed and their y-y 1992 attained about 25% & 37% for them with higher economy development step. In contrast, the GDP in 1992 indicated 39 & 37 billion dollars for them accordingly expressed the lower economy situation then.

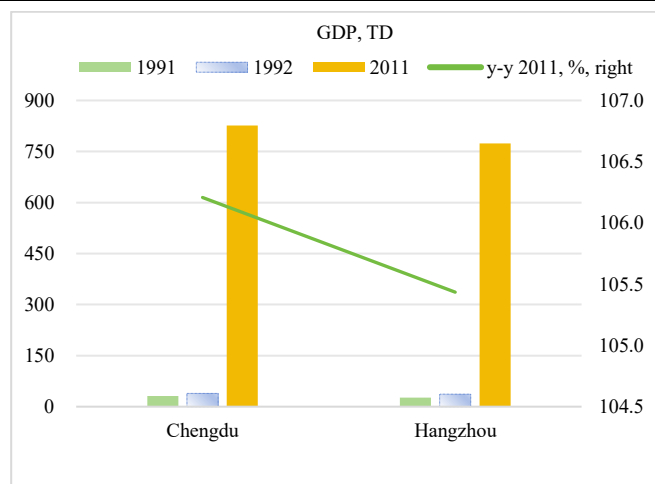


Figure 5 The Chengdu & Hangzhou cities GDP status in 1991~2011. [3]

## 2.6 Chinese provinces and Germany states GDP analysis

The Chinese top provinces and Germany states GDP analysis showed 1,988~842 billion dollars by Guangdong~Hubei province accordingly in light of Figure 6 in 2024. Moreover the Jiangsu Shandong Zhejiang North Rhine-Westphalia state became the top two three four five position following Guangdong one to exhibited their strong economic level. Meanwhile, the ones exceeding 1,000 billion dollars had four ones like Guangdong~Zhejiang province in 2024.

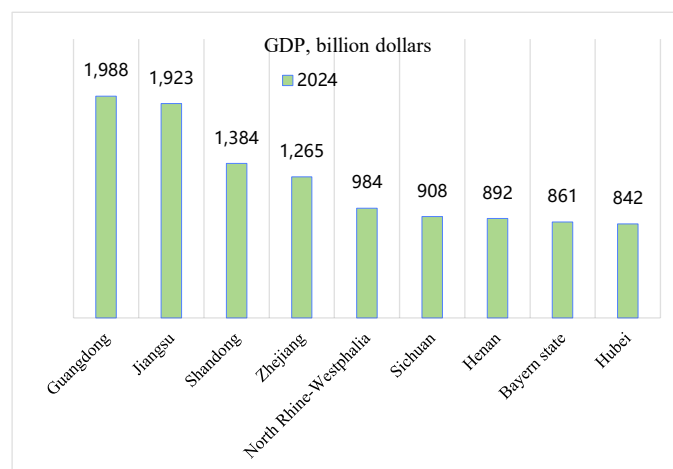


Figure 6 The Chinese top provinces and Germany states GDP analysis in 2024. [4]

Meantime, the Chinese top provinces and Germany states GDP analysis I showed 811~457 billion dollars by Fujian~Liaoning province accordingly in light of Figure 7 in 2024. Meantime, the Shanghai Anhui Baden-Württemberg state became the top two three four position following Fujian province to exhibited their stronger economic status. Furthermore, the ones exceeding 500 billion dollars had six ones like Fujian~ Hebei province in 2024.



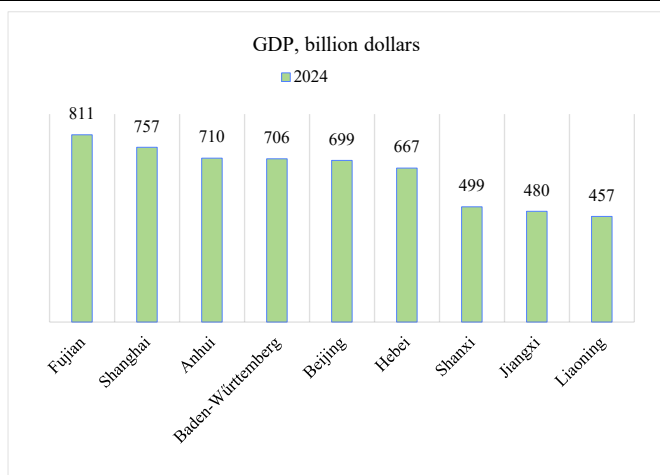


Figure 7 The Chinese top provinces and Germany states GDP status in 2024 I. [4]

Overview, the high-technology product will meet our modernized requirement day by day, so our experimental laboratory and factory research & development departments would continually produce the innovation ones for us to share and enjoy from now on. Firstly the former will look forwards to finding some new things like new function and materials procedure, and secondly the mature ones will be transforming into factory to trial sample towards the customer downstream maker and dealer, then thirdly the new product may be pushed into market and consumer in the end. Thereby the more sophisticated and advanced function and lowering cost, enhancing effect path and measure still will be searched for sustainably. [14~17]

### 3. Conclusions

The financial reformation like ETF as a funds enables to educate in subject for learner to grasp its content so that he can process funds dealing behavior. It has an advantage pursuit in an exchange and for decreasing risk somewhat with portfolio concept. Moreover it may trace one defining index like Hushen 300 index representing all the composition ones with that index of 300 ones actively in exchange. On the other side, the national & regional GDP with different ones can monitor the entire economy activities within one year and more than one year like ten years. As for enhancing that one the economy activities including consuming business behavior and working at advanced factories for earning money and even retirement salary simultaneously. Thereby the working position will become an important thing for us to earn more money for the sake of using after retirement. Certainly our consuming behavior can increase the goods quantity and quality that may activate economic thriving one. Thereby enhancing GDP has to promote high-technology product with owning a better beneficial price for us to earn more money for stabilizing our old years. Please try to consider if one has no enough money how he may live normally and happily many years later, hereby we must put our capital into the

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### Ethic Declarations

The authors declared that there were not conflicts of interest to disclose.

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