Analyzing the Global Fintech Ecosystems and it’s Opportunities and Challenges

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Abstract

The worldwide ecosystem of financial technology (fintech) has seen remarkable expansion and transformation, which has resulted in the reconfiguration of conventional financial services and the creation of new opportunities. The purpose of this paper is to give a detailed analysis of the present condition of the global fintech environment, focusing on the main opportunities and challenges that characterize the dynamics of this ecosystem. Both the development of the fintech business and the current state of financial technology in the Indian finance sector are discussed in this article. The fintech industry offers digitization of transactions, which helps to make them safer for users. One of the advantages of using fintech services is that they lower operational expenses and are user-friendly. India is the country with the fastest expanding fintech services in the world. Fintech services are going to bring about a shift in the routines and strategies that are utilized by the Indian financial industry.

Introduction

The In recent years, the global ecosystem of financial technology (fintech) has undergone significant changes, which have led to a reshaping of the method in which financial services are provided, where they may be accessed, and how they are experienced. The word "fintech," which is a portmanteau version of the phrase "financial technology," is used to refer to a wide range of innovative solutions that make use of technology in order to enhance and simplify financial activities. New opportunities have become available to both individuals and organisations as a result of the disruption that fintech has caused to traditional financial systems. There are many examples of innovations in the field of financial technology, such as peer-to-peer lending and digital payments, as well as robo-advisors and applications that make use of blockchain technology. Through the provision of services to populations that are either unbanked or underbanked, fintech has made a substantial contribution to the progress of financial inclusion. This contribution has been essential in the advancement of financial inclusion. Mobile banking, digital wallets, and microfinance platforms have all grown increasingly popular in recent years, making it possible for people living in areas where access to traditional financial services is limited to become more self-sufficient. Fintech has enabled the growth of digital payment methods, which has resulted in a worldwide shift. This transition has taken place as a result of the convergence of these systems. Customers now have access to alternatives to traditional payment methods that are not only more convenient but also more secure. These options include mobile wallets, contactless payments, and cryptocurrencies. The use of advanced data analytics and artificial intelligence by fintech companies allows for the study of enormous amounts of financial data. This is done
through the use of fintech. Consequently, this makes it feasible to generate individualized and customised financial goods and services, which, in turn, improves the whole experience of the customer and increases the amount of enjoyment they find themselves experiencing. The deployment of distributed ledger technology and block chain has the ability to revolutionise a range of financial operations, including as international payments, trade finance, and smart contracts. This is a possibility that has the capacity to affect a number of different financial activities. The implementation of these technologies results in an increase in the effectiveness, safety, and openness of financial transactions.

What Is Fintech?

The innovative approaches of doing things and solutions that are made available for use in the financial services sector as a result of developments in digital technology are known to as "fintech." Fintech is an acronym that stands for "finger technology." Consequently, the term "fintech" came into being as a consequence of these advancements. The Financial Stability Board defines fintech as a sort of "technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services." Fintech is a type of innovation that could include the use of technology to facilitate financial transactions. In contrast to the definition that came before it, this one comes with a more specific, detailed explanation. In spite of this, the Fintech business is comprised of a variety of components, which, according to Dortfleitner et al. (2017), may be informally classified into four fundamental domains. These areas are identified as "financing," "asset management," "payments," and alternative Fintechs. Taking a quick look at Figure 1, which can be seen below, exposes the four fundamental parts, as well as the components that make up each of those segments.

![Figure 1: Segments and elements of Fintech](source: Segments and Elements of Fintech (Dortfleitner et al. 2017: 37)).

Opportunities:

Financial Inclusion: Fintech has emerged as a powerful tool in promoting financial inclusion, reaching unbanked and underbanked populations. Innovations such as mobile banking and digital wallets have enabled easier access to financial services.

Innovative Payment Solutions: The rise of fintech has revolutionized payment systems, with the advent of digital currencies, contactless payments, and blockchain technology. These innovations offer faster, more secure, and cost-effective payment solutions globally.

Data Analytics and Personalization: Fintech leverages big data and advanced analytics to provide personalized financial services. This facilitates more accurate risk assessment, personalized investment strategies, and customized lending solutions.

Blockchain and Smart Contracts: Transparency, security, and efficiency in financial transactions are all improved when blockchain technology is implemented in the financial technology industry. The need of intermediaries is reduced as a result of the automation and streamlining of complicated financial operations that are enabled by smart contracts.

Robo-Advisors and Wealth Management: Fintech-driven robo-advisors have democratized wealth management, offering algorithm-based investment advice and portfolio management at a fraction of traditional costs.

Challenges:

Regulatory Hurdles: Fintech faces a complex regulatory landscape globally, with varying degrees of regulatory clarity and compliance requirements. Striking
a balance between innovation and regulatory compliance remains a significant challenge.

Cyber security Risks: As fintech relies heavily on digital infrastructure, it is susceptible to cyber security threats. Ensuring robust cyber security measures to safeguard sensitive financial data is a critical concern.

Customer Trust and Adoption: Building and maintaining customer trust is crucial for fintech success. Many consumers remain skeptical about digital financial services, and widespread adoption may be hindered by concerns related to privacy and data security.

Global Fintech Financing Activity

![Figure 2: Global Fintech Financing Activity](Image)


Fintech is a subset of the financial services industry that is still in its infancy, as seen by the data presented in Figure 2. However, in order for Fintech companies to compete with traditional financial services providers that are wealthy and politically prominent, they will need to get a significantly greater amount of investment. Despite this, conventional financial service providers throughout the world need to pay attention to the growth of fintech and make an effort to update and enhance their strategies and services in order to protect themselves from losing market share to firms that specialise in fintech.

Fintech in India

In accordance with the findings of the KPMG 2016 research, India is undergoing a transformation into a dynamic ecosystem that provides fintech start-ups with a platform that has the potential to develop into billion-dollar unicorns. Financial technology start-ups in India are pursuing a variety of goals, including expanding into new market categories and investigating international markets. According to NASSCOM, the present value of the Indian fintech software industry is 1.2 billion US dollars, but it is anticipated that by the year 2020, it would reach 2.4 billion US dollars. The historically cash-driven Indian economy has shown positive response to the possibility presented by fintech. This response was largely prompted by an increase in the number of people using smartphones and online shopping. It is anticipated that the transaction value of the Indian fintech industry would reach USD 73 billion in 2020, expanding at a compound annual growth rate of 22 percent over the next five years. In 2016, it is expected that the sector will be worth roughly USD 33 billion. The attention of investors has been focused on the cities that are considered to be the most technologically advanced in 2015. Bengaluru had eleven venture capital-backed investment agreements totaling USD 57 million in 2015. Mumbai and Gurgaon followed suit with nine and six deals, respectively. Bengaluru, which is known as the "start-up capital of India," has benefited from this phenomenon and is now rated fifteenth among the main start-up cities in the world. The economic surge that India is experiencing may not yet be on par with its global equivalents, but it is well
positioned. This is mostly owing to the fact that India has a robust talent pipeline consisting of a workforce that is both simple to employ and affordable in the field of technology. The services provided by fintech companies have revolutionised the way in which individuals and businesses carry out regular transactions. These services include wallets, lending capabilities, and insurance coverage. These trends are becoming increasingly popular, which is putting India in a position to become an appealing market on a global scale.

Fintech Adoption in India

According to EY's FinTech Adoption Index 2017, India has moved to become the market with the second-highest FinTech adoption rate (52%) among 20 markets worldwide. This is a result of the tremendous rise in FinTech adoption that has occurred in India over the past two years. This remains true for each of the five categories of services, with digitally engaged Indian customers demonstrating adoption rates that are between fifty percent and one hundred percent greater than the averages for the rest of the world. (EY FinTech Adoption Index 2017)

![Figure 3: Fin Tech adoption among digitally active consumers](image)
Source: EY Fin Tech Adoption Index 2017 Country Dashboard

![Figure 4: Fintech investments in India by sector](image)
Source: FinTech Global

Literature Review

Soloviev (2018) Since the beginning of the Internet revolution in the 1990s, the global financial markets have been adversely impacted by this phenomenon. The most essential thing is that the prices of conducting financial transactions have greatly decreased as a direct result of the advent of the Internet. The electronic financial service, which is involved in all types of financial services that we use today, including retail banking, insurance, security, and trading, has made it possible for individuals and legal entities to access information about financial products and services and to carry out transactions without having to physically interact with financial institutions. Additionally, during this time period, new business models evolved in the digital financial industry. These new business models included mobile payments, internet and mobile banking, and inexpensive online brokerage services. The majority
of these alterations have resulted in a decrease in the number of corporate offices and branches of banks.

Furthermore, a study conducted by Daniel (2019) revealed that just twenty-five percent of respondents provided completely online banking services, and fifty percent of them provided a trial version of their service or were in the process of developing it. A short period of time was required for customers to transition from traditional banking to online banking, as demonstrated by the two studies that came before this one. In addition, the research that was carried out by Satyhe (2019) assessed the elements that influence the adoption of internet banking by customers in Australia. Observations have shown that the lack of understanding and worries over security are the primary factors contributing to the delayed adoption of online banking. Approximately in the year 2005, the introduction of smartphones was yet another event that played a significant role in the development of financial technology. According to Shaikh (2013 cited in Shaikh and Karjaluoto 2015), "The expanded uses of smartphones has increased demand for m-banking services, prompting many more banks, microfinance institutions, software houses, and service providers to offer this innovative service together with new sets of products and applications designed to extend their client reach (including to unbanked populations), improve customer retention, enhance operational efficiency, increase market share, and provide new employment opportunities”.

It was the advent of online banking that marked the beginning of the financial technology industry, as was mentioned in the preceding paragraph. Another example of digital financial services is the advent of online trading of securities, which took place at a later point in the development of the industry. According to Weber (2006), the use of information technology is causing a transformation in the trading of financial instruments, resulting in decreased costs and more market transparency. As a consequence of this, it will lower the costs of transactions and make it possible for individuals to enter markets.

Following are some trends that have emerged as a response to the enormous contributions made by social media and social networks. The sharing economy, which is causing disruptions in traditional industry, was the first significant phenomena that significantly contributed to the development of advances in the field of financial technology. According to Schor et al. (2016), activities that fall under the sharing economy may be broken down into four distinct categories: "recirculation of goods," "increased utilisation of durable assets," "exchange of services," and "sharing of productive assets." As an illustration, Uber does not own any automobiles, and Airbnb does not own any private residences, apartments, or hotels. It is possible to witness the same pattern with Facebook, Alibaba, Amazon, and a great number of other companies. However, conventional banks often possess both tangible and intangible assets. These assets include bank capital, real estate, machinery, equipment, and office supplies. Additionally, traditional banks possess intangible assets such as goodwill, licences, patents, and technology. The third phenomenon is the disruptions that are generated by the new economy, which Collins characterises as the postindustrial world economy that is centred on Internet trade and sophisticated technology startups; the growth of startups and the valuation of startups are huge. Access to information technology, particularly the Internet and mobile devices, is becoming increasingly convenient, which is the third trend.

**Objective of study**

1. To Study Global Fintech Ecosystems And It’s Opportunities.
2. To Study Fintech faces a complex regulatory landscape globally

**Research Gap**

The study articles and studies that were addressed earlier have provided explanations of several aspects that are associated with startups. After going over all of them, various holes have been recognised and covered in this research. These gaps include concerns pertaining to employees, funding patterns and hurdles, government assistance, credit and taxes issues, causes for failure, and other similar topics. In order to investigate and establish a more favourable ecosystem for startups, it conducted an analysis of the existing difficulties and weaknesses.

**Fin Tech and ETF Performance**

"Fintech" means "financial technology" and describes the use of tech to make financial services easier, quicker, and better. The financial technology industry is being propelled by the rise of state-of-the-art technologies such as artificial intelligence (AI), cloud computing, big data, the IoT, and machine learning. Smartphones, industrial automation, and wireless communication are all on the rise, which is hastening the shift to digital platforms. More than $1.5 trillion changed hands in the financial technology industry through mergers and acquisitions (M&A) in the first ten years of this century (FT Partners Research, 2021). An additional 95 million jobs might be created and emerging economies’ GDPs might rise by 6%, or $3.7 trillion, by 2025 if digital financial services are widely used and embraced (Manyika et al., 2016). Opportunities in the worldwide financial technology industry are expected to materialise at a CAGR of 23.4% from 2021 to 2026. Market Data Forecast (2021) estimates that by 2026, the fintech industry would be worth around $324 billion. At the moment, there are
dozens of applicable ETFs available for purchase, making it possible to track the financial market performance of the FinTech business. Despite this, out of all the ETFs, only two meet the criteria for benchmark designation because of the varied assets they hold across all parts of FinTech U.S.ge. The others are concentrated on specific task like mobile payments. Both the Global X FinTech ETF (FINX) and the ARK Fintech Innovation ETF (ARKF) are exchange-traded funds. According to the prospectus, FINX fund is looking to put money into startups that are at the forefront of financial technology. This sector is seeing a lot of change, with novel mobile and digital solutions influencing long-standing industries like insurance, investment, fundraising, and third-party lending. In contrast, ARKF is an actively managed exchange-traded fund that aims to increase its value over the long run. The Fund aims to accomplish its investment goal by, under normal circumstances, putting the majority of its assets (at least 80%) into domestic and overseas equity securities of companies involved in financial technology (FinTech) innovation. In Table 1 you can see some broad details about the two ETFs’ profiles.

<table>
<thead>
<tr>
<th>NAME</th>
<th>Global X FinTech ETF(FINX)</th>
<th>ARK Fintech Innovation ETF (ARKF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class of Asset</td>
<td>Sector Equity</td>
<td>Sector Equity</td>
</tr>
<tr>
<td>Category</td>
<td>Technology</td>
<td>Technology</td>
</tr>
<tr>
<td>Funding Benchmark</td>
<td>Indx Global Fintech Thematic NR USD</td>
<td>S&amp;P500 TRUSD</td>
</tr>
<tr>
<td>Price/Earnings (Ttm)</td>
<td>32.28</td>
<td>41.10</td>
</tr>
<tr>
<td>Price/Book (Ttm)</td>
<td>5.27</td>
<td>5.98</td>
</tr>
<tr>
<td>Asset</td>
<td>1.29B</td>
<td>2.84B</td>
</tr>
<tr>
<td>Equity</td>
<td>54</td>
<td>38</td>
</tr>
<tr>
<td>Bond</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>58</td>
<td>39</td>
</tr>
<tr>
<td>Ratio of Expense</td>
<td>0.68%</td>
<td>0.75%</td>
</tr>
<tr>
<td>Date of Inception</td>
<td>09-12-2016</td>
<td>02-01-2019</td>
</tr>
</tbody>
</table>

Both of these exchange-traded funds (ETFs) are all-equity and have the same regional asset allocation: 68% is invested in Indian companies and the remaining 32% is invested in companies outside of the US. Nevertheless, performance is also different because all other measurements and exposures are different. For example, when it comes to the size orientation of companies, ARKF’s holdings are roughly 70% large-cap, 25% mid-cap, and 5% small-cap. While a majority of FINX holdings are in large-cap stocks, the weighting of large, medium, and small companies is more evenly distributed: 57%, 30%, and 13%, respectively. However, ARKF is more diverse according to the classification of official Global Industry Classification Standard (GICS), which covers eleven sectors of the market (the granulation is fourfold: eleven sectors, twenty-four industry groups, sixty-nine industries, and one hundred and eighty-seven sub-industries). Although the technology sector accounts for half of the total weight, other “non-core Fin Tech” industries such as healthcare, real estate, and consumer cyclical also have a role. A meagre 1% of the FINX fund’s holdings are in the healthcare industry, while the remaining 80% are in the technology sector and the remaining 1% are in the financial services sector. Despite having more constituents within the holding base, higher risk metrics have resulted from significant concentration within the same sector.

Risk and Return Performance

The performance of FinTech ETFs can be measured concerning various reference benchmarks. As most of the exchange-traded funds (ETFs) in our examples are based in the United States, the S&P 500 index is a good choice for comparison (ETFs that follow indexes typically have the ticker symbol SPY). In addition, the technology sector has been the market leader in terms of size and weight over the past six years, contributing to the S&P 500’s increasingly concentrated proxy. Using the S&P 500 as a valid benchmark is further supported by the fact that the top 10 businesses out of 500 have 30% market weight, the largest share since the mid-1970s (Bloomberg, 2021). Consider the MSCI ACWI ex-U.S. ETF (ticker: ACWX), which tracks equities listed in over a dozen developing and developed markets worldwide; this
is a good way to factor in each ETF’s exposure to foreign markets. Since FINX and ARKF were founded at different times, the dataset that was used began in March 2020 and ended in December 2021. Given that the majority of the performance action was triggered in March 2020 with the declaration of the COVID pandemic, it is arguable that even if more observations had been made, they would not have been of much significant use. Following the shift in monetary policy narrative and the subsequent decrease in bullish mood, the little divergence became apparent from that point on, particularly in the past year. As an example, SPY had a relatively high return of almost 23% in 2021, whilst FINX and ARKF both had negative returns of -2.29% and -6.56%, respectively. Considering the extremely high global inflationary climate in 2021, it is vital to note that all returns are expressed in nominal terms. Over the overall time period under consideration, the market performance and the FINX fund are nearly identical, with both achieving a cumulative return of close to 60%. Figure 3 shows that ARKF outperformed all of the other options by about 120%, thanks to a positive trend that lasted for a full year from March 2020 to March 2022. The compound annual growth rate (CAGR) for ARKF is close to 34%, while it is 21% for FINX and SPY. The other national markets did not fare as well and recovered at a more modest rate than the financial market in India, which has seen the highest valuation to date. Nonetheless, the ACWX fund did reasonably well in the pre-COVID era, with a CAGR of 9%.

![Figure 5. FinTech Performance and market benchmark (March 2020- December 2022)](image)

Source: Data compiled from Yahoo Finance quotes

**Analysis and Results**

Further analysis of the particular elements attributable to the chosen pool of equities is required for a more accurate performance evaluation of FinTech ETFs over the aforementioned time frame. The correlation between the returns of different assets and some other variable or attribute is called a factor. To put it simply, it’s any metric that investors use to assess companies and make predictions about their potential returns and hazards. Trading and its tactics also have unique qualities that depend on a wide range of factors. Investors’ dependence on factor investing strategies with shorter time horizons has increased in the wake of the COVID-19 pandemic’s exogenous shocks and systemic risks, which have shown the behavioral nature of investment decision-making. The term "factors" has been used to describe a variety of security features. Size, value, momentum, and quality are the most typically cited rewarded variables because of the favorable correlation between them and a return premium over the long run. Many of the hundreds of characteristics that have been considered for use in building portfolios have not yet shown any evidence of providing a sustained return premium; these are known as unrewarded factors.

We will employ the famous Carhart 4-factor model, an expansion of the 3-factor foundational model by Fama and French (1993), in account of the short-term character of trading and its effects on stock prices. With the improved explanatory power of mutual fund performance, Carhart demonstrated its differentiation from initial ones for the new element - cross-sectional momentum. It is possible to express the 4-factor Carhart model as follows:

$$R_t = \beta_{market} \times MKT + \beta_{size} \times SMB + \beta_{value} \times HML + \beta_{momentum} \times MOM + \alpha$$

where $R_t$ is the excess return over the benchmark (Table 2), while beta (MTM) is the market premium, SMB, denotes the difference in size between small and big companies based on market capitalization. VL represents the value premium, indicating the contrast between high and low book-to-price ratio companies. Additionally, MOM signifies the momentum premium, comparing the
performance of upward and downward stocks. Although FINX ETF has a more extended performance history compared to ARKF, both FinTech ETFs and SPY exhibit 33 instances of monthly returns within the observed period from March 2019 to December 2021, allowing for a direct comparison. The factor values utilized were derived from Professor Kenneth R. French’s reputable dataset, renowned for its credibility in factor analysis.

Table 2. Factor Regression outputs

<table>
<thead>
<tr>
<th>Name</th>
<th>Ticker</th>
<th>Factors</th>
<th>MKT</th>
<th>SMB</th>
<th>HML</th>
<th>MOM</th>
<th>Annual Alpha</th>
<th>R2</th>
<th>F-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global X FinTech ETF</td>
<td></td>
<td>coefficient</td>
<td>1.33</td>
<td>0.46</td>
<td>-0.33</td>
<td>0.13</td>
<td>-8.72%</td>
<td>80.8%</td>
<td>29.5</td>
</tr>
<tr>
<td></td>
<td>t-stat</td>
<td>20,280</td>
<td>2,099</td>
<td>-2,450</td>
<td>0.695</td>
<td>0.952</td>
<td>-1,652</td>
<td>1.100</td>
<td>81.5%</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.000</td>
<td>0.045</td>
<td>0.021</td>
<td>0.942</td>
<td>0.011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARK Fintech Innovation ETF</td>
<td></td>
<td>coefficient</td>
<td>1.35</td>
<td>1.15</td>
<td>-0.40</td>
<td>0.37</td>
<td>0.10%</td>
<td>81.5%</td>
<td>30.8</td>
</tr>
<tr>
<td></td>
<td>t-stat</td>
<td>9,848</td>
<td>4,195</td>
<td>-3,512</td>
<td>2,117</td>
<td>0.015</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.000</td>
<td>0.000</td>
<td>0.002</td>
<td>0.988</td>
<td>0.001</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>SPDRS&amp;P500 ETF Trust</td>
<td></td>
<td>coefficient</td>
<td>0.96</td>
<td>-0.20</td>
<td>0.04</td>
<td>-0.01</td>
<td>0.95%</td>
<td>99.7%</td>
<td>2561.7</td>
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<tr>
<td></td>
<td>t-stat</td>
<td>127,034</td>
<td>-9,807</td>
<td>3,068</td>
<td>-0.944</td>
<td>1,688</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>0.000</td>
<td>0.000</td>
<td>0.005</td>
<td>0.353</td>
<td>0.103</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Results (with the 95% confidence interval) demonstrate that all components are significant in the ARKF scenario, but in the case of FINX, the momentum factor lacks significance, suggesting a distinction in portfolio structures between the two, with ARKF leaning more towards a momentum-based approach. Additionally, both ETFs exhibit negative outcomes in the HML factor, indicating a similar exposure to growth-oriented sectors. ARKF demonstrates higher SMB factor values compared to FINX, indicating a more substantial presence in the small-cap and mid-cap investment sphere, showcasing their size exposure. Given that smaller companies are more aligned with economic cycles and experience more pronounced market fluctuations, this explains why ARKF surpasses its competitors. Table 2 illustrates the relationship between upside and downside capture ratios, affirming this claim; apart from ARKF, no other investment demonstrates a ratio greater than one. The market, particularly after the initial peak of COVID-19, was in a bullish phase, and both ETFs' alignment with this aspect has been pivotal in determining their success.

Conclusion

According to this study's results, the influence of the fintech business in India is causing a revolution in the country’s financial services industry. The financial technology industry in India is currently experiencing the world's fastest expansion rate. The Indian fintech software business is projected to grow from its present valuation of 1.2 billion USD to 2.4 billion USD by 2020, based on data provided by the National Association of Software and Computers (NASSCOM). As a country whose economy has long relied on cash transactions, India has shown remarkable agility in responding to the opportunities presented by FinTech. The tech industry is leading the charge for transformation in the corporate world. Its revolutionary nature dictates the innovative methods of executing various financial, investment, and operational activities.

Furthermore, new goods and procedures are always being developed, which leads to widespread acceptance by many user types, including homes, businesses, and governments. There has been an increased need for FinTech development in response to the unique characteristics of the current COVID-19 epidemic and its effects on the world economy. This will allow us to respond to the crisis more effectively and efficiently while still having the option to operate our businesses profitably.

References


