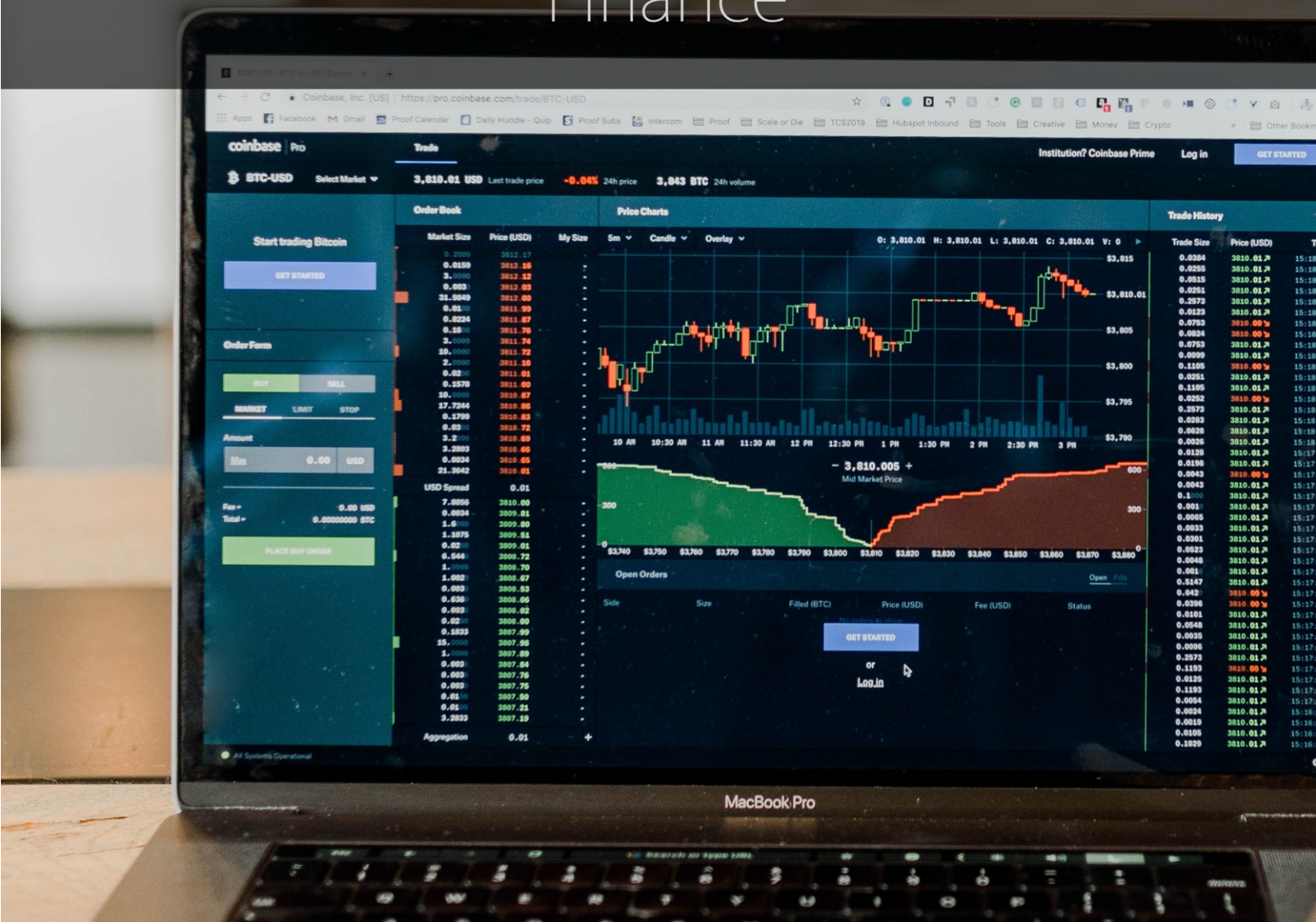
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## of Management and Business Research: C

# Finance




Hope in Social Media

Analysis of Leasing Efficiency

Highlights

Namibian Police Services

Hispanic Churches in South Florida

**Discovering Thoughts, Inventing Future**

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# Contents of the Issue


i. Copyright Notice
ii. Editorial Board Members
iii. Chief Author and Dean
iv. Contents of the Issue

1. Funding Strategies used by Hispanic Churches in South Florida. *1-4*
2. Financial Literacy and Retirement Readiness: A Case Study of the Namibian Police Services. *5-11*
3. The Reflection of Hope in Social Media by Generation Z. *13-21*
4. Economic and Mathematical Analysis of Leasing Efficiency Evaluation for a Lessor. *23-29*
5. Evaluating the Impact of GST on the FMCG Sector: A Comparative Study of India and the USA (2013-2022). *31-43*
6. Portfolio Risk and Diversification: Bitcoin and Currencies Classics. *45-52*

v. Fellows
vi. Auxiliary Memberships
vii. Preferred Author Guidelines
viii. Index

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# Funding Strategies used by Hispanic Churches in South Florida

By Dr. Jose Gomez

*Abstract-* The congregations in the United States need help with attendance. A decline in church membership results in a decrease in funds. This unfavorable effect on the institution's finances can affect the congregation's operations. This article seeks to assess and recommend a funding strategy for Hispanic Churches in South Florida. Correspondingly, Churches and other faith-based institutions require solid financial management to attain financial sustainment. Congregation administrators should focus on external and internal factors, financial planning, and developing and maintaining collaborations with external entities to grow their finances.

*Keywords: personnel, personnel management, manage-ment, nonprofit, hispanic churches, faith based organizations, funding strategies, congregations.*

*GJMBR-C Classification: JEL Code: M1, M12*




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# Funding Strategies used by Hispanic Churches in South Florida

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*Keywords: personnel, personnel management, management, nonprofit, hispanic churches, faith based organizations, funding strategies, congregations.*

## I. Introduction

This article explores the Funding Strategies Used by Hispanic Churches in South Florida. In 2017, the author entered a doctoral program at the School of Business Management in the United States and obtained a Ph.D. in Business Management in October 2021. The author's concentration and dissertation are centered on how faith-based organizations can attain financial autonomy. His academic work is referenced in this article.

Much of the literature today is dedicated to increasing membership and funding. Nonetheless, not much information is attainable for Hispanic Congregations in the South Florida area. Most of the reports are devoted to those in leadership and management positions within English-speaking churches. Nonetheless, information to assist Hispanic churches is limited, and no literature defines and considers the funding methods for Hispanic Churches in South Florida.

Presently, congregations in the United States are decreasing in membership. Corley (2018) states that Churches in America are seeking methods to retain their active members. Administrators and leaders at these assemblies must develop a funding strategy to boost attendance and positively impact their faith organizations.

Deficiencies in funding strategies have affected multiple faith-based institutions in the United States (Salmon, 2016). Numerous similar organizations still need to embrace a contemporary funding strategy. The problem affects both English-speaking and Hispanic churches in the United States. Hispanics represent about 17 percent of the U.S. population (Pierce, 2017), and Hispanic congregations are open to serving these communities.

Pérez-Bullard (2019) states that another obstacle for Hispanic churches is the deficiency of knowledge and experience many administrators have in increasing funds for their operations. Many Hispanic leaders and managers are unaware of the funding resources available to them, and some do not have the means or the training to design a strategy for funding and planning (Vale, 2019). Many administrators are unwilling to adjust or be innovative (Kang & Jaskyte, 2011). These constraints could result in a decrease in members, which would impact the congregation's finances.

As per Hill (2019), a community must be self-sufficient, and the primitive Church comprehended the necessity to attain a standard of financial stability. Nevertheless, not owning a financial strategy could be an element that contributes to the decrease in resources for the congregations (Vale, 2019). One of the Church's primary principles is to construct a favorable environment for new attendees to have a positive experience (Johnson, 2018). Nevertheless, if the organization is not successfully developing a funding strategy that could positively influence its economy, the possibility of constructing such an environment could be nonexistent.

## II. Literature Review

Nonprofit organizations are necessary for our society (Daft et al., 2020). The latter provides services to a specific section of the market. The main goal of these organizations is to generate a social impact (Neumayr et al., 2015). According to Lorena (2020), nonprofit companies can increase and raise funds using different resources like grants, donations, and government appropriation funds. These organizations do not increase their revenue by sales of products or charging customers for a service (Daft et al., 2020).

### *a) The Economy of Southeast Florida*

Many travelers consider Florida a top destination (Walton, 2020). The state relies on the following: global trade, farming, aviation and aerospace, and life sciences (Walton, 2020). According to the

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Bureau of Economic Analysis (2020), Florida is the fourth-largest economy in the nation. The Florida Senate (2019) noted in their F.Y. 2019-2020 General Appropriations Act that the state has a GDP of $1.1 trillion and a $91.1 billion budget.

Southeast Florida and South Florida are in the same area, consisting of Palm Beach, Broward, and Miami-Dade counties, known as the tri-county region. According to the United States Census Bureau (2019), the tri-county region has a population of 6 million, placing the region 8th in the nation by population size. In addition, The Metropolitan Statistical Area (MSA) indicates that international migration has increased by 508 percent since 2010 (United et al. Bureau, 2019).

*b) Poverty*

Poverty affected 38.1 million Americans in 2018, 11.8 percent of the U.S. population (Poverty USA, 2020), and African Americans and Latinos are at the top of the list (Walker & Brisson, 2017). In 2019, the poverty rates were down for all communities but remained high for Hispanics. Wilson (2020) noted a 1.9 percent decrease in Hispanic poverty rates in the United States; however, in 2019, more than one-quarter of Hispanic children faced the highest poverty rates.

*c) Income*

Concerning earnings, the average income in a Hispanic family in the United States was $40,483 between 2009 and 2011 (Kayitsinga, 2015). Compared to other groups, non-Hispanic Whites and Asians had the highest median annual income. African Americans represented the lowest income, $34,625, and Hispanics represented an estimated $15,395 per capita (Flores, 2017). According to Wilson (2020), in the 2019 Census Bureau report on income and poverty, an income gap persists despite the growth of the Hispanic population.

*d) Employment Status*

Sixty-eight percent of the labor force is held by Hispanics (Kayitsinga, 2015). Both African Americans and Native Americans represent the lowest unemployment rates. As of 2019, the unemployment rate for Hispanics dropped from 5.8 percent to 4.3 percent (Kochhar & Krigstad, 2017; Asante-Muhammad & Hernandez, 2019). The critical resources the Hispanic communities need are higher income, education, health, and employment status.

## III. Data Methodology

The determination to employ an explanatory case study design stood because one can sufficiently comprehend administrators' perceptions of faith-based organizations. In addition, the explanatory case study is utilized if researchers aim to answer questions defining the supposed causal relations in real-life interventions that are too complex for the survey or testing methodologies (Yin, 2018). The researcher gathered and examined information from Mision Vida Church administrators and (2) interviewed leaders from A New Covenant of Love Ministry Church. The data and interviews were collected between 2019 and 2020. Data for the 2020 census was unavailable at the time of the data collection.

## IV. Results and Discussion

Based on the investigation results, the following recommendations are suggested:

1. Church administrators have to focus on financial strategies during low attendance periods. The latter will protect and create financial security if or when monetary gifts are reduced. The results indicated that one of the challenges in faith-based organizations is creating a system to increase membership ownership and consistency. Attendance is crucial, and the congregation's most significant revenue source has been donations. The latter is linked, to a point, with membership. Members who partner with nonprofit organizations donate money because the institution is an integral part of their lives and an action that many would consider beneficial (Christiansen et al., 2009). Due to the findings, faith-based organizations must focus on financial planning to thrive in their finances.
2. The ongoing shifts in the socioeconomic environment must mover the congregation administrators to be mindful of any internal and external factors that may affect their financial methods. According to the Bureau of Economic Analysis (2020), The State of Florida had the fourth-largest economy in the nation, behind California, Texas, and New York. The study results suggest that faith-based administrators should understand the need to and employ a strategy to build trust within the community. However, the strategy should consider a system the effects of internal or external factors. The latter is consistent with the literature concerning fluctuations within a nonprofit organization (Powell & Bromley, 2020).
3. Faith-based administrators should collaborate with external entities and associates to develop and grow their financial opportunities. The investigation's outcomes revealed specific characteristics of the managerial role within the faith-based organization in various ways. For example, management should constantly find ways to construct or build member loyalty while exploring financial opportunities within the community. As stated above, the focus is on faith-based organizations serving the Hispanic community in South Florida. The average revenue for a Hispanic family in the U.S. is $40,483 (Kayitsinga, 2015). In addition, Kayitsinga (2015) describes how poverty and employment status have impacted the Hispanic community within the U.S.



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Faith-based organizations should be aware of this socioeconomic factor. The latter will allow the administrators of these institutions to actively seek methods to develop loyalty with their current membership while exploring financial opportunities within the community they serve. A nonprofit organization should consider activities that may increase donations (Chang & Chen, 2019). Building and sustaining collaborations may result in 1) delivering additional services to their members and 2) constructing numerous channels for monetary donations.

## V. Concluding Comments

This article has strived to provide different funding strategies Hispanic churches in South Florida could implement. The proper strategy may positively affect church membership, yielding acceptable funds to deliver additional services and enhance overall organizational functioning. The author emphasized the significance of faith-based organizations continually assessing their internal and external environments to improve their financial plans and identify and execute a proper financial method to enhance efficiency and reduce operating costs. Lastly, these organizations must also appreciate the value of their resources and services to the community and use them comprehensively to attain financial sustainment. However, there is a necessity for further investigations to improve or extend the understanding of the dynamics of how resource insufficiency impacts economic sustainment for congregations.

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# Financial Literacy and Retirement Readiness: A Case Study of the Namibian Police Services

By Jeannette Haufiku, Edmos Mtetwa & Gwatirera Javangwe
*University of Zimbabwe*

*Abstract-* Retirement preparedness is a priceless process during one's tenure of employment because no individual can continue working during his or her lifetime. However, the low levels of financial literacy among retired Namibian police officers compromises sound retirement planning. Financial stress upon retirement is particularly problematic for police officers in Namibia, and this study examined the nexus between financial literacy and retirement planning. The research was qualitative, allowing for an in-depth exploration of the personal experiences and challenges faced by retirees. There were interviews with 26 participants, purposively selected from retired Namibian police officers. In addition, five key informants in the human resources department of the Namibian Police services then corroborated information collected. Purposive-sampling enabled the research to target individuals with direct experience of retirement from the Namibian Police Service. Thematic analysis indicated that upon retirement, police officers found themselves in dire poverty, with no sustainable income sources.

*Keywords: financial literacy; pension; retirement; retirement planning.*

*GJMBR-C Classification: JEL Code: G53*



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*Keywords: financial literacy; pension; retirement; retirement planning.*

## I. Introduction

The ability of countries to support their ageing populations and fund the increasing number of retirees is a worrying problem (Yakoboski, 2022). An increasing emphasis on individual responsibility for retirement planning and decision-making means that individual financial literacy (FL) is of growing importance. Financial literacy remains an integral aspect of life in all societies, with those people lacking basic literacy in the management of personal finances ending up languishing in ultra-poverty. It is for this reason that this paper examines the efficacy of financial literacy on retirement preparedness among police officers retiring from the Namibian Police Service.

No individual can continue working during his or her lifetime, at one point there is retirement. Which requires sound planning. Retirement is the point where a person stops employment completely and is capable of supporting himself through alternative means such as investment, and pension plans (Achari, Oduro, and Nyarko, 2020). In order to ensure social inclusion and preservation of human dignity during retirement, it is important that people engage in basic retirement planning throughout their working years and periodically update their retirement plans (Chen and Chen, 2023). While retirement can be a worthwhile phase of one's life, a successful and happy retirement does not just happen but requires planning and continual evaluation. Thus, understanding the retirement process and gaining a sense of control over the future, requires thinking about retirement in advance (Lestari, Banani, and Laksana, 2020). Retirement planning is a systematic way of setting aside resources (funds), it is a business project and setsaside timefor providing income in the old age (Safari, Njoka, and Munkwa, 2021).

The period of retirement is characterised by a dramatic decline of the income and this situation is more likely to have a negative effect on the financial situation of the retiree (Lusardi and Mitchell, 2014), hence there is need for sound planning. Pension funds are the most common form of institutional retirement investment in many countries, but these seems inadequate to cater for one's needs upon retirement. The pension funds are accumulated during the working years of the employee and have the purpose of financing an income during retirement (Safari, Njoka, and Munkwa, 2021). Employers can assist in the management of the pension funds. In this case, the organisation invests in a certain time to constitute a fund that provides a retirement income for its workers. While there are compulsory national pension schemes, these social security systems does not give enough income to support the living expenses of most individuals. Therefore, additional retirement planning is critical to make sure that people can leave in comfort during their retirement. Sound knowledge of financial products (financial literacy) is thus essential for every individual.

Organisations ought to impart financial knowledge to their employees. Lusardi and Mitchell (2014) find that people who are more financially literate

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are more likely to make better economic decisions regarding the use of their resources, which in turn generates a larger positive impact on the economy. Financial literacy is the ability of individuals to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions (Lusardi and Mitchell, 2014). Hence, financial literacy is a combination of awareness, knowledge, skill, attitude, and behaviours of individuals necessary to make sound financial decisions and achieve financial well-being (Achari, Oduro, and Nyarko, 2020). Sound financial literacy policies thus create awareness of the availability of financial products, the benefits, the conditions of accessibility (Elinder, Hagen, Nordin, and Säve-Söderbergh, 2022). Further, while the general level of financial literacy in adults is low, those with higher levels of financial literacy tend to utilise their resources wisely (Lusardi and Mitchell, 2014).

Improved financial literacy can increase awareness of products and services, as well as confidence and ability in using them (Yakoboski, 2022). The lack of knowledge and experience with financial issues may put employees in a disadvantaged position with respect to banks, microfinance institutions, and informal lenders, thus increasing the probability that they become victims of fraud or abuse (Chen and Chen, 2023). In light of the foregoing, financial education can also foster effective financial inclusion by making consumers aware of their rights and the ability to avoid swindles and abuse from unscrupulous financial sector providers. For this reason, enhancing the financial knowledge of individuals is an important option for improving financial decision-making and thus welfare (Lusardi and Mitchell, 2014). For example, to promote the level of financial inclusion in developing countries, financial literacy training and intervention programme are essential. Financial literacy influences significantly the financial wellbeing of individuals. Apart from positive social attitudes, individuals that come from a family with a high score of financial literacy have better risk attitudes towards financial plans and financial management (Hoffmann and Plotkina, 2020).

Financial literacy is a key component of financial empowerment (Hasan, Le, and Hoque, 2021). It is also vital to develop national financial literacy strategies for young citizens and retirees, particularly as finance becomes more digitalised, as financial services provide new opportunities and challenges to consumers (Hasan, Le, and Hoque, 2021). In 2019, the World Economic Forum released a report showing that retirement systems worldwide are currently struggling. The excellent news around the world is that people are living longer, as worldwide life expectancy rose to 72.94 years in 2021 (Heuveline, 2022). Even though life expectancy in Namibia has increased because of a decline in poverty, health and health care facilities have become more accessible and advanced, there is a new challenge. As people live longer and longer, the challenge is ultimately increasing the cost of retirement, and hence the savings gap can increase significantly (Hossin, 2021).

Financial literacy is critical for individuals' preparation for retirement who are taking increasing responsibility for their retirement nowadays. There is a significant relationship between people's financial literacy and their retirement planning behaviours (Chen and Chen, 2023). Prior work has demonstrated that those who are objectively less financially literate prepare less for their retirement and amass less retirement wealth in many countries. The knowledge and skills accumulated with higher financial literacy improves human capital (Chen and Chen, 2023) and therefore the ability to make better financial decisions. These studies generally show a positive correlation with decision-making, such as retirement planning (Lusardi and Mitchell, 2014), wealth accumulation, investment/ portfolio alternatives, and less debt, debt charges or debt anxiety (Lusardi and Tufano, 2015; Noviarini, Coleman, Roberts, and Whiting, 2021).

There is a positive association between financial literacy and retirement preparedness (Noviarini, Coleman, Roberts, and Whiting, 2021). Data from the 2022 P-Fin Index show that retirees with high financial literacy were more likely to plan and save for retirement while still working compared to retirees with low financial literacy (Yakoboski, 2022). Money management and financial literacy are important for the older population as they have limited capability to continue working past retirement. They must manage their wealth and avoid costly financial mistakes to ensure adequate retirement funds (Lusardi and Mitchell, 2009).

Lower levels of financial literacy among retired employees entail that they lack some financial knowledge and decision-making skills, are prone to financial mistakes, and may not be ready for retirement (Achari, Oduro, and Nyarko, 2020). Financial literacy empowers people to make informed choices, avoid pitfalls, know where to go for help and take other actions to improve their present and long-term financial wellbeing. Financial literacy has become an important issue of discussion in the recent years due to the raising awareness among people. It is one of the important challenges faced by all countries globally because it is one of the parts of sustainable development. Financial literacy is helpful for the people of all ages; transition of economy from general literacy to financial literacy is crucial for old and young, men and women, household and working class.

Retirement is better for those who have prepared for it (Yakoboski, 2022). There is a positive relationship between financial literacy and retirement readiness along multiple dimensions. Therefore, financial ignorance carries significant costs and individuals should enhance their knowledge of banking

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products. Financial literacy programmes can start when one joins an organisation, as part of the orientation schedule. Retirement planning ought to start once one has reached the age of employment. Some careers are very short, average working life 20 years, not many people spend more than 40 years in productive employment (Yin-Fah and Alwie, 2018).

The retirement savings gap has become a worldwide issue since life expectancy has increased and is continuing to rise in Namibia because of poverty reduction, better health care facilities, active living, and healthy lifestyles. Despite the fact that there is limited effort towards preparing employees for retirement with regard to wealth accumulation, longevity has increased and is continuing to increase, resulting in longer lifetimes and aging populations (Hasan, Le, and Hoque, 2021). The longevity of retirees is greater than that of current pension systems, which puts a strain on the sustainability of the retirement products and concepts currently supporting retired police officers in Namibia. Police officers who are less literate about financial retirement products and concepts are less likely to plan and save for retirement, according to research.

The preceding arguments highlight the significance of financial literacy and retirement planning for mid-aged and older workers who retire with insufficient retirement funds for a pleasant post-retirement lifestyle. Retirement planning has become crucial in the welfare of retirees. Because of inadequate forward planning, retirees often lead miserable lives after retiring, resulting in reduced incomes. Governments across the globe, including the Namibian government, face a problem of supporting retirees who are ill and stressed because of financial barriers. Evaluating retirement preparation is a simple and direct way to determine whether people look ahead and make plans for the future (Yu, 2020). The global retirement preparedness crisis is because of the increased life expectancy, resulting in a social crisis. Consequently, the elderly are unable to support themselves following retirement (Lee, 2018).

To bring the study under a theoretical context, there is application of Modigliani's Life Cycle Model, which points out that an individual's life has stages and it is essential to make the best decisions at each stage of life, and to plan for the future phases. The Life Cycle Theory focuses on spending behaviour and is a result of the seminal works of Modigliani and Brumberg in the 1950s (Safari, Njoka, and Munkwa, 2021). The theory states that individuals make informed decisions about the amount they want to use for their expenses at each stage of their life. In addition, Modigliani (1986) propounded a model consisting of four major determinants that have a bearing on retirement savings behaviours, and these are psychological (including cognitive, personality) and motivational forces, task characteristics (complexity and prior experience), cultural ethos, and economic forces, such as household income and economic climate (Modigliani, 1986).

The Life Cycle Model provides a map for understanding the economics of consumption, investment and savings, including the private and public provision of social security in the 1950s. The theory further presumes that human beings are thoughtful and rational, and the households accumulate and de-cumulate assets in an endeavour to maximise lifetime utility function, including a bequest. Furthermore, households also have the cognitive ability and sufficient power to optimise consumption and savings (Benartzi and Thaler, 2007). One of the most important motives for putting money aside is the need to provide for retirement and hence individuals plan for their consumption and savings behaviour over their life cycle (Modigliani, 1986). The major assumption is that all individuals choose to maintain stable lifestyles implying that they usually do not save up a lot in one period in order to spend furiously in the next, but keep their consumption levels approximately the same during every period.

This study examines the Namibian police officers' awareness of retirement procedures and pension calculations. Attention is also on discussing the relevance of financial literacy training, and examining the relationship between financial literacy and retirement planning. This study contributes to the personal financial management literature by investigating the relationship between financial literacy and financial preparedness for retirement among the Namibian police officers. Attention is also the importance of imparting information about retirement to the employees, the relevance of financial literacy training, and the nexus between financial literacy and retirement planning.

## II. Methodology

A qualitative investigation helped to explore the preparedness of Namibian Police officers for retirement, knowledge of pension calculations, financial literacy, and retirement planning. Qualitative research enabled the collection of detailed and personalised information. Purposive sampling was in use to select the 26 participants as this made it possible to engage with individuals who had gone through retirement and seen how their level of financial literacy affected their welfare as retirees. Purposive sampling helps a researcher make the most out of a small population of interest and arrive at valuable research outcomes (Campbell, Greenwood, Prior, Shearer, Walkem, Young, and Walker, 2020). In addition, purposive sampling enabled the research to target individuals with direct experience of retirement from the Namibian Police Service. The study conducted in-depth interviews with 26 retired police officers and three officers from the police administration. The saturation principle was in use to



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decide when to discontinue the data collection process. Through interviewing retired police officers, the researcher's intention was to establish how if at all they had prepared for retirement and the extent to which their level of preparedness had affected their welfare in retirement. The interviews were conversational rather than interrogatory in nature in order to ensure the participants were comfortable to share their personal experiences. There was use of thematic analysis, which entailed grouping and discussing of related findings together. The study respected ethical principles of informed consent, voluntary participation, confidentiality, and data protection.

## III. Findings

There is presentation and discussion of findings in line with three themes. First, focus is on examining the extent to which Namibian Police Officers are enlightened about the retirement procedures and pension calculations. Second, there is discussion on the efficacy of financial literacy training in the Namibian Police Services. Finally, there is presentation on the relationship between financial literacy and retirement planning in the Namibian Police Services.

*Theme 1:* Inadequacy of Retirement Preparedness in the Namibian Police Services

This study found out that were no arrangements for ensuring that employees were enlightened about retirement procedures. As a result, the information which they had about what lay ahead for them was obtained mainly from fellow officers who had retired and as a result some officers ended up with the wrong information altogether. This view was from both the retired police officers and the Police administration. From the words of one of the police officers:

*"To tell you the truth, there is nothing from the police side to prepare me for my retirement."*

An administrative employee of the police shared the same sentiment:

*"Currently we do not have any financial literacy programme running. We do not do anything to prepare the retirees in terms of financial literacy."*

The officers felt that they would have benefitted from some organised programmes to prepare them for retirement and impart essential knowledge to retiring employees. One of the retirees contributed:

*"The police administration must come up with specific courses related to retirement and its implications. Police should not even address the problem at the end of service but during the entire period that we are in service and ensure that they stress it more when you are about to retire, like 10 years before you retire."*

Information regarding retirement and its implications was an effective way of improving preparedness for retirement. In the current scenario, the police officers therefore did not have any information on the procedures for their retirement as the employers did not have any arrangements for educating them. The findings are in line with literature and pensioners did not receive up to date information to keep them informed about what to expect in retirement (Elinder, Hagen, Nordin, and Säve-Söderbergh, 2022). The findings also concur with Crawford and O'Dea (2020) who argued that the more informed an individual was, the more the quality of their preparedness for retirement (Crawford and O'Dea, 2020). The findings differ from Akben-Selcuk and Aydin (2021) who argue that individuals were supposed to prepare for retirement should be able to do so regardless of whatever other provisions are there. Being enlightened about retirement appeared to improve an individual's preparedness for retirement (Akben-Selcuk and Aydin, 2021).

The study showed that Namibian police officers were not aware of formula used to calculate their pensions. Therefore, the police officers were unable to establish the income deficit that they would face upon reaching retirement age. The public service appeared to be secretive about the formula used for calculating pensions, which let the active officers in the dark about what to expect when they reached pensionable age and left the service. One of the retirees said:

*"You are not sure if you received the correct amount because when I visited to the Government Institutions Pension Fund (GIPF) they told me an amount that is different from the actual value I received."*

The lack of transparency about the pension calculations certainly did not help police officers in their retirement planning, as they did not know the income gap they would face after retirement. Such knowledge was important as one of the retirees observed as it would spur them to plan. According to them with such knowledge:

*"One can have additional retirement plans, which could make a difference on total retirement package. Therefore, it is very important for in-service police officers to engage in early retirement planning."*

The police officers were not aware of their pension calculations, and failed to plan for their retirement from an informed perspective. This might in the result in inadequate planning and being unprepared for life after retirement. Similar findings were made by Khan (2022) whose studies revealed that when individuals familiarise with the way in which their pension will be calculated they are more likely to realise the need to supplement it (Khan, 2020). Individuals who were aware of their pension calculations were twice more likely to make significant investments in their first ten years of working than those who did not (Jovanovski, 2020). The findings however differed with Elinder et al. (2022) who did not find improved preparedness among individuals who were familiar with their pension

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calculations (Elinder, Hagen, Nordin, and Säve-Söderbergh, 2022). Knowing pension calculations appeared to improve preparedness for retirement among police officers in Namibia.

*Theme 2:* Absence of Financial Literacy Training in the Namibian Police Services

This study showed that there was no financial literacy training for the police officers in Namibia. Pensioners deeply lamented the fact that they did not receive any financial literacy training during their working years and went about their lives blindly in terms of investing for the future. One of the retirees indicated that:

*"I think the police services' social workers and the finance colleagues need to play an important role even 10 years before police officers retire."*

The retirees were not comfortable with their level of preparedness for retirement and they felt short-changed by their employers who they felt could have helped them more in preparing for their departure from employment. Rather than realising that their incomes would need supplementing after retirement some officers only realised when they retired that the package was not as good as in their working days. One of the participants said:

*"For us we just thought of too much money coming our way. We need to receive advice on how to use the money wisely, as we retire and how to prepare yourself into retirement."*

The retirees felt that it was important for employees to receive training on how to manage their incomes and the need for making an investment towards their post retirement incomes. Retirees expressed the sentiment that if they had known sooner how much they needed to supplement their pensions in retirement they would have made the necessary investments. Due to lack of financial literacy, training officers often retire without personal pension plans. Therefore, the retired police officers face financial challenges, which are avoidable through investing in personal pension plans to supplement their government pension. One of the participants said:

*"We are not educated on the extra insurances that we should invest in to boast up our retirement packages, we just rely on GIPF Pension."*

With proper financial literacy training, officers would also be in a position whereby they avoid debt, which is weighing down some. It is advisable for individuals to manage their debt in such a way that they can pay it off before they retire to avoid a debt burden on their retirement income. As one of the retirees said:

*"You should sit and play specifically around regarding your financial position and it is nothing that I experienced. Some of my colleagues have had a sad experience, which has still retired with a loan on your house, or maybe a car debt you are in serious trouble, I tell you, you must sit and plan for that five years to make sure that there is no big debt in your life."*

Financial literacy training was critical for the officers to manage their income and invest wisely. It also helped them to manage their debt profile to avoid a huge debt burden after retirement. Financial literacy is essential in enhancing preparedness for retirement. Studies that also made similar findings include Yin-Fah and Alwie (2018) and Yakoboski (2022) who concluded that financial literacy training was an essential step in preparing individuals for retirement (Yin-Fah and Alwie, 2018; Yakoboski, 2022). The findings however do not tally with Yeh (2022) who argue that despite being financially literate, some individuals still do not make sound investment decisions and end up struggling after retirement (Yeh, 2022).

*Theme 3:* Importance of Financial Literacy in Retirement Planning

This study showed that the investment decisions which serving police officers made ultimately mattered in their preparedness for retirement. Members who had invested in their own accommodation during their serving years did not have to use their retirement income for instance and thus had more disposable income. One of the participants said:

*"I bought my house with my pension and also bought a car. The problem is when I was in service I felt I could not afford but now I could buy all cash. I have with little money to sustain my spouse and myself. My children assist us here and there but we do not want to be a burden to them."*

Retirees who had bought houses before their retirement and made other investments appeared to be more comfortable in their retirement. In the case of those who had to buy a house with their retirement package this seriously depleted their pension, leaving them with inadequate resources. One of the officers who had bought their house while in service said:

*"Some of us were lucky that we had houses and cars while we were working, but you find most officers are staying in government houses and then find it difficult to build a standard house after retirement."*

Access to government housing made officers comfortable and some of them only thought of investing in their own house after retirement, which unfortunately left them with less money for their upkeep. Officers who invest in instruments such as pension plans get a second income, which helps them to live a better standard of life after retirement. These investment decisions however have to be made earlier in life to get meaningful returns on the investment made. Some of the officers who were comfortable in retirement had invested in business during or at the end of their careers. One of the participants said:



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*"My residential suburb is very old and dilapidated, with old trees. To earn some income, I invested in tree-cutting and refurbishment business, which is helping me and others I employ."*

The officers who had invested in business either during or at the end of their careers were generally satisfied with their post-retirement welfare. Similarly, those who had also made other decisions to invest in other instruments fared better in retirement than those who did not. The investment decisions, which individuals made, had an influence on their preparedness for retirement. The findings of the study are consistent with Ozyuksel and Gunay (2019) who concluded that when individuals make sound investment decisions this would result in comfortable retirement for them. In a study carried out in Singapore, Koh et al. (2021) also found that decision-making played a key role in the preparedness for retirement among professionals.

## IV. Conclusions

The study concluded that the Namibian police officers were not very enlightened about pension procedures and this compromised their preparations and preparedness for retirement. Information about pensions was not readily available and officers had to rely sometimes on information from colleagues. The study also concluded that knowledge of pension calculations contributed positively towards an individual's preparedness for retirement. An individual who had an idea of what their eventual pension could be with respect to their current income would be in a position to come up with plans to supplement their pension income. The study pointed out that financial literacy training was capable of helping an individual with preparedness for retirement. Individuals who received financial literacy training were able to manage their income better, make better investment decisions and avoid crippling debt.

The study concluded that the investment decisions, which officers made while they were in employment and upon leaving work, had an impact on their preparedness for post-retirement life. There was evidence of retirees benefitting from the investments they had made during their working days including housing and others benefitting from investments they made after retiring.

The study recommended that employees must receive information about retirement and the benefits they should expect at the very beginning of their careers. This should include information pertaining to the calculation of pension amounts. This will help to make them aware of the shortcomings of their retirement package and start to prepare for supplementing their pension early in their careers. Employees should also receive financial literacy training as part of their induction and throughout their career. This would help them to manage their money and save for their retirement. Financial literacy training would also help the employees to make sound investment decisions, which will benefit them in the future. Employees who are due for retirement ought to start getting financial and other counselling at least 10 years before they retire so that they are aware of what awaits them and prepare accordingly.

This study was qualitative, collected data from a limited number of participants, and had a limitation of coverage. Therefore, the study's generalisability to all retired police officers in Namibia is limited. However, there was collection of data from the Namibia Police Administration, which helped in enhancing generalisation of the findings. The study did not collect data from financial institutions and future studies could consider exploring the banking and life insurance services that the available to the police officers to enhance their retirement preparedness. In addition, future studies could use the mixed methods approach, which could ensure collection of both objective and subjective data.

### *Author Contributions*

There was equal contribution by the authors, who worked together in all the stages of the research process.

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### *Conflict of Interest*

The authors declare that they have no conflict of interest.

### *Data Availability*

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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# The Reflection of Hope in Social Media by Generation Z

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*Abstract-* This mixed-method (qualitative and quantitative) study explores perceptions, reflections, and the essence of hope among GenZers as expressed in social media. Hopefulness and hopelessness toward the future is one of the important and considerable issues in business and academia, which have been studied scientifically since the 1960s. Being hopeful is considered one of the most important motivations in one's life because hope is the root of creativity and human development. It sets up individuals for goal achievement and helps people reach for their dreams. Technology has a significant role in GenZers' lives, from socializing to schoolwork, entertainment to exercise, and relaxation to corporate careers. In our study, we will specifically investigate Gen Z's responses on Twitter regarding the concept of hope. Our study will explore a deeper content analysis of a particular channel (Twitter) and decipher the themes (words, images, talent, tone) that tie into the value of HOPE or its synonyms, using a quantitative method going deep via techniques such as discourse or textual analysis where we more specifically interpret the GenZers' posts. We decode the number of posts in relation to five themes of hope: education, relationships, future, politics, and career.

*Keywords: gen Z, generation Z, genzer, hope, hopeful, hopefulness, twitter, social media, business, education, CSR, corporate social responsibility, management, and goal achievement.*

*GJMBR-C Classification: LCC Code: HM742*



*Strictly as per the compliance and regulations of:*

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# The Reflection of Hope in Social Media by Generation Z

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*Abstract-* This mixed-method (qualitative and quantitative) study explores perceptions, reflections, and the essence of hope among GenZers as expressed in social media. Hopefulness and hopelessness toward the future is one of the important and considerable issues in business and academia, which have been studied scientifically since the 1960s. Being hopeful is considered one of the most important motivations in one's life because hope is the root of creativity and human development. It sets up individuals for goal achievement and helps people reach for their dreams. Technology has a significant role in GenZers' lives, from socializing to schoolwork, entertainment to exercise, and relaxation to corporate careers. In our study, we will specifically investigate Gen Z's responses on Twitter regarding the concept of hope. Our study will explore a deeper content analysis of a particular channel (Twitter) and decipher the themes (words, images, talent, tone) that tie into the value of HOPE or its synonyms, using a quantitative method going deep via techniques such as discourse or textual analysis where we more specifically interpret the GenZers' posts. We decode the number of posts in relation to five themes of hope: education, relationships, future, politics, and career. Authors believe that the methodology and findings from this study can shed a better light on areas in which educators, social entities, and businesses can encourage hope in various aspects of GenZer's lives.

*Keywords: gen Z, generation Z, genzer, hope, hopeful, hopefulness, twitter, social media, business, education, CSR, corporate social responsibility, management, and goal achievement.*

## I. Introduction

This study explores reflections of hope among GenZers. Hopefulness towards the future is essential. Hope is the root of creativity, human development, goal achievement, and individual dreams. This content analysis examines themes, images, and tone that tie into the value of HOPE via textual analysis to interpret the GenZers' posts.

Generation Z (Gen Z) as a group is of major interest to organizations across disciplines, from universities and corporations to government agencies. "Gen Z accounts for 61 million people in the U.S., a group larger than Gen X." (Morris, 2018). Gen Z will be the dominant generational cohort in the population by 2020. This generational cohort is large, diverse, and highly connected through technology as they are digital natives, with no recollection of a time without the internet (or cell phones) at their disposal. According to one study, GenZ watches 70% more videos than millennials (State News Service, 2019). GenZ is now entering the labor market and colleges. It is important to understand this cohort to better connect for mutual success at school, at work, and in play. This topic is current and has appeal to those who have tried to understand, connect with, and serve Gen Z students and employees. Previous data suggests Gen Z is a highly anxious group, feeling isolated and desperate in their daily lives compared to previous generations despite their relatively easy access to connect with others. (American Psychological Association, 2018). Gen Z is passionate about issues of social justice, although they are more likely than any other generation to support restrictions on free speech, as well as disinvite speakers who do not support their point of view on college campuses. (Schroth, 2019) This study seeks to glean valuable insights concerning Generation Z from their postings on social media. Researchers at Harvard University (Tamir & Mitchell, 2012) note that disclosing information about what they feel is shown to be intrinsically rewarding. Gen Z is more apt to share online. With this backdrop, the researchers embarked on a project to better understand this generation from the perspective of how they reflect hope in their social media use and, in particular, their reflection of hope as found in their organic postings.

Hope towards the future is one of the most important and substantial issues in social science, which has been studied scientifically since the 1960s (Keene, Reder, & Serwint, 2009; Nesse, 1999; Snyder, Irving, and Anderson, 1991). Being hopeful is considered one of the most important motivations in one's life, as hope is the root of creativity and human development. It is the spark in setting up individuals for goal achievement and movement achieving dreams. Research presents ideas on why scholars should study hope (Gallagher, 2017). Hope resides where the fundamental understanding of human flourishing exists. Hope is essential for positive human development. Drawing from historical and contemporary philosophy and psychology, hope can be seen as a human strength that helps to optimize resources towards positive pathways of development. Relational developmental, moreover, systems theories (Overton & Muller, 2012)

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emphasize pathways and direction are shaped by individual characteristics such as aspirations, values, hope, etc.

Hope has many facets and dimensions based on both personal and cultural values (Nesse, 1999; Kim et al., 2012). In order to understand more about a generation, it is insightful to examine how hope is expressed or reflected in their own words. For example, NPR/PBS Marist Poll's results for New Year's Resolutions & Outlook for 2019 revealed that 40% of Americans who were optimistic about the world were particularly optimistic towards family, 15% towards jobs, and 13% towards health (Marist Poll, 2019). On the flipside, 64% of Americans who claimed to be pessimistic were associating the negative outcomes with politics, 16% in news, and 8% in finances. Reflections of hope have been segmented in several different veins, including relationships, politics, education, future, and career.

Analogous to the findings of Marist Poll's study, this study examines how GenZers express hope in social media towards certain segments of their lives by scanning their organic postings on Twitter using a monitoring tool by a renowned social media monitoring company. A query was created to identify any post or tweet concerned with or mentioning 'hope' on Twitter. The results show that there were 43,561 GenZers identified by using key terms in their Twitter Bios. Among them, there were 4,718 total mentions of hope examined from 2,127 unique authors. This is because some authors mentioned key terms more than once and were counted twice. Note that postings were dated from Jan 01, 2019 - May 12, 2019, with 36% Female and 64% Male GenZ postings. Further examination revealed how GenZers express and communicate hope via *tweeting*. Understanding how hope is communicated is crucial to ponder as it helps to discern how businesses can relate back to the GenZers. The methodology and findings of monitoring social media posts from this study can shed a better light on areas in which educators, social entities, and businesses can encourage hope in various aspects of GenZer's lives.

## II. Literature Review

### a) Hope

A positive outlook for the future regularly conceptualizes hope and optimism as acting as likely instruments toward attaining positive mental health (Gallagher and Lopez, 2017). The absence of hope is associated with depression and anxiety, which impacts negatively on the quality of life. (Siril, 2020). It is hypothesized that 'hope' is something a person can both have and practice (Eliott, 2005). You can have hope as well as maintain hope in different situations. You can have hope for the future or maintain a desire or hope for a change at work. A spiritual interpretation of hope is both a virtue and a gift. The Bible articulates hope as one of the three divine gifts in the Bible "and now these three remain faith, hope, and love. But the greatest of these is love" (1 Cor. 13: 13, New International Version). Hope is a gift, as illustrated in Jeremiah 29: 11B (NIV): "plans to give you hope and a future."

Even thousands of years later, human science, through the field of positive psychology, has confirmed that hope is a critical root construct of most positive relational theories. One of the main areas of focus covered by positive psychology is the occurrence of hope (Bormans, 2016). Hope can be seen as something close to our ultimate goals and spirituality.

Hope is reflected as an essential component in human life (Keene, Reder & Serwint, 2009). Higher levels of hope are connected with more positive consequences in several areas and serve as a catalyst, igniting other emotions and promoting well-being (Snyder, Shorey & Rand, 2002).

Hope is a forward or future-looking paradigm with spiritual merits that can serve as an inner resource helping people attain goals and reach positive outcomes, particularly in situations of doubt, emergency, or stress (Granek et al., 2013; Haase, 2004; Keene Reder & Serwint, 2009). In fact, the presence of hope has been identified frequently as a positive coping behavior (Patterson et al., 2004). Hopefulness has been found to influence a positive affirmation of resilience (Haase, 2004; McCubbin, Balling, Possin, Frierdich, & Bryne, 2002; Rosenberg, Baker, Syrjala, Back, & Wolfe, 2013). Hope has been defined as the recognized existence of goals and actual ways to reach those goals (Kwong, 2018).

Snyder, Irving, and Anderson (1991) (1994) consider hope as "a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals)" (p. 287). It is described as both cognitive (Breznitz, 1986; Gottschalk, 1974) and emotional (Snyder et al., 2002). It acts to motivate people towards goal planning and achievement. Hopefulness is a look and promise in a future leading towards positive results. Hopeful and happy people have strong relationships with their friends, partners, neighbors, and relations. One result of the presence of hope for young people is that it motivates individuals to be active and try to achieve their goals. In a follow-up study, Snyder (2002) linked high levels of hope with increased levels of well-being and adaptive coping.

Fredrikson (2009) and Crestinker (2008) note that hopeful people have strong interactions with their relations, family, and friends. Among different indexes of social capital (participation, social trust, social coherence), social cohesion and social trust have, respectively, the most effect on students' hopefulness towards the future. The opposite can be true as well.

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Low levels of hope - i.e., hopelessness/despair - have been clearly linked with dysphoria and depression (Abramson et al., 1989; Beck et al., 1975; Chang & DeSimone, 2001) and, by consequence, with suicide (Aldridge, 1998; Beck et al., 1990; Grewal & Porter, 2007).

Thus, hope is fundamental to good health and well-being. The reverse can also be seen as a deficiency of hope and may shorten both the quality and duration of life. Given such serious consequences, hope represents a valid and important therapeutic target and one of paramount interest to academics who influence and engage with this audience.

*b) Generation Z*

Members of Gen Z were born after the year 1995 and can be described as highly connected, active users of communications and media technologies such as social media platforms (Peterson, 2014). Gen Z has never known a world without smartphones or the internet, so they are accustomed to collaborating, sharing, and distributing images and information digitally (Desai, 2017). GenZers are known to be well-connected, driven by greater exposure to digital media, more accepting of diversity, and spend significant time on online social networks (Grail Research, 2010). In order to accommodate this generation in work, school, and society, it could be advantageous to have some insight into this population's views and reflections.

GenZers are highly active on social media, spreading and sharing experiences online through videos and links (Relander, 2014). As a consequence, GenZers prefer to "socialize online rather than face-to-face, a change both positively and negatively affecting society" (Schwieger, 2018). Hence, Generation Z has an informal, individual, and direct way of social networking as a part of their everyday lives (Stillman, 2017). Averaging about 2 hours and 43 minutes a day on social media (Global Web Index, 2017), they look to social media to reflect, rebuild, affirm, and create genuine digital relationships. Thus, it is fitting for the researchers to examine how GenZers express and communicate their ideas on hope through social media posts. Understanding how hope is communicated is one way to look into the minds of the generation heading into college and university and into work: the GenZers.

*c) Business Promote or Prevent Hope*

Schroth (2019) notes that managers face special challenges with the new generation of employees, and it is important for managers to understand the factors that have influenced Gen Zers to think and behave as they do. 'Understanding their behavior and the distinct needs that they have will help managers to better integrate the new employees into the workplace for mutual success.' In regard to hope, according to Kim, Kang, and Anna (2012), companies either promote or prevent hope via two types of hope: promotion-focused goals and prevention-focused goals. Promotion-focused goals are "related to achieving desirable outcomes," whereas prevention-focused goals are "related to avoiding undesirable outcomes" (Kim, Kang, and Anna, 2012, p.44). These two terminologies stem from regulatory focus theory, which differentiates promotion-focused goals and prevention-focused goals (Higgins, 1997; Higgins et al., 1997). While other research supports this theory by examining the effectiveness of marketing activities in promoting or preventing hope to induce wanted consumer behavior (De Mello and MacInnis, 2005; Madrigal and Bee, 2004; Poels and Dewitte, 2008); Kim, Kang, and Anna (2012) further look at the promotion and prevention of hope to promote CSR (Corporate Social Responsibility) activities. Thus, businesses' promotion and prevention of hope demonstrate that businesses are influential in the promotion of different kinds of hope to encourage a better society. In this study, the authors look to understand how businesses can promote and advance hope in Generation Z. As Gen Z will be the dominant generational cohort in the population, with over 7.7 billion by 2020 globally, it will be crucial to understand how hope can be conveyed to this rising generation.

Businesses can be effective agents in promoting hope in society (De Mello & MacInnis, 2005; Kim et al., 2012; Madrigal & Bee, 2004; Poels & Dewitte, 2008). Anecdotally, businesses such as Always and Dove promote hope by supporting women's equality, while Pantene and Tide promote family time by encouraging dads' interaction with their kids. Companies like General Mills are becoming more family-friendly, providing free medical clinics, beauty salons, tailors, and gas stations to their employees. On the other side of the spectrum, businesses can also prevent hope. For example, Air B-n-B's advertising slogan "to limit travel is to back progress" on opposing the Supreme Court's Trump travel ban ruling and/or Lush's campaign "Paid to lie" against #spycops in the UK. Both types of hope can be used to fuel change, but one creates hope, and the other prevents hope.

## III. Methodology

After considering a variety of options for social media platforms to monitor, the researchers selected Twitter as the platform of choice as GenZers use this tool extensively, and access to data was made available by a leading social listening company. Twitter is an online social networking service that enables users to send and read short messages called "tweets." The goal of Twitter is to help users create and share ideas and information quickly (Twitter.com, 2019). 44% of GenZers use Twitter (Global Web Index, 2017), which is the highest percentage of users among any other age group. It is the 6th most used social media platform below YouTube, Facebook, Instagram, WhatsApp, and



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Facebook Messenger. The top 5 platforms were not used as they are difficult to monitor a genuine voice like Twitter, which was originally created to function as a mini-blog. Messengers like WhatsApp and Facebook Messenger are private conversations, YouTube is used for video-watching, Instagram is photo-based, and Facebook is a place for keeping in touch with family and friends, not a platform to post commentaries. Due to the restrictive limits on characters on Twitter, tweets come off as much more authentic to the users' voices than other platforms. (Poels & Dewitte, 2008). Tweets are a brief summary of an idea in the shortest and most natural phrasing possible.

First, Twitter authors were pulled from the general population who posted on Hope between January and May 2019. The following commands were used to filter and monitor conversations on hope: "(((((I OR me OR my OR we) NEAR/10 (hope OR hoped OR hoping OR hopeful OR hopes OR wish OR wishing OR wished)); fingers crossed; phrases with wish." Then, we specifically looked for Gen Z posts (GenZers are ages 7-22). This group was identified by clues they gave regarding their age, such as high school/college graduation dates. Gen Z posts were isolated, and key themes, timing, and frequency were recorded in addition to overall post levels and number of discreet authors.

Top keywords, hashtags, phrases, and emojis were collected from the posts which met the query above. In order to understand what the GenZers are, researchers compared these top keywords, hashtags, phrases, and emojis from the GenZers and the general public. Demographic information was also collected and analyzed. For the general public, there were 33 million mentions with 11 million unique authors from January to May 2019. For the GenZers, there were 4718 mentions with 2127 unique authors in the study.

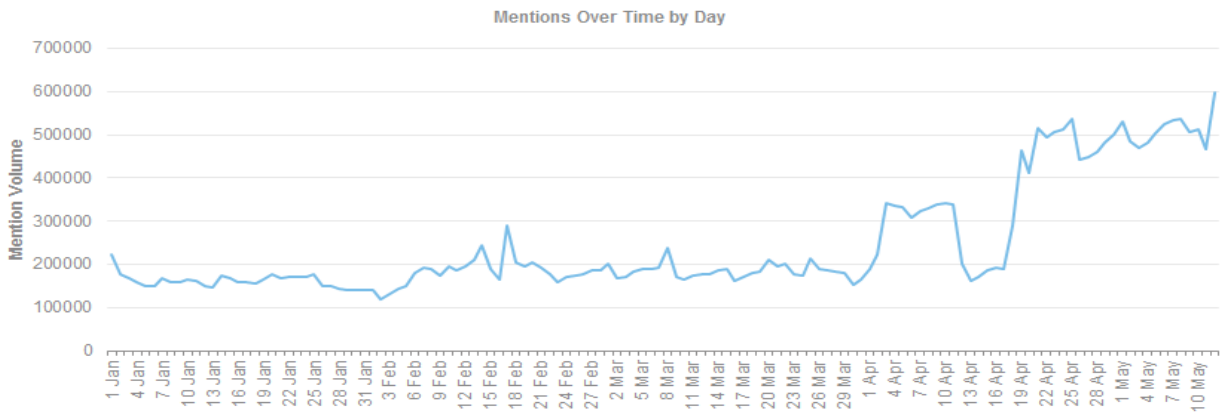
## IV. Findings

For the general population, looking at the 33 million tweets that mentioned hope, 47% were female, and 53% were male who posted comments on the topic. Top interests among this group are in family and parenting (12%), sports (12%), music (10%), and books (8%). The top professions were artists (28%), executives (15%), students (12%), and teacher & lecturer (8%). Geographically located, 79% of the general population, Tweeters on Hope, were from the U.S.

For the GenZers looking at the 4718 tweets that mentioned hope, 36% were female, and 64% were male who posted comments on the topic. Top interests among this group are music (27%), politics (11%), science (7%), and beauty/health (6%). The top professions were artists (34%), executives (20%), health practitioners (12%), and teacher and lecturer (10%). Geographically located, 99% of the GenZer Tweeters on Hope were from the U.S. Sentiment analysis showed mostly neutral posts regarding Hope (68%) vs. 25% for positive comments and 7% for negative comments.

The number of hope posts increased 'significantly' in May- perhaps indicative of the end of the school, warmer weather, etc. Table 1 shows the total number of posts with mentions of hope by Gen Z posters. Numerous studies have also linked a positive correlation between hope and school performance, life satisfaction, and effective coping strategies in students was revealed by multiple studies, including Chang (1998). Ciarrochi, Heaven, and Davies (2007) studied 'positive thinking' variables, including hope, in predicting high school grades, and came to the conclusion that hope was a predictor of positive affect and the "best predictor of grades." More study needs to go into the rise of tweets towards the end of the school year, but perhaps it is just as simple as looking forward to the end of the school year and the beginning of summer; as one tweeter noted, "*I really wish I could stop losing the will to do any schoolwork. This time of the year... when I really need to get everything done. It's biting me in the butt*."

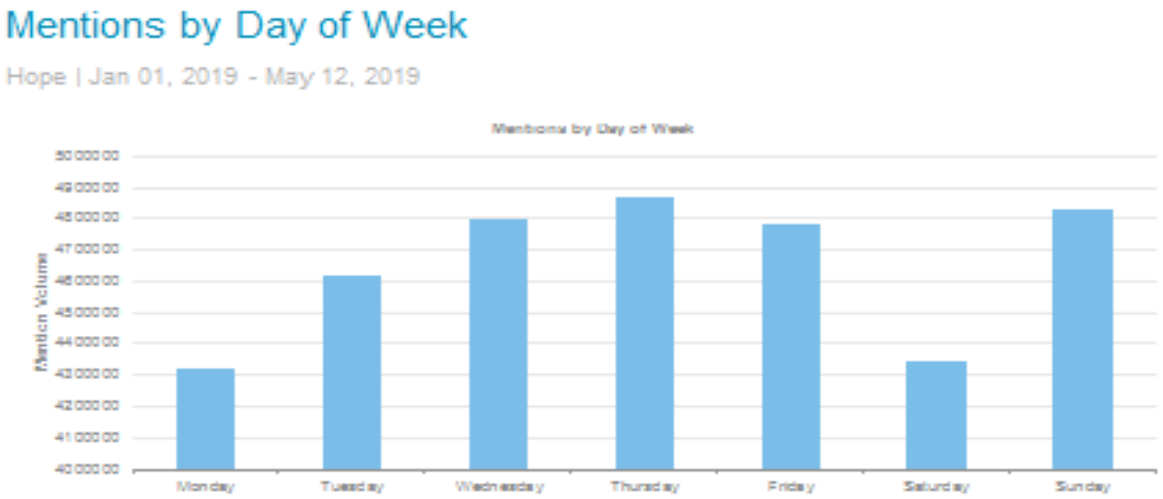
*Table 1:* Total Mentions of HOPE by Gen Z Jan-May 2019




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The most popular day of the week to post was Thursday, with over 4.9 per second tweets on Thursdays. On average, there are around 6000 tweets tweeted per every second. Table 2 shows the total number of posts each weekday with mentions of hope by Gen Z posters. The study examined only the tweets from GenZers that reference hope, hopefulness, or corresponding synonyms or emojis.

*Table 2:* Total Tweets per Day by Gen Z




As topics were further investigated, it was found that happy birthday, love, birthday, school, great, and today all were top areas of 'discussion.' This indicates both hope areas of interest to this audience (school, birthdays) as well as the words they use in connection with our stated hope triggers. Several top topics were recurring themes in the reflection of hope in GenZers. Some of the more frequently used phrases around hope include the following: good one, high hopes, hope your day, have an amazing- some of the more general phrases one finds around this general area of hopefulness. Keywords were more of the same. The larger the print, the more prominent and frequent the association. Some of the more prominent associations with hope were love, pic (picture), people, birthdays, today, and life. Findings on these top topics of hope are summarized in Table 3- Word Cloud Top Topics.

*Table 3:* Word Cloud of Top Topics of Hope by Gen Z

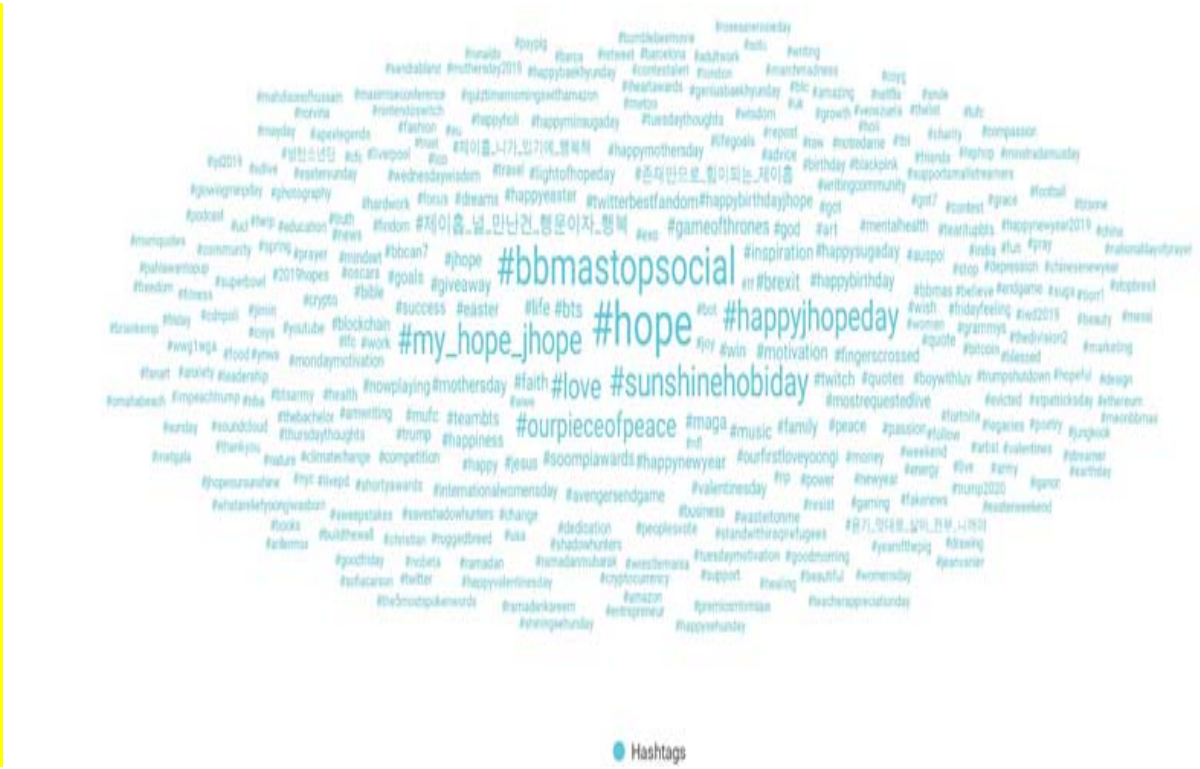





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Regarding hashtags, some surprises were discovered, including # arthritis, #ra (rheumatoid arthritis), #autoimmune, and #rheumatoidarthritis as key topic areas, which was surprising considering their age group. Hashtag results were also noteworthy. There was a much higher percentage of hashtag results for this group than expected. Some of the more prominent associations included #bbmastopsocial (Billboard Music Awards top social, #sunshinehobiday (Hobi is an artist from Japan), and #hope. #Hope is also big on Instagram. This is a shorter version of 'This is what I hope' or 'hope you are doing well.' Sometimes a hashtag illustrates action or hope, as in this twee from JP,*"I think this is a new one, cause I don't recognize some of the moves (and I kinda wished it stayed that way)... #NeverGonnaStop..."* Our findings on these top topics of hope are summarized in Table ~~4~~ Word Cloud of Top Hashtags related to hope.

*Table 4:* Word Cloud of Top Hashtags related to Hope postings by Gen Z




Some of the more frequently used phrases around hope include good one, high school, hope your day, and have an amazing- The focus on hashtags typically indicates a population that is focused on identity as these signal to the social media community that you agree with that statement and want to be known as being part of that group.

Another discovery was the connection this generation had with expressing hope in emojis. Emojis are small images or icons used to express ideas or emotions. There are many emojis, and each one may have a different meaning. Some are pretty easy to understand, as a smile means happy or a frown connotes sadness. Emojis serve an important function in communicating with Gen Z, and that is important to understand. Where other generations think in words, Gen Z often think in symbols. (Stillman, 2019) Many emojis were also used by this group when referencing hope in the topics present. The classic red heart emoji is classic love or used to express love. The Purple Heart has a similar meaning but is used by Apple products like an Apple phone. The laughing face with tears means laughing so hard. Also associated with hope is the emoji of the praying hands, which roughly translates into praying for you or the topic of discussion. Sadness over an event or what is happening is represented by the crying face with streams of tears. One Twitter uses emojis to emphasize emotions and wishes, "@BTS_twt RM I love you I hope you are always healthy." Another note with surprise and disgust at the use of different font: *me h- Graphic Designers: OMG* 😖 *IS THAT COMIC SANS?????!!* 😓😱😱 *WHY WOULD YOU?* The emojis that are most prominently connected to the feeling, expression, or reflection of hope are summarized in a Word Cloud. Our findings on the top emojis related to hope are summarized in Table 5-Word Cloud Top Topics. The authors examined how GenZers express and communicate hope. Understanding how hope is communicated can shed light for businesses and educators to relate to the GenZers.



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*Table 5:* Word Cloud of Top Emojis related to HOPE used by Gen Z



## V. Discussion

While Gen Z has hope as measured by comments found in the Twitter data, questions remain regarding both the quantity of commentary used and the nature of hope expressions projected. Is this even 'real hope? Is it wishful thinking or a quick catchphrase to make one self appear to be positive or hopeful with little depth behind the sentiment? Is there a link for a deeper source of hope?

There are at least a few indications that this stated hope is more superficial than deeply rooted. First, the heavy use of emojis by this audience confirms their reliance on visuals. Images are a 'quick' means of sharing information and feelings with little focus on explanations or diving more deeply into thoughts or questions. Second, the sentiment analysis data shows little emotion. The majority of sentiment used was neutral- indicating a passive or almost non-committal attitude toward the view of hope. Even the use of 'fingers crossed' is potentially indicative of a view of hope that is less concrete and stable than one might expect. Is it different from the way other generations discuss hope on social platforms such as Twitter?

Yet GenZers had some surprising topics they focused on in posts and may indicate a potential purpose in social media expression to make sense of their world, which impacts this interest in hope. The topics of birthday and school were expected to be present, yet the heavier topics referenced, such as discussions on health- autoimmune and rheumatoid arthritis, may indicate a desire to reach out to their audiences in more meaningful ways. These markers seem to indicate the potential use of Twitter to help them identify and connect to deeper topics and personal needs. Further analysis is needed.

Overall, the initial findings from this Twitter review were helpful to better understand hope in this generation. While a greater body of social data is needed, there are certainly some discussions of hope on Twitter in both males and females throughout the week and via the currency of their generation- hashtags and emojis. Further research includes going deeper to understand topics such as romance, politics, and sports and analyzing a greater number of comments to gain further insight into this topic. In particular, it would be interesting to compare Twitter to communication on other social outlets in addition to investigating how media pundits characterize this issue in their outlets. The world is interested in better understanding Generation Z. The community wants to not only understand who they are but how they think about eternal issues like hope. Analyzing conversations in their preferred world of media is a good place to start in unpacking this issue and determining ways to increase hope and faith in the future.

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# Economic and Mathematical Analysis of Leasing Efficiency Evaluation for a Lessor

By Yuri V Kirillov
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*Abstract-* The article examines the analysis of the conditions under which the economic activity of a leasing company, as a necessary link in the current crisis between manufacturers of modern equipment and enterprises operating on the market using it, is cost-effective. Since the lessor can simultaneously act both as a lessee or buyer of equipment from the manufacturer, on the one hand, and as a lessor of this equipment for the user enterprise, on the other hand, the analysis of the effectiveness of its activities was carried out in the form of an assessment of the effectiveness of financial inflows and outflows of the lessee and the lessor. An economic and mathematical analysis of the reduced net income of the lessor was carried out for four options for such a project: two options when the lessor acts as a tenant and a lessor, as well as a buyer and a lessor when using equity capital, and two similar options when using a loan. Analytical indicators of project effectiveness - reduced net income and profitability index - are supplemented by the payback period indicator, for the calculation of which, in practice, a laborious recursive-logical procedure is used. To obtain an analytical expression for the payback period, an original technique was used based on the replacement of a discrete stream of payments with a financially equivalent continuous stream.

*Keywords: leasing, lessor, net present value, discounted payback period.*

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# Economic and Mathematical Analysis of Leasing Efficiency Evaluation for a Lessor

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*Keywords: leasing, lessor, net present value, discounted payback period.*

## I. Introduction

The world economy today is in a global crisis. The COVID-19 coronavirus pandemic caused serious problems not only of a humanitarian nature, but also inevitably caused a significant slowdown in economic activity, which, in turn, gave rise to serious financial problems for enterprises and organizations in almost all sectors of modern world business.

However, along with a sharp decrease in consumer demand and a corresponding decrease in GDP, each country, along with solving current socio-economic problems, now sets itself another task: how to revive its economy in the current conditions so as to activate financial and economic activities with the least possible costs. Thus, ensuring the effectiveness of investments, which are inevitable when restoring the world economy destroyed by the pandemic, comes to the fore when solving the problem of resuscitation.

From the point of view of system analysis, the restoration of the pre-crisis level of economic development consistently leads to the search for such financial investment instruments that, on the one hand, would be available in conditions of a significant decrease in the solvency of specific organizations, but, on the other hand, would allow us to quantify the effectiveness of invested funds. One of these tools, which, for sure, will be actively used in various sectors of modern business, is financial or operational leasing.

This type of entrepreneurial activity is extremely widespread in the West (for example, in the United States, at least half of the loans for the development of the material and technical base of companies are carried out through a system of leasing relations), since, as a mechanism for indirect alternative investment, it is much more accessible to the end user (lessee) in financial terms. In addition, greater flexibility in the formation of conditions for the repayment of lease payments in an agreement with the lessor, as well as the use of tax benefits in this case, are additional advantages when using leasing operations. In countries with developed market economies, leasing accounts for almost a third of investment in fixed assets, and in other countries with high growth rates, this ratio is at least 10-15% (Drury 1990, Upneja 2001, Goodacre 2003, Shaoul 2007).

In Russia, to date, leasing has not yet received a fairly wide application, however, the extraordinary modern economic conditions will only contribute to the use and development of various types of lease (Gazman 2011, 2013, 2017, 2019, Gerasimova 2018, Leontieva 2019, Podgornaya 2019, Litvinova 2020). This is confirmed by the proposals of the President of the Russian Federation on the use of leasing in the aviation and automotive industries, expressed by him in April 2020. In addition, the program for the development of the electronic industry of the Russian Federation, which is the basis of the entire modern technological base for the implementation of the most important national projects, emphasizes that the depreciation of fixed assets is estimated at 60–75%, but their renewal is constrained by the lack of available financial resources. The situation is approximately the same in mechanical engineering, a strategic branch of any economy.

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All of the above gives serious grounds to believe that the use and development of various types of leasing operations is a very relevant tool for solving the problem of resuscitation not only of the Russian, but also of the world economy. Quite a lot is known and written about the advantages of leasing for the lessee (Vecchi 2013, Chau 2014, Bülbül 2014, Zhang 2018, van Loon 2020), however, in order to realize these advantages, the end user obviously needs to have an obligatory intermediate link - the lessor - i.e., an organization that which actually makes it possible to implement the leasing operation. Thus, before evaluating the effectiveness of leasing for the lessee, it is absolutely necessary to consider the issue of efficiency for the lessor.

## II. Formulation of the Problem

Financial leasing, which is common in practice, assumes that an organization can acquire the necessary equipment not by purchasing, but by renting it from the lessor's company, which, in turn, can rent it or buy it from the manufacturer. The option when the lessor is the owner of the equipment can not be considered - its effectiveness is obvious.

In the first case, the lessor, on the one hand, leases equipment from the manufacturer, and on the other hand, leases it to the lessee's enterprise. In the second case, the lessor buys the equipment from the manufacturer and leases it to the lessee's enterprise. Both of these options are schematically shown in Figure1.

In both cases, the purchase and lease of equipment from the manufacturer can be realized both through the use of equity capital (EC) and through loan capital (LC), such as a bank loan. As a result, from the point of view of the lessor, we have 4 options for the implementation of leasing operations:

1. Investments (outflows) - lease payments to the manufacturer at the expense of the EC; income (inflows)- lease payments from the lessee's enterprise;

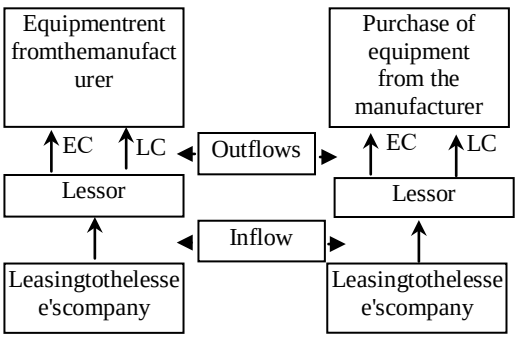



*Figure 1:* Leasing options for the lessor

2. Investment (outflows) - payments to the manufacturer for the purchase in installments at the expense of the EC; income(inflows) - lease payments from a lessee's enterprise;
3. Investments (outflows) - lease payments to the manufacturer at the expense of the LC; income (inflows) – lease payments from a lessee's enterprise;
4. Investment (outflows) - payments to the manufacturer for the purchase in installments at the expense of the LC; income (inflows) - lease payments from a machine-building enterprise.

Thus, the dynamics of leasing operations in the schemes of Figure 1 can be represented by investment projects, in which expenses are outflows, and incomes are inflows of the corresponding project. Then the efficiency of leasing for the lessor can be quantified using the known performance indicators: NPV (Net Present Value); DPI (Discounted Profitability Index); DPP (Discounted Payback Period); IRR (Internal Rate of Return).

## III. The Oretical Analysis

The financial-time diagram for implementation of the operation of acquiring equipment by the lessor on a leasehold basis from the manufacturer (with its subsequent leasing to the lessee) is shown in figure 2.

*In figure 2:* ST [$R_{rent}(t)$] – stream of investment (rent) payments $R_{rent}(t)$duration $n_{rent}$, which is determined by the terms of the contract with the manufacturer; ST [$R_{leas.}(t)$] – income stream, the size of which $R_{leas.}(t)$ and their duration $n_{leas}$ is determined by the terms of the contract with the lessor.

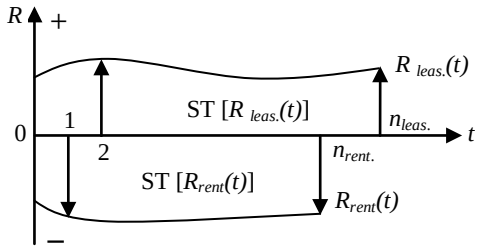



*Figure 2:* Financial-time diagram of the operation of leasing

*In figure 2:* ST [$R_{rent}(t)$] – stream of investment (rent) payments $R_{rent}(t)$duration $n_{rent}$, which is determined by the terms of the contract with the manufacturer; ST [$R_{leas.}(t)$] – income stream, the size of which $R_{leas.}(t)$ and their duration $n_{leas}$ is determined by the terms of the contract with the lessor.

The indicators of economic efficiency of this operation as an investment project – net present value (NPV) and discounted profitability index (DPI) – are determined by obvious ratios based on the discounted approach of financial mathematics:

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$$NPV = P_0\left[R_{leas.}(t)\right] - P_0\left[R_{rent}(t)\right], \quad (1)$$

$$DPI = \frac{P_0\left[R_{leas.}(t)\right]}{P_0\left[R_{rent}(t)\right]}, \quad (2)$$

$P_0\left[R_{leas.}(t)\right] = \sum_{t=0}^{n_{leas}} \frac{R_{leas.}(t)}{(1+r)^t}$ –present value of the income payments at the beginning of the operation (t = 0); r– rate of return for the lessor; $P_0\left[R_{rent}(t)\right] = \sum_{t=0}^{n_{rent}} \frac{R_{rent}(t)}{(1+i)^t}$ – present value of the investment payments reduced to the beginning of the operation ($t$ = 0); i –rate of return for the manufacturer.

The discounted payback period of the project is the most "inconvenient", from the point of view of computational complexity, performance indicator, since it is determined not by the analytical formula, in contrast to (1) and (2), but in the general case by solving the optimization problem:

$$DPP = \min n_D \quad (3)$$

on condition $P(D_k)\big|_{t=n_1} \ldots S(I_m)\big|_{t=n_1}$, $D_k$ – sizes of income payments of the investment project by years $k = n_1, n_1+1, \ldots, n_D$; $I_m$ – sizes of investment payments of the investment project by years $m = 0,1,2,\ldots,n_I$; $P(D_k)\big|_{t=n_1}$ – present value of income payments of duration $t = n_D$ by the time it started $t = n_1$ and that $P(D_k)\big|_{t=n_1} = \sum_{k=n_1}^{n_D} \frac{D_k}{(1+i)^k}$, $S(I_m)\big|_{t=n_1} = \sum_{m=0}^{n_I} I_m \times (1+i)^{m-1}$ – the accumulated amount of payments of the investment part of the project by the time it ends $t = n_I$; i –discount rate chosen to assess the effectiveness of investments.

The complexity of the problem (3) - (4) is that if the numerical value of the amount $S(I_m)\big|_{t=n_1}$, the sizes of payments $D_k$ and the discount rate i are considered known, then the definition of DPP leads to the solution of the equation

$$\sum_{k=1}^{n_D} \frac{D_k}{(1+i)^k} - S(I_m)\big|_{t=n_1} = 0 \quad (5)$$

with respect to $n_D$, since equation (5) must be solved using the apparatus of numerical methods for solving exponential equations in the general case of a sufficiently high order.

In order to solve problem (5), in practice, you can use a simplified computational algorithm, the essence of which is that for each next value of the number k, the value of the difference is calculated $\Delta(k) = \sum_{k=1}^{n_D} \frac{D_k}{(1+i)^k} - S(I_m)\big|_{t=n_1}$ in order to determine the number k when $\Delta(k) < 0$ and k+1 when $\Delta(k+1) > 0$. This point is shown schematically in Figure 3.

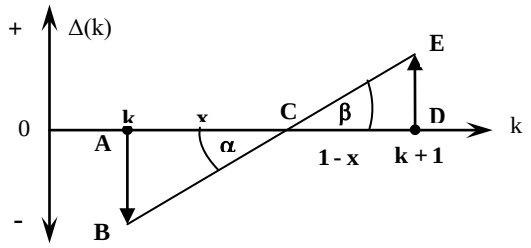



*Figure 3:* Simplification scheme for calculating DPP

Segment AB $= |\Delta(k)|$, segment ED $= \Delta(k)$, the simplification is that the change $\Delta(k)$ on the segment AD is represented by a straight line BE. Then at point C there comes a moment when equality (5) is satisfied and, since $\angle\alpha = \angle\beta$ in triangles $\triangle ABC$ and $\triangle CDE$, it obviously follows

$$\frac{AB}{AC} = \frac{ED}{CD}. \quad (6)$$

A single segment AD can be represented as a sum AD $= AC + CD$ or $AD = x + (1-x)$, where x is the desired part of the year, which determines the payback moment, taking into account discounting, then from (6) $\frac{|\Delta(k)|}{x} = \frac{\Delta(k+1)}{1-x}$ it is possible to determine the desired part of the year: $x = \frac{|\Delta(k)|}{|\Delta(k)| + \Delta(k+1)}$.

Thus, the result of the algorithm is the calculation of the discounted payback period according to the rule:

$$DPP(D_t, I_t, i, t) = n_1 + DPP \quad (7)$$

where $n_1$ is the duration of the investment part of the project, $D_t$ and $I_t$ are the sizes of investment and income payments, respectively, i – is the investor's rate of return, moreover, $\triangle DPP = x$ is calculated using a recursive-logical procedure:

$$\begin{cases} \Delta DPP = k + \dfrac{\left|P_{n_1}^{(k)} - S_{n_1}\right|}{\left(P_{n_1}^{(k+1)} - S_{n_1}\right) + \left|P_{n_1}^{(k)} - S_{n_1}\right|}, \\ P_{n_1}^{(k)} < S_{n_1} < P_{n_1}^{(k+1)} \end{cases} \quad (8)$$

$S_{n_1} = \sum_{t=1}^{n_1} x_t \cdot (1+i)^{n_1 - t}$ – reduced to the point the accumulated amount of investment payments of the



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project; $P_{n_1}^{(k)} = \sum_{t=n_1+1}^{n_1+k} \frac{y_t}{(1+i)^{t-n_1}}$ – the present value of the project revenue reduced to the point $t = n_1$ duration $n_1 + k\,(k = 1, 2...)$; $P_{n_1}^{(k+1)} = \sum_{t=n_1+1}^{n_1+k+1} \frac{y_t}{(1+i)^{t-n_1}}$ – the present value of the project revenue reduced to the point $t = n_1$ duration $n_1 + k + 1\,(k = 1, 2...)$.

From (7) and (8) it follows that the calculation $\Delta DPP$ is a process of k + 1 successive steps, in each of which it is necessary to calculate the value $P_{n_1}^{(k)}$ and compare it with the value $S_{n_1}$ until the relation $P_{n_1}^{(k)} < S_{n_1} < P_{n_1}^{(k+1)}$ is reached. Only after that it is possible to calculate $\Delta DPP$ by the procedure (8), and then DPP by the rule (7). Of course, the computational complexity of such an algorithm may turn out to be quite high due to the uncertainty of the number of iterations required to implement procedure (8).

In order to present the ratio for calculating DPP in an analytical form, it is necessary to use a technique, the idea of which is to replace the discrete flow of income payments with a financially equivalent continuous flow of the income part of the investment project, since the analysis of procedure (8) shows that the smaller the difference $P_{n_1}^{(k+1)} - P_{n_1}^{(k)}$, the more accurately it is possible to determine $\Delta DPP$ and, respectively, DPP.

In the scheme under consideration for the lessor (see Fig. 2), the financially equivalent flow of continuous lease payments is reflected in the scheme in Figure 4.

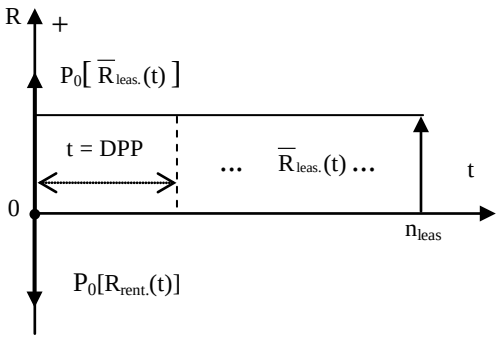



*Figure 4:* Financially equivalent continuous payment flow

The present value of the project income stream with continuous payments $\overline{R}_{leas.}(t)$ and annual interest at rate $r_{leas.}$ in accordance with the rules of financial mathematics will be determined as

$$P_0\left[\overline{R}_{leas.лиз.}(t)\right] = \overline{R}\quad(t)\cdot\frac{1-(1+r_{leas})^{-n_{leas}}}{\ln(1+r_{leas})}.$$

The financial equivalence of such a flow with the flow of discrete payments $\overline{R}_{leas.}(t)$ will be ensured if the quality $P_0\left[R_{leas}(t)\right] = \sum_{t=n_1}^{n_{лиз.}} \frac{R_{leas}(t)}{(1+r_{leas})^t} = P_0\left[\overline{R}_{leas}(t)\right]$ is fulfilled, whence it follows

$$\overline{R}_{лиз.}(t) = \frac{\ln(1+r_{leas})}{1-(1+r_{leas})^{-n_{лиз.}}}\cdot\sum_{t=n_1}^{n_{лиз.}}\frac{R_{leas}(t)}{(1+r_{leas})^t} \qquad (9)$$

According to the economic meaning of the discounted payback period, the present value of a continuous flow of income (leasing) payments with a duration of DPP should be equal to the present value of the entire flow of investment (lease) payments. Then

$$P_0\left[R_{leas}(t)\right] = P_0\left[\overline{R}_{leas}(t)\right]\Big|_{t=DPP} = \overline{R}_{leas}(t)\cdot\frac{1-(1+r_{leas})^{-DPP}}{\ln(1+r_{leas})} \qquad (10)$$

Taking into account here (9) and simple algebraic transformations, we obtain

$$P_0\left[\overline{R}_{лиз.}(t)\right]\Big|_{t=DPP} = \frac{1-(1+r_{лиз.})^{-DPP}}{1-(1+r_{лиз.})^{-n_{лиз.}}}\cdot\sum_{t=0}^{n_{лиз.}}\frac{R_{лиз.}(t)}{(1+r_{лиз.})^t} =$$

$$= \frac{1-(1+r_{лиз.})^{-DPP}}{1-(1+r_{лиз.})^{-n_{лиз.}}}\cdot P_{0лиз.}[R\quad(t)]. \qquad (11)$$

Using the results (11) in relation (10), we obtain the equation

$$P_0\left[R_{leas.}(t)\right] = \frac{1-(1+r_{leas})^{-DPP}}{1-(1+r_{leas})^{-n_{leas}}}\cdot P_0\left[R_{rent}(t)\right], \qquad (11a)$$

solving which with respect to DPP, after the appropriate transformations and logarithm, we obtain the final result

$$DPP = -\frac{\ln\left\{1-\frac{P_{0ар.}[R\quad(t)]}{P_{0лиз.}[R\quad(t)]}\cdot\left[1-(1+r_{лиз.})^{-n_{лиз.}}\right]\right\}}{\ln(1+r_{лиз.})}. \qquad (12)$$

The minus sign in (12) means that the DPP value will be positive if the value of the logarithm is negative, i.e. the argument of the logarithm is less than 1. This means that the critical payback condition for this operation is, in principle, determined by the relation:

$$\frac{P_0\left[R_{rent}(t)\right]}{P_0\left[R_{leas}(t)\right]}\cdot\left[1-(1+r_{leas})^{-n_{leas}}\right] = 1, \qquad (13)$$

in which income payments from equipment leasing can only be repaid by interest on equipment rental from the manufacturer, but the principal debt (equipment cost) will never be repaid (perpetual rent). If

$$\frac{P_0\left[R_{rent}(t)\right]}{P_0\left[R_{leas}(t)\right]}\cdot\left[1-(1+r_{leas})^{-n_{leas}}\right] < 1 \qquad (14)$$



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negative outflows of lease payments to the manufacturer will be "covered" by positive inflows of lease payments from the lessee so that the project pays off and NPV > 0. If

$$\frac{P_0[R_{rent}(t)]}{P_0[R_{leas}(t)]}\cdot\left[1-(1+r_{leas})^{-n_{leas}}\right]>1, \qquad (15)$$

the main debt to the manufacturer with interest on the lease will not only not be repaid, but will also increase.

In addition, expression (12) allows us to draw an important practical conclusion when analyzing the effectiveness of a leasing operation: if $DPP = n_{leas}$, then $\frac{P_0[R_{leas}(t)]}{P_0[R_{rent}(t)]}=1$, therefore, based on (1) and (2) in this case, NPV = 0, and DPI = 1. This follows from the passage to the limit in expression (12); if denoted $\frac{P_0[R_{leas}(t)]}{P_0[R_{rent}(t)]}=A$, then

$$\lim_{A\to 1} DPP(A)=\lim_{A\to 1}\left\{-\frac{\ln\left\{1-A\cdot\left[1-(1+r_{лиз.})^{-n_{лиз.}}\right]\right\}}{\ln(1+r_{лиз.})}\right\}=$$

$$=\lim_{A\to 1}\left\{-\frac{\ln(1+r_{лиз.})^{-n_{лиз.}}}{\ln(1+r_{лиз.})}\right\}=\lim_{A\to 1}\left\{-\cdot(-n_{лиз.})\ \frac{\ln(1+r_{лиз.})}{\ln(1+r_{лиз.})}\right\}=n_{лиз.}$$

The results obtained actually determine the range of payback period values, which will allow us to draw conclusions regarding the economic efficiency of the leasing operation as an investment project for the lessor:

$$0 < DPP < \left(DPP_{crit} = n_{leas}\right)$$

Thus, comparing the DPP value obtained using the analytical expression (12) with a given value $n_{leas}$, one can determine the economic efficiency of this operation: if $DPP > n_{leas}$, then the operation is unprofitable for the lessor (NPV < 0), if $DPP < n_{leas}$ - the operation brings net income (NPV > 0).

All of the above also allows us to conclude that the DPP indicator of the discounted payback period of a leasing operation for a lessor as a type of investment project based on the analytical expression (12) can be an alternative indicator of the operation's efficiency along with NPV and DPI.

As an illustration of the results obtained, Fig. Figure 5 shows the dependency graph $DPP = f(R_{leas})$ according to formula (12) based on the following data: types of rental and income payment flows - annual annuities postnumerando, $R_{rent}$ = 10 thousand rubles, $n_{rent}$ = 6 years, $r_{rent}$ = 10%, $n_{leas}$ = 7 years, $r_{leas}$ = 10%.

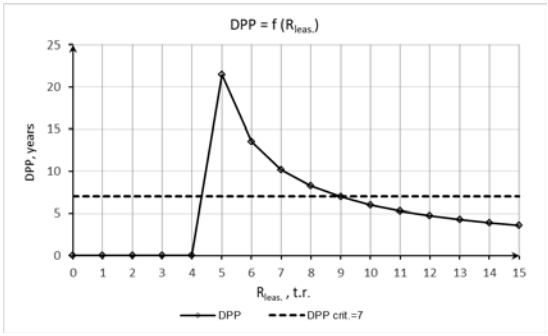



*Figure 5:* The dependence of the payback period on the amount of lease payments

Quantitatively, the limiting value $R_{leas}$, which determines the loss margin, is found by solving the nonlinear equation

$$DPP = -\frac{\ln\left\{1-\frac{P_0[R_{rent}(t)]}{P_0[R_{leas}(t)]}\cdot\left[1-(1+r_{leas})^{-n_{leas}}\right]\right\}}{\ln(1+r_{leas})}=n_{leas}, \qquad (16)$$

relatively $R_{leas}$ using the MS Excel module "Parameter selection". For example, using the above example data to plot the graph in Figure 5, you can get the limit value $R_{leas}^{crit}$, which determines the loss margin of the leasing operation for the lessor. As shown in Figure 6 value $R_{leas}^{crit} \approx 8,95$.

| B | C | D | E | F | G |
|---|---|---|---|---|---|
| $R_{rent}$ = | $r_{rent}$ | $n_{rent}$ | $R_{leas}$ = | $r_{leas}$ | $n_{leas}$ |
| 10 | 0,1 | 6 | 8,945999 | 0,1 | 7 |
| $P_0[R_{rent}]$ = | 43,55261 | | $P_0[R_{leas}]$ = | 43,55287 | |
| DPP = | 6,999939 | | | | |

*Figure 6:* Limit value calculation $R_{leas}^{crit}$

Similarly, the solution of the non-linear equation (16) will allow us to determine the limit value of the rate $r_{leas}^{crit}$, which determines the loss margin, is the leasing operation for the lessor. For example, using the above example data to plot the graph in Figure 5, you can get the limit value of the rate $r_{leas}^{crit}$, which determines the loss margin of the leasing operation for the lessor. As shown in Figure 7 value $r_{leas}^{crit} \approx 0,135$.

| B | C | D | E | F | G |
|---|---|---|---|---|---|
| $R_{rent}$ = | $r_{rent}$ | $n_{rent}$ | $R_{leas}$ = | $r_{leas}$ | $n_{leas}$ |
| 10 | 0,1 | 6 | 10 | 0,134938 | 7 |
| $P_0[R_{rent}]$ = | 43,55261 | | $P_0[R_{leas}]$ = | 43,55457 | |
| DPP = | 6,999494 | | | | |

*Figure 7:* Limit value calculation $r_{leas}^{crit}$



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The results obtained and the conclusions drawn are confirmed by the graph in Figure 8 and the graph in fig. 9, which are built on the basis of the numerical data of the example used above to plot the graph in Figure 5.

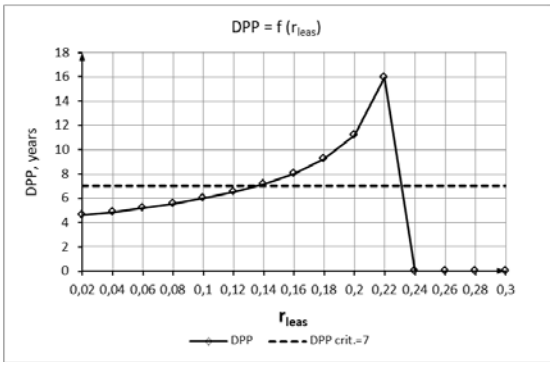



*Figure 8:* The dependence of DPP on the rate $r_{leas}$

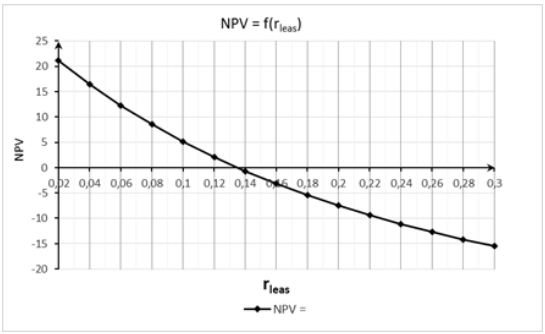



*Figure 9:* The dependence of NPV on the rate $r_{leas}$

Data analysis in Figure 8 and 9 shows that the value $r_{leas}^{crit} \approx 0{,}135$ obtained by solving equation (16) corresponds to the IRR of the investment project with the numerical example data selected for plotting in Figure 5. This circumstance once again confirms the conclusion that the DPP indicator of the discounted payback period of a leasing operation for a lessor as a type of investment project based on the analytical expression (12) can be an alternative indicator of the operation efficiency along with NPV and DPI.

The assessment of the effectiveness of leasing for the lessor in the case of purchasing equipment from the manufacturer at the expense of the EC will obviously be determined by the same ratios as in the case of leasing, since the financial and time scheme for implementation will be similar to the scheme in Figure 2.The only difference will be that the % rate $r_{rent}$ on the lease is replaced by the % rate $r_{purch}$ on the purchase in installments, and the amount of the lease payment $R_{rent}$ is replaced by the amount of the payment upon purchase $-R_{purch}$. Consequently, all indicators and conditions for the effectiveness of the leasing operation for the lessor (12) - (15) will also be valid in the case of purchasing equipment from the manufacturer with appropriate replacements.

This article provides an analysis of the effectiveness of only the first option for implementing a leasing operation for a lessor out of the four that were considered in the general scheme in Figure 1. In addition, the first version of the general scheme can be supplemented with the case when the leased equipment after the lease period has a certain residual value (which in this article is considered equal to zero). Then, of course, the economic and mathematical analysis will be more difficult, but the author hopes to consider it and other options for the general scheme for implementing the leasing operation for the lessor in his subsequent articles.

## IV. Conclusions

The approach used in this article to the analysis of leasing as an investment project makes it possible to use the indicators of the reduced net income and the profitability index for the analytical evaluation of the effectiveness of leasing operations. In addition, the author's method for obtaining the analytical formula for the discounted payback period of the project allows us to significantly expand the analysis of the effectiveness of dynamic operations in the economy, both in terms of mathematical rigor and in terms of graphic clarity.

The results obtained make it possible to obtain specific mathematical conditions that link the parameters of leasing operations, the implementation of which will be economically beneficial for the lessor as a necessary financial and economic link in the modern economy. In addition, the obtained analytical expressions for performance indicators are functions of the same variables, which will undoubtedly allow them to be used to solve the problem of finding not only an operational, but also optimal solution under given conditions from the point of view of the selected criterion.

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# Evaluating the Impact of GST on the FMCG Sector: A Comparative Study of India and the USA (2013-2022)

By Funnisha Garg

*Abstract-* This study explores the impact of the Goods and Services Tax (GST) on the Fast-Moving Consumer Goods (FMCG) sector in India, with a comparative analysis involving the USA from 2013 to 2022. The primary aim is to determine how macroeconomic variables such as the inflation rate and GDP growth rate of India and the USA (independent variables) influence the stock returns of major FMCG companies in India, including ITC, Britannia, Dabur, Emami, Colgate, Godrej, Hindustan Unilever, and Nestle (dependent variables).

The research investigates whether the inflation and GDP growth rates of the USA have any significant effect on the stock returns of Indian FMCG companies, recognizing the interconnectedness of global economies and markets. The USA is chosen for comparison due to its mature FMCG market, distinct tax structure (sales tax instead of GST), and its influence on global economic trends, which can indirectly affect Indian markets through trade, investment, and supply chain linkages.

By employing econometric models to analyze the relationship between these variables, the study provides insights into how GST, inflation, and GDP growth rates influence stock market performance in the FMCG sector.

*GJMBR-C Classification:* *LCC: HJ5715.I4*



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By employing econometric models to analyze the relationship between these variables, the study provides insights into how GST, inflation, and GDP growth rates influence stock market performance in the FMCG sector. The findings highlight whether global economic conditions, particularly those of the USA, have any bearing on the stock returns of Indian FMCG firms, offering valuable implications for investors, policymakers, and businesses operating in these regions.

## I. Introduction

The Fast-Moving Consumer Goods (FMCG) sector is a vital component of the Indian economy, contributing significantly to overall economic growth and employment. The implementation of the Goods and Services Tax (GST) in India in 2017 marked a transformative shift in the indirect taxation landscape, aiming to simplify tax structures, enhance compliance, and stimulate economic activity within the FMCG sector. As a result, understanding the implications of GST on the performance of FMCG companies is crucial for stakeholders, including investors, policymakers, and business leaders.

This study focuses on evaluating the impact of GST on the FMCG sector in India from 2013 to 2022, with an emphasis on the relationship between macroeconomic variables, specifically the inflation rate and GDP growth rate of both India and the USA. The choice of the USA as a comparative benchmark stems from several critical factors. Firstly, the USA has a well-established and mature FMCG market characterized by a diverse range of products and a significant consumer base. The structural differences in taxation, with the USA utilizing a sales tax system rather than GST, provide a unique perspective on how different tax regimes influence market dynamics.

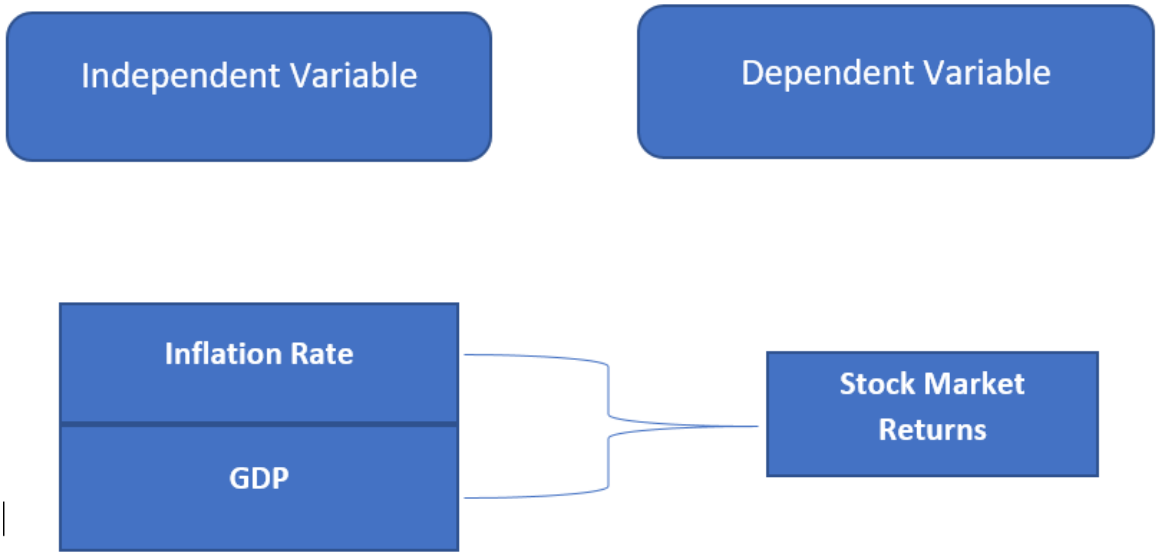
Moreover, the interconnectedness of global economies means that economic conditions in the USA can have ripple effects on emerging markets like India. Fluctuations in the USA's GDP growth and inflation rates can influence international trade, investment flows, and supply chain operations, ultimately affecting the performance of Indian FMCG companies. By investigating whether the economic indicators of the USA impact the stock returns of Indian FMCG firms, this research aims to uncover insights into the broader implications of global economic trends on local markets.

Furthermore, the findings will contribute to a more nuanced understanding of how GST interacts with global economic conditions, specifically those of a leading economy like the USA, providing valuable implications for future policy decisions, investment strategies, and business operations within the FMCG sector. The analysis will utilize econometric models to systematically assess the relationship between the independent variables (inflation and GDP growth rates) and the dependent variables (stock returns of major Indian FMCG companies), thus offering a comprehensive evaluation of the impact of GST and international economic factors on this crucial sector.

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## II. Literature Review

1. *Mrs. V. Rajalakshmi & Dr. K. Uma Devi:* A Study on Fast Moving Consumer Goods (Fmcg)-with Special Reference to Kancheepuram District

The study identified growth potential in the creams segment of the FMCG sector, with opportunities for expanding into new product lines featuring chemical-free, "pure" products and targeting younger age groups in the marketing mix. While advertisements remain the most effective promotional channel, for launching new products, methods like sampling, product discounts, and coupons were found to have greater influence. FMCG companies can leverage these strategies to enhance market share. Additionally, further research into consumer behavior in the Kancheepuram region could uncover valuable and intriguing insights about local preferences.

2. *Dr. Ranpreet Kaur, Dr. Sonali Khurjekar, Dr. Sonali Prasad Dharmadhikari, Ms. Hemangi Pramod Borawake:* A Study of Change in Policies by the RBI for Controlling Inflation and Promoting Growth

In the context of ensuring the smooth functioning of the Indian economy under varying circumstances, the Reserve Bank of India (RBI) plays an indispensable role. The RBI's primary objective is to implement a robust and adaptive monetary policy framework aimed at navigating economic challenges. Its policy decisions have consistently supported the achievement of key economic goals, contributing significantly to the sustainable development of a growing economy like India. Moreover, India's monetary policy has evolved in alignment with the changing needs of the economy, with the RBI making timely adjustments to maintain financial stability and promote long-term economic growth. These measures reflect the central bank's strategic role in shaping the macroeconomic environment and fostering resilience amidst global and domestic challenges.

3. *CMA Satish Dhokare:* Gst and its Impact on Fmcg Sectors in India

The introduction of GST has impacted the FMCG sector by adjusting tax brackets and reducing distribution costs. Some companies benefit from lower taxes, leading to increased product volumes and reduced prices, while others face higher taxes, resulting in price hikes. The initial phase saw sluggish growth due to de-stocking by channel partners, but the long-term outlook indicates benefits through improved distribution strategies, cost reductions, and operational efficiency. FMCG companies must adapt to these changes to stay competitive and enhance profit margins, ultimately benefiting consumers.

4. *Jagadish G1, Reshma K J:* The Impact of Goods and Services Tax (GST) on Fast Moving Consumer Goods (FMCG) Consumers with respect of Personal care Products

The implementation of GST on 1st July 2017 has sparked extensive research, particularly on its impact on the fast-moving consumer goods (FMCG) sector. This study specifically examined the effects of GST on personal care products targeting lower-income and lower-middle-income groups. Data analysis revealed that 60% of respondents strongly agreed that GST had impacted their spending behavior, while 59% believed GST would be beneficial in the long term. The R-square value of 0.748 indicates that 74% of the variance in GST pricing was explained by selected

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independent variables, with a correlation coefficient of 0.814, reflecting a strong relationship between price and spending behavior.

In conclusion, while the prices of FMCG personal care products initially rose following GST implementation, long-term benefits are anticipated. This study was confined to the Bangalore region, focusing on lower-income groups and personal care products. Future research could expand to household items and explore different income categories to offer broader insights into GST's overall impact.

5. *Mathew Abraham:* Effect of Goods and Services Tax on FMCG Sector

This study aims to analyze the shifts in consumption patterns within the FMCG sector, particularly in rural India, driven by increasing incomes and rising aspirations. The growing demand for branded products in rural areas reflects a significant transformation, with the unorganized market's share declining and the organized sector poised for accelerated growth. Factors such as heightened brand awareness and the expansion of modern retail contribute to this shift. Additionally, the study explores how the growing urban youth population, which faces time constraints, is boosting demand for food services.

The study also highlights the critical role of online platforms in helping companies penetrate rural markets, offering a cost-effective and convenient means of expanding their reach. In terms of taxation, the impact of GST on stock levels is evident, with dealers responding to varying tax rates by adjusting inventory strategies- either increasing stock levels in anticipation of higher GST rates or reducing them when GST rates are lower.

Overall, this research investigates how GST, combined with differentiated product taxation, influences consumer prices and market dynamics, with some products becoming more expensive and others more affordable, ultimately balancing the tax burden for consumers.

## III. Research Gap

Despite the extensive research on GST's impact on various sectors, there remains a notable gap in literature focusing on the interplay between GST, macroeconomic indicators, and the performance of the FMCG sector specifically. Most studies tend to concentrate on domestic factors without considering international economic influences, particularly from developed economies like the USA. Furthermore, the quantitative analysis of stock returns in relation to both Indian and USA economic indicators through regression and ANOVA remains underexplored. This research aims to fill this gap by systematically analyzing the effects of GST and global economic conditions on stock returns in the FMCG sector.

*a) Objective of this Study*

1. *To assess the relationship between macroeconomic variables:* (Inflation rate and GDP growth rate of India and the USA) and the stock returns of major Indian FMCG companies through regression coefficients, identifying the strength and direction of these relationships.
2. *To perform ANOVA to compare the means of stock returns:* Across different time periods, particularly before and after GST implementation, and assess whether these differences are statistically significant.
3. *To evaluate the comparative influence of the USA's GDP growth and inflation rates:* On the stock returns of Indian FMCG companies, identifying any significant effects that may arise from global economic conditions.
4. *To identify and quantify the regression coefficients:* To understand the extent to which each independent variable (GDP growth and inflation rates) contributes to explaining the variations in stock returns of the selected FMCG companies.

*b) Hypothesis*

*Hypothesis 1:* Impact of GST Implementation on Stock Returns

- *H0:* The implementation of GST has no significant impact on stock returns across various companies in India and the USA when controlling for macroeconomic factors such as GDP growth and inflation.
- *H1:* The implementation of GST has a significant impact on stock returns across various companies in India and the USA when controlling for macroeconomic factors such as GDP growth and inflation.

*Hypothesis 2:* Influence of Macroeconomic and Other Factors on Stock Performance

- *H0:* Macroeconomic factors (GDP growth and inflation) and industry-specific dynamics do not significantly influence stock performance in India and the USA, indicating a uniformity in the relationship across both markets.
- *H1:* Macroeconomic factors (GDP growth and inflation) and industry-specific dynamics significantly influence stock performance in India and the USA, suggesting variability in the relationship across both markets.

## IV. Research Methodology

➢ *Research Design:* Employ a quantitative approach to analyse the relationship between GST implementation, macroeconomic factors (GDP growth and inflation), and stock returns, with a comparative analysis of selected companies in India and the USA.



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- *Sample Selection:* Choose a representative sample of publicly traded companies across various sectors, analysing data from several years before and after GST implementation (post-July 2017).
- *Data Collection:* Gather historical stock price data from financial databases (e.g., Bloomberg, Yahoo Finance) to calculate returns, and obtain GDP growth and inflation rates from reliable sources (e.g., RBI, U.S. BEA, World Bank).
- *Statistical Analysis:* Conduct multiple regression analysis to assess the impact of GST and macroeconomic factors on stock returns, alongside ANOVA for comparing returns pre- and post-GST, and calculate the R-squared value to evaluate model explanatory power.
- *Interpretation of Results and Limitations:* Analyse the regression and ANOVA outputs to draw conclusions about the relationships studied and discuss implications, while identifying limitations such as data availability and sample size, suggesting areas for further research.

*a) Analysis*

*Statistical Analysis of the Impact of Goods and Services Tax (GST) on FMCG Sector's company:* A Comparative Study of Stock Performance in India and the USA Before and After GST Implementation

*Table 1:* ITC Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to June 2017 | July 2017 to Dec 2022 | 1 Jan 2013 to June 2017 | July 2017 to Dec 2022 |
| Multiple R | | 0.250434 | 0.242149 | 0.255123 | 0.252335 |
| R Square | | 0.062717 | 0.058636 | 0.065088 | 0.063673 |
| Adjusted R Square | | 0.025226 | 0.02827 | 0.027691 | 0.033469 |
| Standard Error | | 5.45127 | 6.390785 | 5.444371 | 6.373665 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 99.42152 | 157.7283 | 103.1795 | 171.2765 |
| Residual SS | | 1485.817 | 2532.212 | 1482.059 | 2518.664 |
| Total SS | | 1585.239 | 2689.94 | 1585.239 | 2689.94 |
| F-Statistic | | 1.672843 | 1.930951 | 1.740476 | 2.10809 |
| Significance F | | 0.198047 | 0.153631 | 0.185897 | 0.130093 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 23.65623 | -6.45754 | -5.34547 | -1.79173 |
| | Standard Error | 12.69856 | 3.740462 | 6.559142 | 1.399451 |
| | t-Stat | 1.862906 | -1.7264 | -0.81496 | -1.28031 |
| | P-value | 0.068355 | 0.089255 | 0.418958 | 0.205207 |
| Inflation Rate | Coefficient | -75.5722 | 114.2923 | 2.564933 | 0.710595 |
| | Standard Error | 45.97131 | 65.23164 | 1.447516 | 0.353197 |
| | t-Stat | -1.6439 | 1.752099 | 1.771955 | 2.011897 |
| | P-value | 0.106471 | 0.084701 | 0.082496 | 0.048581 |
| GDP Growth | Coefficient | -240.844 | 25.91317 | 1.505648 | -0.12705 |
| | Standard Error | 142.2286 | 17.04306 | 2.469221 | 0.318755 |
| | t-Stat | -1.69336 | 1.520453 | 0.609767 | -0.3986 |
| | P-value | 0.09661 | 0.133481 | 0.544778 | 0.69156 |

*Interpretation:* Impact of GST Implementation on ITC Limited - India vs. USA

*India:* The implementation of GST in India appears to have positively influenced the relationship between macroeconomic factors and stock returns for ITC Limited. Post-GST, GDP growth shows a shift towards a positive coefficient (25.91317), suggesting improved stock performance, while inflation also turns positive (114.2923). However, both results lack strong statistical significance, indicating that further investigation is necessary to confirm these trends.

*USA:* In contrast, the USA's macroeconomic indicators present a mixed picture. Before GST, both GDP growth (1.505648) and inflation (2.564933) had positive



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coefficients, but their impact on stock returns remains weak. After GST, GDP growth turns negative (-0.12705), indicating a potential decline in its positive influence on stock returns, while inflation shows a minor positive effect (0.710595) with moderate significance.

*Table 2:* Britannia Industries Ltd

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.238462 | 0.011799 | 0.180865 | 0.052303 |
| R Square | | 0.056864 | 0.000139 | 0.032712 | 0.002736 |
| Adjusted R Square | | 0.019139 | -0.03211 | -0.00598 | -0.02943 |
| Standard Error | | 7.690642 | 6.844684 | 7.788491 | 6.835791 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 178.3029 | 0.404402 | 102.5723 | 7.947284 |
| Residual SS | | 2957.299 | 2904.681 | 3033.029 | 2897.138 |
| Total SS | | 3135.602 | 2905.086 | 3135.602 | 2905.086 |
| F-Statistic | | 1.507312 | 0.004316 | 0.845461 | 0.085038 |
| Significance F | | 0.231397 | 0.995694 | 0.435405 | 0.918585 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 18.55952 | 1.730435 | -7.92444 | 1.587633 |
| | Standard Error | 17.91511 | 4.006125 | 9.383235 | 1.500919 |
| | t-Stat | 1.03597 | 0.431947 | -0.84453 | 1.057774 |
| | P-value | 0.3052 | 0.667278 | 0.402395 | 0.294262 |
| Inflation Rate | Coefficient | 21.56891 | -4.46665 | 2.064011 | 0.038348 |
| | Standard Error | 64.85625 | 69.86465 | 2.070756 | 0.378805 |
| | t-Stat | 0.332565 | -0.06393 | 0.996743 | 0.101235 |
| | P-value | 0.740853 | 0.949229 | 0.323689 | 0.919691 |
| GDP Growth | Coefficient | -210.536 | -1.59641 | 4.480541 | -0.13943 |
| | Standard Error | 200.6559 | 18.25353 | 3.532364 | 0.341867 |
| | t-Stat | -1.04924 | -0.08746 | 1.268426 | -0.40786 |
| | P-value | 0.299113 | 0.93059 | 0.21052 | 0.684783 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

- *India:*

➢ *Before GST:* The model's weak fit (R-squared = 0.056864) indicates that GDP growth and inflation explain only 5.7% of stock return variability. GDP growth negatively impacted stock returns (-210.536), while inflation's positive effect (21.56891) was not significant.

➢ *After GST:* The model's explanatory power further declined (R-squared = 0.000139). Both GDP growth and inflation coefficients were negligible and statistically insignificant, suggesting that GST did not enhance stock performance.

- *USA:*

➢ *Before GST:* The very weak model fit (R-squared = 0.032712) shows limited explanatory power, with GDP growth having a minor positive effect (4.480541) and inflation also being insignificant.
*After GST:* The explanatory power dropped further (R-squared = 0.002736). GDP growth showed a negative impact (-0.13943), and inflation remained low (0.038348), with both being statistically insignificant.

*Overall Insights*

➢ *Weak Impact:* In both India and the USA, macroeconomic factors like GDP growth and inflation had a weak and statistically insignificant impact on Britannia Industries Ltd.'s stock returns in both periods.



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➢ *GST's Limited Influence:* The GST implementation in India did not significantly alter the relationship between these variables and stock performance, indicating the potential need to explore additional influencing factors in both markets.

*Table 3:* Dabur India Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.136657 | 0.09124 | 0.090106 | 0.09889 |
| R Square | | 0.018675 | 0.008325 | 0.008119 | 0.009779 |
| Adjusted R Square | | -0.02058 | -0.02366 | -0.03156 | -0.02216 |
| Standard Error | | 5.080939 | 5.998228 | 5.108194 | 5.993828 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 24.56471 | 18.72593 | 10.67943 | 21.99733 |
| Residual SS | | 1290.797 | 2230.682 | 1304.682 | 2227.41 |
| Total SS | | 1315.362 | 2249.408 | 1315.362 | 2249.408 |
| F-Statistic | | 0.475766 | 0.260236 | 0.204637 | 0.306148 |
| Significance F | | 0.624193 | 0.771707 | 0.815622 | 0.737384 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 2.383694 | 3.562316 | -2.28848 | 1.921167 |
| | Standard Error | 11.83589 | 3.510702 | 6.15413 | 1.316051 |
| | t-Stat | 0.201395 | 1.014702 | -0.37186 | 1.459797 |
| | P-value | 0.841206 | 0.314191 | 0.711567 | 0.149395 |
| Inflation Rate | Coefficient | 23.85776 | -41.9763 | 0.672279 | -0.25158 |
| | Standard Error | 42.84826 | 61.22476 | 1.358135 | 0.332148 |
| | t-Stat | 0.556796 | -0.68561 | 0.495002 | -0.75743 |
| | P-value | 0.58015 | 0.495514 | 0.622767 | 0.451659 |
| GDP Growth | Coefficient | -30.0026 | -7.70569 | 1.441944 | 0.033391 |
| | Standard Error | 132.5664 | 15.99618 | 2.316752 | 0.299759 |
| | t-Stat | -0.22632 | -0.48172 | 0.622399 | 0.111392 |
| | P-value | 0.821874 | 0.631701 | 0.536508 | 0.911665 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a weak fit (R-squared = 0.0187), with GDP growth having a negative coefficient (-30.0026) and inflation's minor positive role (23.85776) being statistically insignificant.
- *Post-GST (July 2017 - Dec 2022):* Further decline in model fit (R-squared = 0.0083) indicates negligible impact from both GDP growth (-7.70569) and inflation (-41.9763), both statistically insignificant.

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* Very weak model fit (R-squared = 0.0081) with a limited positive GDP coefficient (1.441944) and an insignificant inflation coefficient (-0.25158).
- *Post-GST (July 2017 - Dec 2022):* Minimal improvement in model fit (R-squared = 0.0098) shows GDP growth (0.033391) and inflation coefficients remaining low and insignificant.

*Overall Insights:*

The analysis indicates that macroeconomic factors like GDP growth and inflation had a weak and statistically insignificant impact on Dabur India Limited's stock returns in both India and the USA, both before and after GST implementation. The GST did not meaningfully change this relationship, suggesting other factors may significantly influence stock performance in both markets.

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*Table 4:* Emami Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.06948 | 0.153112 | 0.153425 | 0.108225 |
| R Square | | 0.004827 | 0.023443 | 0.023539 | 0.011713 |
| Adjusted R Square | | -0.03498 | -0.00806 | -0.01552 | -0.02017 |
| Standard Error | | 8.542366 | 11.12009 | 8.461675 | 11.18668 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 17.69906 | 184.0481 | 86.30241 | 91.95347 |
| Residual SS | | 3648.601 | 7666.692 | 3579.997 | 7758.786 |
| Total SS | | 3666.3 | 7850.74 | 3666.3 | 7850.74 |
| F-Statistic | | 0.121273 | 0.744192 | 0.602671 | 0.367397 |
| Significance F | | 0.886052 | 0.479314 | 0.551275 | 0.694032 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 7.29047 | -1.73208 | -8.75811 | 1.348271 |
| | Standard Error | 19.89917 | 6.508474 | 10.19426 | 2.456233 |
| | t-Stat | 0.366371 | -0.26613 | -0.85912 | 0.548918 |
| | P-value | 0.715634 | 0.791025 | 0.394374 | 0.585033 |
| Inflation Rate | Coefficient | 4.718193 | 58.322 | 1.655476 | -0.09736 |
| | Standard Error | 72.03896 | 113.5043 | 2.249738 | 0.61991 |
| | t-Stat | 0.065495 | 0.513831 | 0.735853 | -0.15706 |
| | P-value | 0.948041 | 0.609197 | 0.465258 | 0.875708 |
| GDP Growth | Coefficient | -71.4025 | -23.8936 | 4.198736 | -0.40092 |
| | Standard Error | 222.8782 | 29.65525 | 3.837678 | 0.55946 |
| | t-Stat | -0.32037 | -0.80571 | 1.094083 | -0.71661 |
| | P-value | 0.750026 | 0.423489 | 0.279162 | 0.476305 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a very weak fit (R-squared = 0.0048), indicating that only 0.48% of stock return variability can be explained. Both GDP growth (-71.4025) and inflation (4.718193) coefficients are statistically insignificant (p-values = 0.7500 and 0.9480, respectively).
- *Post-GST (July 2017 - Dec 2022):* Slight improvement in model fit (R-squared = 0.0234) but still weak. GDP growth (-23.8936) and inflation (58.322) coefficients are negative and statistically insignificant (p-values = 0.7910 and 0.6092).

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* The model indicates a weak explanatory power (R-squared = 0.0235). GDP growth (4.198736) has a positive but statistically insignificant coefficient (p-value = 0.2792), while inflation (-0.09736) is also insignificant (p-value = 0.8757).
- *Post-GST (July 2017 - Dec 2022):* Model fit declines slightly (R-squared = 0.0117), reflecting minimal explanatory power. Both GDP growth (-0.40092) and inflation (-0.09736) coefficients remain low and statistically insignificant.

*Overall Insights:*

The analysis reveals that macroeconomic factors like GDP growth and inflation have a negligible and statistically insignificant impact on Emami Limited's stock returns in both India and the USA during both the pre- and post-GST periods. The implementation of GST did not significantly alter these relationships, suggesting the need for further exploration of other factors influencing stock performance in both markets.



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*Table 5:* Colgate-Palmolive

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.186628 | 0.062322 | 0.248654 | 0.054069 |
| R Square | | 0.03483 | 0.003884 | 0.061829 | 0.002923 |
| Adjusted R Square | | -0.00378 | -0.02825 | 0.024302 | -0.02924 |
| Standard Error | | 5.57343 | 6.08362 | 5.494924 | 6.086553 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 56.04846 | 8.947308 | 99.49551 | 6.734345 |
| Residual SS | | 1553.156 | 2294.647 | 1509.709 | 2296.86 |
| Total SS | | 1609.205 | 2303.594 | 1609.205 | 2303.594 |
| F-Statistic | | 0.90217 | 0.120875 | 1.647594 | 0.090891 |
| Significance F | | 0.412189 | 0.886353 | 0.202792 | 0.913238 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 18.29091 | 2.392804 | -10.539 | 1.180348 |
| | Standard Error | 12.98313 | 3.560682 | 6.620045 | 1.336411 |
| | t-Stat | 1.408821 | 0.672007 | -1.59198 | 0.883223 |
| | P-value | 0.165077 | 0.504076 | 0.117693 | 0.380528 |
| Inflation Rate | Coefficient | -54.8637 | -28.3153 | 2.360297 | -0.11017 |
| | Standard Error | 47.00151 | 62.09637 | 1.460956 | 0.337286 |
| | t-Stat | -1.16728 | -0.45599 | 1.615584 | -0.32663 |
| | P-value | 0.248635 | 0.64999 | 0.112478 | 0.745045 |
| GDP Growth | Coefficient | -185.169 | -5.71147 | 4.081378 | -0.03853 |
| | Standard Error | 145.4159 | 16.22391 | 2.492148 | 0.304396 |
| | t-Stat | -1.27337 | -0.35204 | 1.637695 | -0.12659 |
| | P-value | 0.208774 | 0.726002 | 0.107764 | 0.899677 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a weak explanatory power (R-squared = 0.0348), indicating that only 3.48% of stock return variability can be explained. Both GDP growth (-185.169) and inflation (-54.8637) coefficients are negative and statistically insignificant (p-values = 0.2088 and 0.2486).
- *Post-GST (July 2017 - Dec 2022):* The model fit declines further (R-squared = 0.0039), indicating minimal explanatory power. GDP growth (-5.71147) and inflation (-28.3153) coefficients are also negative and statistically insignificant (p-values = 0.7260 and 0.6500).

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* The model has a slightly better fit (R-squared = 0.0618) but still reflects weak explanatory power. GDP growth (4.081378) is positive but statistically insignificant (p-value = 0.1078), while inflation (-0.11017) is also insignificant (p-value = 0.7450).
- *Post-GST (July 2017 - Dec 2022):* The model exhibits a significant decline in explanatory power (R-squared = 0.0029). Both GDP growth (-0.03853) and inflation (-0.11017) coefficients remain low and statistically insignificant (p-values = 0.8997 and 0.7450).

*Overall Insights:*

The analysis indicates that macroeconomic factors, such as GDP growth and inflation, have a minimal and statistically insignificant impact on Colgate-Palmolive's stock returns in both India and the USA



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during the pre- and post-GST periods. The implementation of GST in India did not significantly alter the relationships, suggesting that other variables may be influencing stock performance. Further investigation into these factors is warranted to better understand their effects on stock returns.

*Table 6:* Godrej Industries Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.233722 | 0.028866 | 0.116527 | 0.090681 |
| R Square | | 0.054626 | 0.000833 | 0.013579 | 0.008223 |
| Adjusted R Square | | 0.016811 | -0.0314 | -0.02588 | -0.02377 |
| Standard Error | | 8.832207 | 10.07449 | 9.021914 | 10.03716 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 225.3742 | 5.247778 | 56.02237 | 51.78797 |
| Residual SS | | 3900.394 | 6292.705 | 4069.746 | 6246.165 |
| Total SS | | 4125.769 | 6297.953 | 4125.769 | 6297.953 |
| F-Statistic | | 1.44456 | 0.025852 | 0.344139 | 0.257026 |
| Significance F | | 0.245523 | 0.974489 | 0.710496 | 0.774168 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 26.86342 | -0.91819 | -7.16657 | 0.380299 |
| | Standard Error | 20.57435 | 5.896495 | 10.86921 | 2.203836 |
| | t-Stat | 1.305675 | -0.15572 | -0.65935 | 0.172562 |
| | P-value | 0.197639 | 0.876761 | 0.512699 | 0.863558 |
| Inflation Rate | Coefficient | -126.021 | 16.40475 | 1.563353 | -0.33548 |
| | Standard Error | 74.48323 | 102.8317 | 2.39869 | 0.556209 |
| | t-Stat | -1.69194 | 0.15953 | 0.651753 | -0.60315 |
| | P-value | 0.096882 | 0.87377 | 0.517545 | 0.548609 |
| GDP Growth | Coefficient | -231.811 | -2.25755 | 3.287144 | 0.296432 |
| | Standard Error | 230.4404 | 26.86682 | 4.091766 | 0.501971 |
| | t-Stat | -1.00595 | -0.08403 | 0.803356 | 0.590535 |
| | P-value | 0.319284 | 0.933305 | 0.425572 | 0.556978 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a modest explanatory power (R-squared = 0.0546), indicating that only 5.46% of stock return variability can be explained. The negative coefficients for GDP growth (-231.811) and inflation (-126.021) suggest a detrimental effect, but both are statistically insignificant (p-values = 0.3193 and 0.0969).
- *Post-GST (July 2017 - Dec 2022):* The model fit significantly declines (R-squared = 0.0008), reflecting almost no explanatory power. The coefficients for GDP growth (-2.25755) and inflation (16.40475) are near zero and statistically insignificant (p-values = 0.9333 and 0.8738).

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* The model has a weak explanatory power (R-squared = 0.0136). The GDP growth coefficient (3.287144) is positive but statistically insignificant (p-value = 0.4256), while inflation (-0.33548) is also insignificant (p-value = 0.5486).
- *Post-GST (July 2017 - Dec 2022):* The model exhibits very weak explanatory power (R-squared = 0.0082). Both GDP growth (0.296432) and inflation coefficients remain low and statistically insignificant (p-values = 0.5570 and 0.8636).



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*Overall Insights:*

The analysis indicates that macroeconomic factors, particularly GDP growth and inflation, have a minimal and statistically insignificant impact on Godrej Industries Limited's stock returns in both India and the USA during the pre- and post-GST periods. The implementation of GST in India did not lead to any meaningful changes in these relationships, suggesting that other factors might be influencing stock performance. Further research is necessary to explore these other factors and their effects on stock returns.

*Table 7:* Hindustan Unilever Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.205565 | 0.077578 | 0.206001 | 0.087799 |
| R Square | | 0.042257 | 0.006018 | 0.042436 | 0.007709 |
| Adjusted R Square | | 0.003947 | -0.02605 | 0.004134 | -0.0243 |
| Standard Error | | 6.421764 | 6.378184 | 6.421163 | 6.372758 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 90.9759 | 15.27173 | 91.36234 | 19.56089 |
| Residual SS | | 2061.953 | 2522.236 | 2061.567 | 2517.947 |
| Total SS | | 2152.929 | 2537.508 | 2152.929 | 2537.508 |
| F-Statistic | | 1.103031 | 0.1877 | 1.107924 | 0.240826 |
| Significance F | | 0.339803 | 0.829333 | 0.338214 | 0.78671 |
| Veriable | Statistic | | | | |
| Intercept | Coefficient | 23.53601 | 3.426722 | -9.0764 | 2.155178 |
| | Standard Error | 14.9593 | 3.733087 | 7.735938 | 1.399252 |
| | t-Stat | 1.573337 | 0.917933 | -1.17328 | 1.540236 |
| | P-value | 0.121948 | 0.362211 | 0.246244 | 0.128592 |
| Inflation Rate | Coefficient | -52.2795 | -31.9357 | 2.366899 | -0.1401 |
| | Standard Error | 54.15563 | 65.10302 | 1.707219 | 0.353146 |
| | t-Stat | -0.96536 | -0.49054 | 1.386406 | -0.39673 |
| | P-value | 0.339013 | 0.625483 | 0.171774 | 0.692929 |
| GDP Growth | Coefficient | -248.8 | -9.07677 | 3.702968 | -0.11856 |
| | Standard Error | 167.5497 | 17.00946 | 2.912231 | 0.31871 |
| | t-Stat | -1.48493 | -0.53363 | 1.271523 | -0.37199 |
| | P-value | 0.143839 | 0.595505 | 0.209426 | 0.711172 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a modest explanatory power (R-squared = 0.0423), indicating that only 4.23% of stock return variability can be explained. The negative coefficients for both GDP growth (-248.8) and inflation (-52.2795) suggest a detrimental effect on stock returns, but these effects are not statistically significant (p-values = 0.1438 and 0.3390).
- *Post-GST (July 2017 - Dec 2022):* The model fit declines further (R-squared = 0.0060), reflecting very weak explanatory power. The coefficients for GDP growth (-9.07677) and inflation (-31.9357) are near zero and statistically insignificant (p-values = 0.5955 and 0.6255).

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* The model has a weak explanatory power (R-squared = 0.0424). The GDP growth coefficient (3.702968) is positive but statistically insignificant (p-value = 0.2094), while inflation (-0.1401) is also insignificant (p-value = 0.6929).



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- *Post-GST (July 2017 - Dec 2022):* The model exhibits very weak explanatory power (R-squared = 0.0077). Both GDP growth (-0.11856) and inflation coefficients remain low and statistically insignificant (p-values = 0.7112 and 0.7867).

*Overall Insights:*

The analysis indicates that macroeconomic factors, particularly GDP growth and inflation, have minimal and statistically insignificant impacts on Hindustan Unilever Limited's stock returns in both India and the USA during the pre- and post-GST periods. The implementation of GST in India did not lead to meaningful changes in these relationships, suggesting that other factors may be influencing stock performance. Further research is warranted to identify and analyze these additional factors.

*Table 8:* Nestle India Limited

| Statistic | | INDIA | | USA | |
|---|---|---|---|---|---|
| | | Before GST Implementation | After GST Implementation | Before GST Implementation | After GST Implementation |
| | | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 | 1 Jan 2013 to june 2017 | July 2017 to dec 2022 |
| Multiple R | | 0.091966 | 0.20216 | 0.14211 | 0.184397 |
| R Square | | 0.008458 | 0.040869 | 0.020195 | 0.034002 |
| Adjusted R Square | | -0.0312 | 0.009929 | -0.019 | 0.002841 |
| Standard Error | | 6.5353 | 5.417653 | 6.496503 | 5.437012 |
| Observations | | 53 | 65 | 53 | 65 |
| ANOVA Statistic | | | | | |
| Regression SS | | 18.21573 | 77.54052 | 43.49491 | 64.51224 |
| Residual SS | | 2135.507 | 1819.76 | 2110.228 | 1832.788 |
| Total SS | | 2153.723 | 1897.301 | 2153.723 | 1897.301 |
| F-Statistic | | 0.213248 | 1.320919 | 0.515287 | 1.091168 |
| Significance F | | 0.808686 | 0.274295 | 0.600467 | 0.342185 |
| Variable | Statistic | | | | |
| Intercept | Coefficient | 9.048184 | 6.826116 | -2.36092 | 3.169304 |
| | Standard Error | 15.22378 | 3.170898 | 7.826705 | 1.193792 |
| | t-Stat | 0.594346 | 2.152739 | -0.30165 | 2.65482 |
| | P-value | 0.554961 | 0.035238 | 0.764171 | 0.010071 |
| Inflation Rate | Coefficient | -10.5078 | -87.3816 | 1.579313 | -0.43504 |
| | Standard Error | 55.11309 | 55.29875 | 1.72725 | 0.301292 |
| | t-Stat | -0.19066 | -1.58017 | 0.914351 | -1.4439 |
| | P-value | 0.849565 | 0.119156 | 0.364921 | 0.153801 |
| GDP Growth | Coefficient | -101.083 | -14.2315 | 0.599781 | 0.073354 |
| | Standard Error | 170.512 | 14.4479 | 2.946401 | 0.271912 |
| | t-Stat | -0.59282 | -0.98502 | 0.203564 | 0.26977 |
| | P-value | 0.555973 | 0.328441 | 0.83952 | 0.788233 |

*Interpretation:*

*India vs. USA:* Pre- and Post-GST Implementation Analysis

*India:*

- *Pre-GST (Jan 2013 - June 2017):* The model shows a very low explanatory power (R-squared = 0.0085), indicating that only 0.85% of the variability in stock returns can be explained by the model. The negative coefficient for GDP growth (-101.083) and inflation (-10.5078) suggests adverse impacts, but neither is statistically significant (p-values = 0.5560 and 0.8496).
- *Post-GST (July 2017 - Dec 2022):* There is a slight increase in explanatory power (R-squared = 0.0409), with GDP growth (-14.2315) and inflation (-87.3816) coefficients indicating negative impacts, especially inflation. The GDP growth coefficient



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shows a decrease, but the inflation effect is significant (p-value = 0.0352).

*USA:*

- *Pre-GST (Jan 2013 - June 2017):* The model has a low explanatory power (R-squared = 0.0202). The coefficients for GDP growth (0.599781) and inflation (1.579313) are positive but statistically insignificant (p-values = 0.8395 and 0.3649).
- *Post-GST (July 2017 - Dec 2022):* The model shows a marginally improved fit (R-squared = 0.0340), with GDP growth (0.073354) and inflation (-0.43504) coefficients remaining statistically insignificant (p-values = 0.7882 and 0.1538).

*Overall Insights:*

The analysis suggests that macroeconomic factors, particularly GDP growth and inflation, have minimal impacts on Nestlé India Limited's stock returns in both India and the USA during the specified periods. Post-GST, inflation in India shows a significant negative impact, indicating that it may warrant further investigation. Overall, the explanatory power of the models is low, suggesting that additional factors may influence stock performance. Further research is needed to explore these factors more comprehensively.

*b) Key Findings*

1. *Minimal Impact of GST:* The research indicates that the implementation of GST has a negligible effect on stock returns in both India and the USA. Although some individual companies like ITC Limited exhibited slight improvements, these changes are not statistically significant, suggesting that investors should not heavily rely on GST as a primary factor influencing stock performance.
2. *Limited Role of Macroeconomic Indicators:* Traditional macroeconomic indicators, particularly GDP growth and inflation, show weak explanatory power regarding stock returns, as evidenced by low R-squared values and statistically insignificant coefficients. This finding emphasizes that stock performance assessments should not be based solely on macroeconomic metrics, necessitating a focus on industry-specific dynamics and broader market conditions.
3. *Call for a Holistic Approach:* Investors and analysts should adopt a multi-faceted approach to stock evaluation, considering various factors such as technological advancements, regulatory changes, and shifts in consumer behavior. This comprehensive perspective can enhance investment strategies and improve risk management.
4. *Implications for Future Research:* The findings call for further research into the complex interplay of factors affecting stock performance. Future studies should focus on sector-specific characteristics and external economic influences that contribute to stock volatility, especially in the context of evolving regulatory frameworks like GST.
5. *Policy Insights:* For policymakers, the limited impact of GST on stock returns highlights the necessity for a nuanced understanding of how tax policies affect different sectors. Continuous dialogue and research are essential for informing future tax reforms, ensuring they consider their multifaceted implications on economic performance.

*c) Suggestion*

Given the findings, it is suggested that investors, researchers, and policymakers adopt a more integrated approach to stock performance analysis. This approach should encompass a wide range of factors beyond GST and traditional macroeconomic indicators, emphasizing the importance of industry dynamics, technological trends, and consumer behavior shifts. By doing so, stakeholders can make more informed decisions that reflect the complexities of the market.

## V. Conclusion

In conclusion, while the implementation of GST has reshaped the macroeconomic landscape, its direct impact on stock returns remains marginal and statistically insignificant. This research advocates for a shift in perspective among investors, researchers, and policymakers, urging them to consider a broader array of economic, industry, and external factors in their evaluations of stock performance. Such an integrated approach will not only enhance understanding of stock market dynamics but also lead to more strategic investment decisions and effective policy formulation in an increasingly complex economic environment.

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# Portfolio Risk and Diversification: Bitcoin and Currencies Classics

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*Abstract-* Industry 4.0 and digital transformation has accelerated the birth and emergence of virtual assets such as cryptocurrencies or cryptoassets. Bitcoin is Virtual currency that has captured the major attention of finance theorists and practitioners. This asset/currency has achieved the highest market value to date. The objective of this thesis is to verify this the behavior and relationship between bitcoin and several financial assets in the framework of an international diversification strategy of a composite portfolio Conventional and Crypto assets. Bitcoin can thus be considered as a new asset class of diversification. Faced with this observation between bitcoin and a selection of raw materials, we have studied the relationship between bitcoin and a selection of currencies, namely, EUR, GBP and JPY. We refer to the value at risk (VaR) by three empirical methods and the conditional value at risk (CVaR) for a robustness target. Data are daily from 29/10/2016 on 23/10/2020. We find that the inclusion of bitcoin in a diversified portfolio can significantly improve risk and rendement characteristics.

*Keywords:* *diversification, VaR, CVaR, bitcoin, EUR, GBP, JPY.*

*GJMBR-C Classification:* *JEL Code: G11; G15; G32; E3*




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# Portfolio Risk and Diversification: Bitcoin and Currencies Classics

Imen Ben Achour [α] & Jihed Majdoub [σ]

*Abstract-* Industry 4.0 and digital transformation has accelerated the birth and emergence of virtual assets such as cryptocurrencies or cryptoassets. Bitcoin is Virtual currency that has captured the major attention of finance theorists and practitioners. This asset/currency has achieved the highest market value to date. The objective of this thesis is to verify this the behavior and relationship between bitcoin and several financial assets in the framework of an international diversification strategy of a composite portfolio Conventional and Crypto assets. Bitcoin can thus be considered as a new asset class of diversification. Faced with this observation between bitcoin and a selection of raw materials, we have studied the relationship between bitcoin and a selection of currencies, namely, EUR, GBP and JPY. We refer to the value at risk (VaR) by three empirical methods and the conditional value at risk (CVaR) for a robustness target. Data are daily from 29/10/2016 on 23/10/2020. We find that the inclusion of bitcoin in a diversified portfolio can significantly improve risk and rendement characteristics.

*Keywords: diversification, VaR, CVaR, bitcoin, EUR, GBP, JPY.*

## I. Introduction

Since the last couple of years, literature on cryptocurrency has emerged significantly in terms of its relationship with financial market efficiency (Sensoy, 2019; Vidal-Tomas and Ibanez, 2018; Brauneis and Mestel, 2018; Urquhart, 2016), volatility analysis (Rehman and Apergis, 2019), cryptocurrencies speculation (Cheah and Fry, 2015) and their return transaction relationship (Koutmos, 2018). Interestingly, evolution of Bitcoin came across during the most fragile and turbulent financial period. i. e. after global financial crisis of 2008-09, when investors were more vulnerable and seeking an asset class with hedging and safe-haven properties.

In the context of modern portfolio theory, investors should consider uncorrelated assets to construct efficient portfolios that maximise return for a given level of risk. Alternative assets such as gold, oil, hedge funds, art etc. have become a popular choice to diversify a traditional portfolio of equities and bonds. A significant development in this regard is the emergence of a peculiar asset, Bitcoin.

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Value-at-Risk (VaR) is defined as an amount lost on a financial asset, given a probability and a fixed number of days, has become a simple standard tool to quantify market risk by a single number. Value at Risk (VaR), one of the methods developed for investors to visualize all relevant risks of companies as a whole, was developed by JP Morgan's analysts. JP Morgan's VaR algorithm and the data set needed for calculations were made publicly available for free in November 1994. This resulted in the adoption of the method further in the market. VaR also gained attention in the literature and found a way for itself. Not only by professionals from the equity markets but as well by banks, pension funds, other financial institutions and by non-financial companies adopted this method. From the academic point of view, VaR is described as a method which could estimate the highest loss that could arise along a certain period and in certain confidence interval in financial markets

In other words, VaR provides a scale based on a probabilistic estimation of value loss from a portfolio or a single asset within a certain time interval. The method considers statistical calculations and denominates the risk in monetary aspect. The analysis has been utilized in various fields such as risk reporting determination of risk limits, capital adequacy regulations, internal capital allocation, and performance measurement. From this point of view, it is widely employed in risk measurement in foreign exchange operations. This method allows estimation of maximum monetary loss subject to the certain foreign exchange investment of an investor within the certain time interval.

The three most important elements in the VaR method include: the amount of potential loss, a specific time within the risk is estimated and the probability of loss or reliability. The amount of risk may be expressed in absolute or relative number. When it's talking about the period of time within the calculated risk value can be calculated than it can be for 24 hours, week, month, year or other period of time that an analyst wants to evaluate. Time and risk are positively correlated sizes, so longer period is causing higher risk. The likelihood of potential loss or degree of reliability is usually measured at the levels of 90%, 95% and 99% reliability.

Basic methods based on which the VaR can be calculated are: historical method, parametric method and Monte Carlo simulation. Each of these methods is



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marked by certain advantages and disadvantages the historical method is considered one of the easiest methods to use. It is essential to set a time period which will be analyzed, after which the historical market size will be arranged according to the criterion of the size and degree of reliability calculated risk value. Regarding the disadvantages of historical method it is difficult to apply in the more distant future, and it involves the risk of rare events, because of which the result can show greater risk value than the one that actually is.

The parametric method has several names which are used in its defining. The method of variance-covariance, linear or delta normal, VaR are just some of the names used. This is a method that uses historical information to calculate like: arithmetic mean, correlation, standard deviation, all depending on the method used for calculating risk value. The parametric model does not use a long number of historical data as historical method, but it use the historical data to calculate the risk factors in evaluating the potential loss. The two primary variables that parametric method use in its calculation, are namely the mean value of the yield rate, and the standard deviation of the same data. As for the disadvantages, parametric method is less suitable for nonlinear portfolios or distorted distributions.

The last method for calculating VaR is the Monte Carlo method. This methodology is called the stochastic method, and its name Monte Carlo is justified because it requires computer simulation of various influences on the observed portfolio of securities. This method represents the most complex method, it is similar to the historical method, since it calculates future risk or potential loss with a statistical confidence level. The Monte Carlo method is considered the most precise method for calculating VaR which is achieved by statistical simulation of hundreds or thousands of possible scenarios based on which would come up with a solution

The role of bitcoin in terms of portfolio diversification has been researched quite extensively in finance literature. Bitcoin's role as an asset class, its highly volatile behavior, and its low correlation with other assets are factors that could improve the risk-return tradeoff in a well-diversified portfolio (Brière, Oosterlinck, & Szafarz, 2015; Eisl, Gasser & Weinmayer, 2015). In a VaR context, Likitratcharoen et al. (2018) estimated the VaR of Bitcoin and other cryptocurrencies using historical and Gaussian parametric VaR. A further step was made by Osterrieder and Lorenz (2017) and Gkillas and Katsiampa (2018) to consider extreme value theory to estimate VaR. Other approaches take into account the time-varying volatility of cryptocurrencies, such as the performed by Ardia, Bluteau, and Rüede (2019), Stavroyiannis (2018), Troster et al. (2019), Pele and Mazurencu Marinescu-Pele (2019) and Trucíos (2019). Indeed, Guesmi, Saadi, Abid, and Ftiti (2019) showed that a hedging strategy that includes bitcoin in the portfolio reduces risk when compared to a portfolio without bitcoin. Considering the lack of liquidity in the bitcoin market, Kajtazi and Moro (2019) also proposed it as a speculative asset that can generate a better risk-return tradeoff.

The objective of the present study compares currencies classics and Bitcoin (BTC) investor based on the VaR method. To that end, daily market closure price of three major global currencies (Euro, Japanese Yen, and Great Britain Pound) and Bitcoin were used in the present analysis. Obtained results will be assessed in terms of the risk level that they are exposed to when they build their portfolio with the major currencies or the digital money of Bitcoin. In the later section of the study, methods employed in the VaR calculations were presented while findings were assessed and compared with the current literature and the last section.

## II. Portfolio Diversification: Virtual Currencies vs Fiat Currencies

The theoretical framework of [Markowitz, 1959] examined the importance of portfolio diversification. A portfolio is a collection of assets or investments; diversification is the preferred approach for choosing an asset allocation strategy for a portfolio. The diversity of the securities or assets in the portfolio either lowers the risk associated with a given level of return or increases the return associated with a given level of risk. Due to the fact that bitcoin has been demonstrated to be an asset utilized for investing. [˙I¸cellio˘glu and Ozt¨urk, 2018] have studied the ¨ relationship between bitcoin and the dollar, the euro, the yen, the pound and the yuan through the cointegration tests of Engle-Granger and Johansen and the causality test of Granger. The findings indicated that there was no long-term relationship or causality between the variables. [Uyar and Kahraman, 2019] have demonstrated that bitcoin is the riskiest asset, and that adding bitcoin to a portfolio increases global risk by 98%. Using the value at risk (VaR) method, they used data from seven conventional currencies, including bitcoin, from February 2, 2012 to November 7, 2017, including the Swiss franc, euro, pound sterling, Japanese yen, Australian, Canadian, and New Zealand dollars. [Urquhart and Zhang, 2019] studied the relationship between bitcoin and the EUR, JPY, GBP, AUD, and CHF currencies using the CDC model, and discovered that bitcoin may be utilized as a hedge for CHF currencies, EUR and GBP, as well as a diversifier for AUD and JPY. For their part, [Kristjanpoller and Bouri, 2019] used the MF-ADCCA method to examine the performance of five cryptocurrencies: bitcoin, litecoin, ripple, monero, and dash in comparison to conventional currencies (Swiss franc, euro, pound sterling, yen, and the Australian dollar) from 2 June 2014 to 28 February 2018. A significant asymmetry is evident

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in the results. [Abramowicz and Klein, 2020] compared the performance of bitcoin and ripple versus the EUR, GBP, and CNY using the value at risk (VaR) technique between March 1, 2016, and February 8, 2019. Value-at-risk results for the currencies EUR, GBP, and Bitcoin were accepted at all 90%, 95%, and 99% confidence levels; however, VaR measures for the Chinese Yuan were under-estimated at 99% confidence level, in contrast to the ripple cryptocurrency, where VaR measures were accepted at 90% and 99% confidence levels. The findings imply that the bitcoin market cannot function as a medium of exchange. [Palazzi et al., 2021] evaluated how bitcoin compares to six common currencies: the euro, pound sterling, Swiss franc, renminbi, yen, and ruble. Between July 2010 and April 2020, they applied the BEKK-GARCH model and non-parametric causality test. The findings show a connection between the euro and bitcoin. The potential to including the US dollar, the UK pound sterling, the euro, the Japanese yen, and the Chinese yuan, in their research, while also accounting for the period of bitcoin price decrease in 2018. The conditional risk value (CVaR) method was highlighted by [Bedi and Nashier, 2020]. The findings demonstrated that diversified portfolios in US dollars, Chinese yuan, and Japanese yen constitute the best options for bitcoin investments and return improvements. In addition, studies from [Chemkha et al., 2021] have demonstrated that combining three cryptocurrencies bitcoin, ripple, and litecoin with three conventional currencies the euro, the Japanese yen, and the pound sterling during the period from 4 August 2013 to 5 August 2019 can provide investors with the benefits of diversification and more accurate risk estimates with a better return. [Majdoub et al., 2021] studied the relationship between bitcoin and six conventional currencies (CHF- EUR- GBP- AUD- CAD- and JPY) using an ADCC model, they found that bitcoin can be a hedge for CHF, EUR and GBP but acts as a diversifier for AUD, CAD and JPY.

## III. Econometric Methodology

*a) The Data*

Empirical part of this paper refers to calculating VaR for portfolio using Variance-Covariance approach, Historical simulation, and Monte Carlo method. Portfolio consists of major currencies. Dataset consists of daily closure prices of the concerned currencies classics for 1021 days along the period of 29/10/2016 and 23/10/2020. BTC price data and three major global currencies (Euro, Japanese Yen, and Great Britain Pound) in USD index from finance.yahoo.com

In the scope of the study, the digital currency of Bitcoin (BTC) and major currencies were compared based on results of the VaR estimation methods. To this end, logarithmic values of daily closure returns, standard deviation, and correlation matrixes were employed for VaR estimations. Each currency has the same fixed proportion of 25% in portfolio and their total value is 1.000.000$.

*Table 1:* Daily Historical Data

| Date | EUR/USD | GBP/USD | JPY/USD | BIT/USD |
|---|---|---|---|---|
| 29/10/2016 | 1,098467 | 1,221598 | 0,009563 | 714,479004 |
| 30/10/2016 | 1,097333 | 1,223691 | 0,00954 | 701,864014 |
| 31/10/2016 | 1,105705 | 1,223855 | 0,009607 | 700,971985 |
| 1/11/2016 | 1,109755 | 1,230466 | 0,009673 | 729,79303 |
| 2/11/2016 | 1,110248 | 1,246883 | 0,009704 | 740,828979 |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |
| 19/10/2020 | 1,174398 | 1,301236 | 0,009511 | 12931,53906 |
| 20/10/2020 | 1,170713 | 1,290206 | 0,009491 | 13075,24805 |
| 21/10/2020 | 1,17155 | 1,292775 | 0,009485 | 13654,21875 |
| 22/10/2020 | 1,176886 | 1,294867 | 0,009481 | 13271,28516 |

*b) Calculating VaR using Historical Simulation*

As mentioned previously, the historical simulation model for determining the var is considered simple; it does not need complex calculation and it allows the valuation the present portfolio based on historical data. It is therefore a model of estimating the distribution of price changes from past data. The var model can be summarized as follows, Record the observations (data) on the assets of the portfolio within a certain period of time (series of time) daily and



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monthly. Calculate the relative changes of the mean for each period according to the following formula:

$$Pd_{jt} = (C_{jt} - C_{jt-1})/C_{jt-1} \quad (1)$$

$Pd_{jt}$ The return on the stock j in day t and $C_{j,t}$ the stock price j in day t

Returns can be calculated using the natural logarithm as well.

$$Pd_{jt} = \log\left(\frac{C_{jt}}{C_{jt-1}}\right) \quad (2)$$

After calculating the daily returns of individual currency, portfolio return can be calculated according to formula that follows.

$$PP_t = \sum_{j=1}^{N} w_j Pd_{jt} \quad (3)$$

$PP_t$ The return of the portfolio in the day t, N The total number of shares in the portfolio, $w_j$, The share of cryptocurrency j in portfolio and $Pd_{jt}$ The return on the cryptocurrency j in day t

Using the historical data in Table 1, we apply the Historical Simulation method to calculate the VaR of the linear portfolio Pp composed of EUR/USD exchange rates, GBP/USD, JPY/USD and BIT/USD become the risk factors X1 X2 X3 and X4 respectively. The approaches for estimating the VaR of the Pp portfolio, following the application of this technique, are presented in the following: The value of the linear portfolio Pp is expressed by the following relationship:

$$PP_t = f(X_1, X_2, X_3, X_4) = X_1 + X_2 + X_3 + X_4 \quad (4)$$

The following table shows the observations of risk factors X1, X2, X3 andX4

*Table 2:* Historical Prices

| Date | EUR/USD | GBP/USD | JPY/USD | BIT/USD |
|---|---|---|---|---|
| 29/10/2016 | 1,098467 | 1,221598 | 0,009563 | 714,479004 |
| 30/10/2016 | 1,097333 | 1,223691 | 0,00954 | 701,864014 |
| 31/10/2016 | 1,105705 | 1,223855 | 0,009607 | 700,971985 |
| - | - | - | - | - |
| - | - | - | - | - |
| - | - | - | - | - |
| 20/10/2020 | 1,170713 | 1,290206 | 0,009491 | 13075,24805 |
| 21/10/2020 | 1,17155 | 1,292775 | 0,009485 | 13654,21875 |
| 22/10/2020 | 1,176886 | 1,294867 | 0,009481 | 13271,28516 |
| 23/10/2020 | 1,182984 | 1,295404 | 0,009481 | 13423,30176 |

Then we multiply the value of the rate of return in the amount to be invested. Calculate the total value of the portfolio for each period, and we calculate VaR, which is determined on two basic parameters: the first time range and the second the confidence area. For the first parameter, we chose the daily periods. As for the confidence levels, we chose 90%, 95% and 99%.

It should be noted that another time range can be tested, depending on the investor's needs and needs. Generally, VaR takes the time to calculate returns.

The results obtained are summarized in the following tables:

*Table 3:* Results of Calculating Daily VaR using Historical Simulation

| | |
|---|---|
| VAR 90 % | 14085,46665 |
| VAR 95 % | 21036,25595 |
| VAR 99 % | 36054,87789 |

The amounts 14085,46665; 21036,25595and 36054,87789 represent the VAR at 90%, 95% and 99% confidence intervals respectively, the worst loss to be expected from the portfolio's holding in the next day and under normal market conditions.

*c) Calculating VaR using Parametric Simulation*

Parametric methods of VaR models that are based on standard statistical distributions determine the conditional return distribution and estimate the standard deviation (or covariance matrix) of the returns of asset. The variance-covariance method is one of the simplest approach among various models used to estimate the VaR. Let as assume that returns can be written as:

$$r_t = \mu_t + \varepsilon_t \quad (5)$$

where εt has a distribution function F with zero mean and variance $\sigma_t^2$ . The VaR can be calculated as

$$VaR_t^q = \hat{\mu}_t + F^{-1}(q)\hat{\sigma}_t \quad (6)$$



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Where $F^{-1}(q)$ is the qth quantile value of an unknown distribution function F. We can estimate $\mu_t$ and$\sigma_t^2$by the sample mean and the sample variance by

$$\hat{\mu}_t = \frac{1}{n}\sum_{i=1}^{n} r_t \; \hat{\sigma}_t^2 = \frac{1}{n-1}\sum_{i=1}^{n}(r_t - \hat{\mu}_t)^2$$

In this method, the value at risk is calculated by a relatively simple analytical account in practice and the most common model is the Variance-Covariance method. As portfolio returns and risk factors follow normal distribution as this method assumes that returns are distributed to risk factors.

The results of VAR calculation using the method are shown in the following table

*Table 4:* The Results of Daily VAR using the Parametric Method

| | |
|---|---|
| VaR (90%) | 29076,99 |
| VaR (95%) | 91949,51 |
| VaR (99%) | 205 605,35 |

The amounts 29076,99, 91949,51 and 205 605,35represent the VAR at 90%, 95% and 99% confidence levels respectively, the worst loss to be expected from the portfolio's holding in the next days and under normal market conditions.

*d) Calculating VaR using Monte Carlo Simulation*

Monte Carlo Simulation differs from the other 2 methods since instead of using actual losses/profits to build the distribution, it uses randomly generated prices based on an actual price to build the distribution, which then will be used to determine the VaR.

Monte Carlo simulations provide possible portfolio values on a given date T after the present time t, T > t. The VAR value can be determined from the distribution of simulated portfolio values. The most simplified version of the Monte Carlo approach used to calculate VaR for a specific time horizon and confidence level, involves simulating N draws from the return distribution at time t +1 and ranking them from the lower to the highest. Then it is necessary to locate the price for the α% lowest percentile that corresponds to the initial confidence level for which the VaR is estimated. This means that there is α% probability that the asset value could diminish from this value (Sα% t+1) to even lower levels. Finally, by deducting the above future asset value from the current value (St– S α% t+1), the potential loss that corresponds to the VaR for the specific time interval and confidence level is calculated.

The VaR value in the Monte Carlo approach therefore represents the maximum loss from the random return distribution for a specific and predetermined time interval and confidence level. The results of VAR calculation using the method are shown in the following table

*Table 4:* The Results of Daily VAR using the Monte Carlo Method

| | |
|---|---|
| VaR 90% | 572588305,3 |
| VaR 95% | 309439417,8 |
| VaR 99% | -361260608,4 |

According to the results of Monte Carlo simulation at90%, 95% and 99% confidence levels, an investor who invests one USD would lose maximum $572588305,3, $-309439417,8 and $-361260608,4, respectively.

## IV. Results and Comparison – Historical, Parametric and Monte Carlo

Using the Parametric method as an example, and based of our 4 years of data, 5 percent daily VaR to be $91949, 51 of the portfolio value of $1m, This means that, based on the parametric method, an investor investing $1m in this asset could be 95 percent confident of not losing more than this amount on a given future day, based on history repeating itself. There are some differences in the results yielded by each method in Table 5, which are discussed after the table.

*Table 5:* Comparison of Results from Various VaR Methods

| | 90% | 95% | 99% |
|---|---|---|---|
| Historique | 14085.46665 | 21036.25595 | 36054.87789 |
| Variance-covariance | 91949.51 | 205605.35 | 29076.99 |
| Monte Carlo | 588908630.2 | 216516151.2 | -412061287.8 |

The VaR returns and values calculated from the various methods are shown in the table.

By comparing the results of the historical VAR with the parametric simulation method and the results in a Monte Carlo method, there is a slight difference in the results. The worst expected loss of portfolio investments on the following day calculated on a historical basis is 14085.46665, 21036.25595 and 36054.87789 and calculated on a parametric basis method, it proved to be equivalent to 588908630.2, 216516151.2 and -412061287.8$ and for the Monte Carlo method are 588908630.2, 588908630.2 and -412061287.8$ for confidence zones 90%, 95% and 99% respectively, due to the difference in use of distributions. While the historical method uses empirical distribution, the parametric method uses theoretical distribution.



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## V. VaR Estimation Results with and without Bitcoin

We applied the standard VaR estimation methods to the EUR/USD, GBP/USD, JPY/USD and BIT /USD exchange rates. VaR calculations are performed over a one-day investment horizon and a confidence level of 90%, 95% and 99% during the VaR forecast period from 29/10/2016 to 23/10/2020. Over the VaR forecast period, the average and standard deviation of the estimated losses were calculated at 90%, 95% and 99% confidence levels. The results are presented in Table 6. As part of this study, the VaR value was estimated for two portfolios, one of which includes the BTC/USD parity alongside the major currencies, and the other does not. Two portfolios whose VaR values are presented in Table.

*Table 6:* The VaR Values of the Currency Portfolio with and without Bitcoin

| | Historique Method | | | Variance Covariance Method | | | Monte Carlo Method | | |
|---|---|---|---|---|---|---|---|---|---|
| | VaR 90% | VaR 95% | VaR 99% | VaR 90% | VaR 95% | VaR 99% | VaR 90% | VaR 95% | VaR 99% |
| Portfolio (with BTC) | 14085,46665 | 21036,25595 | 36054,87789 | 91949,51 | 205 605,35 | 29076,99 | 556265412,8 | 186739438,7 | -432861527,3 |
| Portfolio (without BTC) | 3574,407577 | -4370,581926 | -6850,745246 | 21726,27828 | 48581,43514 | 6 870 | -169507,2081 | -177854,7852 | -192462,6462 |

Investments in foreign currencies are also weighted. For the first interval, we are 90% confident that we will incur no more than 556265412.8 losses in the next 1037 days for the first portfolio. While for the second portfolio, we could have a potential loss of 21726.27828 in the worst of 10% of N = 1037 day scenarios. For the second tier of the first portfolio, we are 95% confident that we will not lose more than 186739438.7 over the next 1037 days, while for the second portfolio, we are certain that we could have a potential loss of 48581.43514 for the same period. As for the last one, we are 99% confident that we will not suffer more than 36054.87789 losses. 1037 days for the first investment while for the second we will not lose more than 6870.According to estimated VaR values based on the Historical, the parametric and the Monte Carlo simulation it is observed that the portfolio which does not include BTC/USD parity is found to pose less risk with respect to the ones which do not contain BTC/USD parity. The risk difference between the two portfolios varies between 70% and 150%. It is concluded that inclusion of Bitcoin into the portfolio built has increased the overall risk exposed by investors. On the other, in case of investors to make Bitcoin investment in a distributed portfolio instead of overweighting Bitcoin, this would decrease their potential losses on their investments.

## VI. Conclusion

Risk measurement of an investment tool is viewed as a significant issue in our time. With regard to the risk preferences of investors, their investments are required to be managed. The Value-at-Risk (VaR) method in the risk measurement literature is utilized by researchers commonly but with different techniques such as basically Variance-Covariance, Historical Simulation, and Monte-Carlo Simulation.

The objective of this study is to compare investors with conventional foreign currencies and digital currency of Bitcoin (BTC) by using VaR methods called Historical, Variance Covariance and Monte Carlo Simulation at 90%, 95% and 99% confidence levels.To that end, major currencies suggested is Euro, GBP, JPY, and Bitcoin currency were included in the study. In the analyses, the risk level exposed by investors was oriented and assessed. Daily data of each currency was collected for the period of 29/10/2016 and 23/10/2020.

The results showed that the maximum loss of the portfolio in the same horizons and the specific confidence level slightly differ from the previous results obtained when calculating the VAR. Two portfolios are built; the first one including BTC/USD parity and the second not including. Findings indicate that whereas the later portfolio has lower risk in comparison with the former one. Moreover, it is seen that inclusion of BTC/USD parity into the portfolio elevated overall portfolio risk by 98% on average. However, it is revealed that investors could mitigate their general investment risk by including Bitcoin and major currencies into their portfolio.

The VaR method utilized in the application of this study reveals that Bitcoin is risky investment tool. The main factors increasing risk are mostly indicated as the high volatility of digital currencies and lack of any legislative ground controlling the system. In spite of aforesaid uncertainties and high risk, the investors who want to make an investment in Bitcoin currency are suggested to build portfolios comprised of



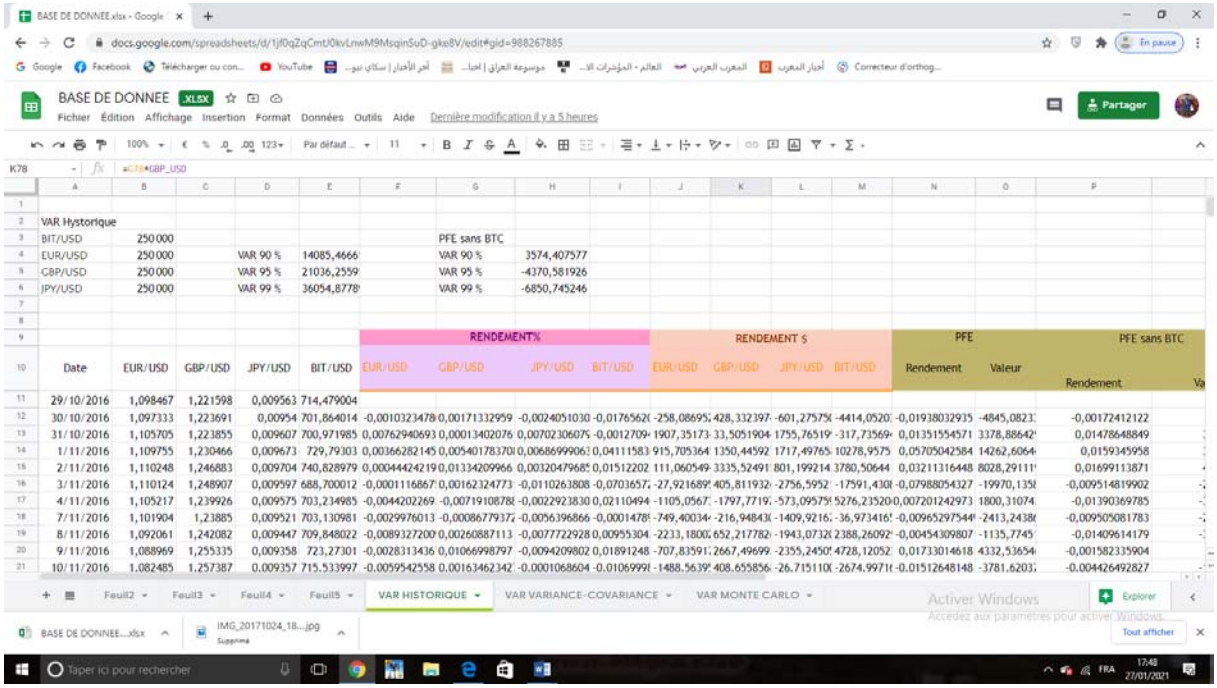
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Bitcoin as well as conventional foreign currencies. Although it is important to measure the risk of the financial portfolio, it has some shortcomings such as unpredictability in the long-term horizon. Dividends and losses are not necessarily subject to normal distribution under extreme financial conditions such as shocks and exceptional market conditions, in which the tail of the distribution is fat. Therefore, a range of other alternative methodologies have been developed for this measure, such as the conditional value, stress tests, sensitivity analysis, scenario analysis and simulation analysis.

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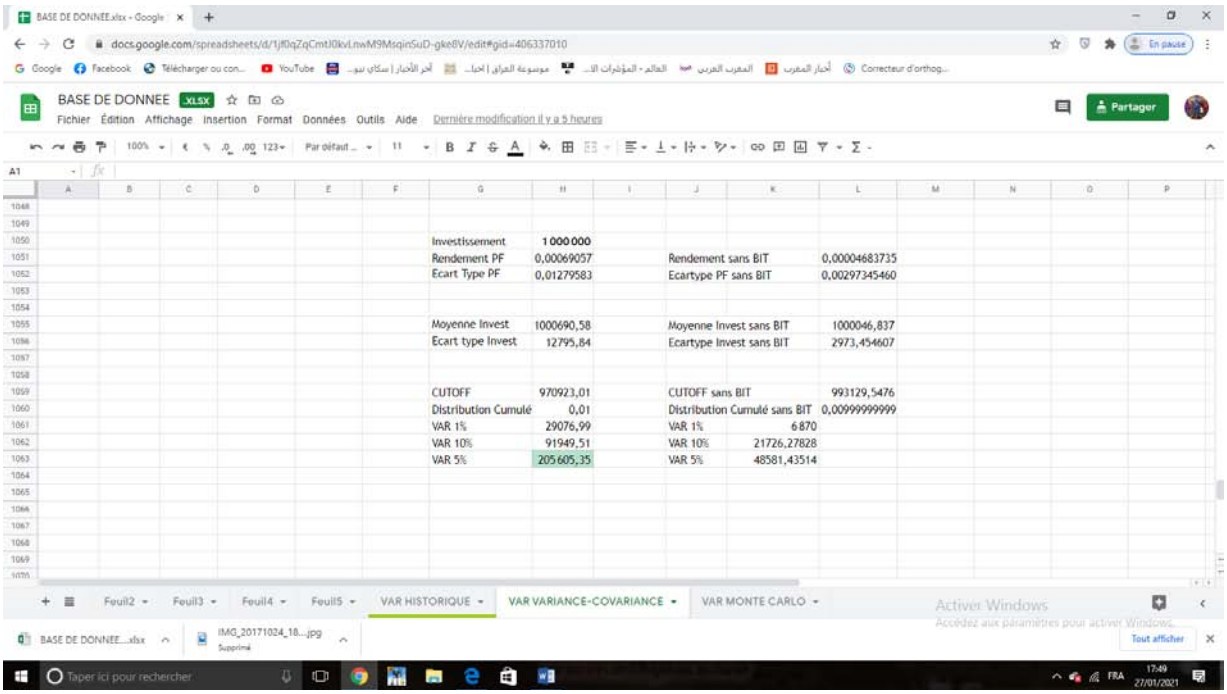

Historical Method



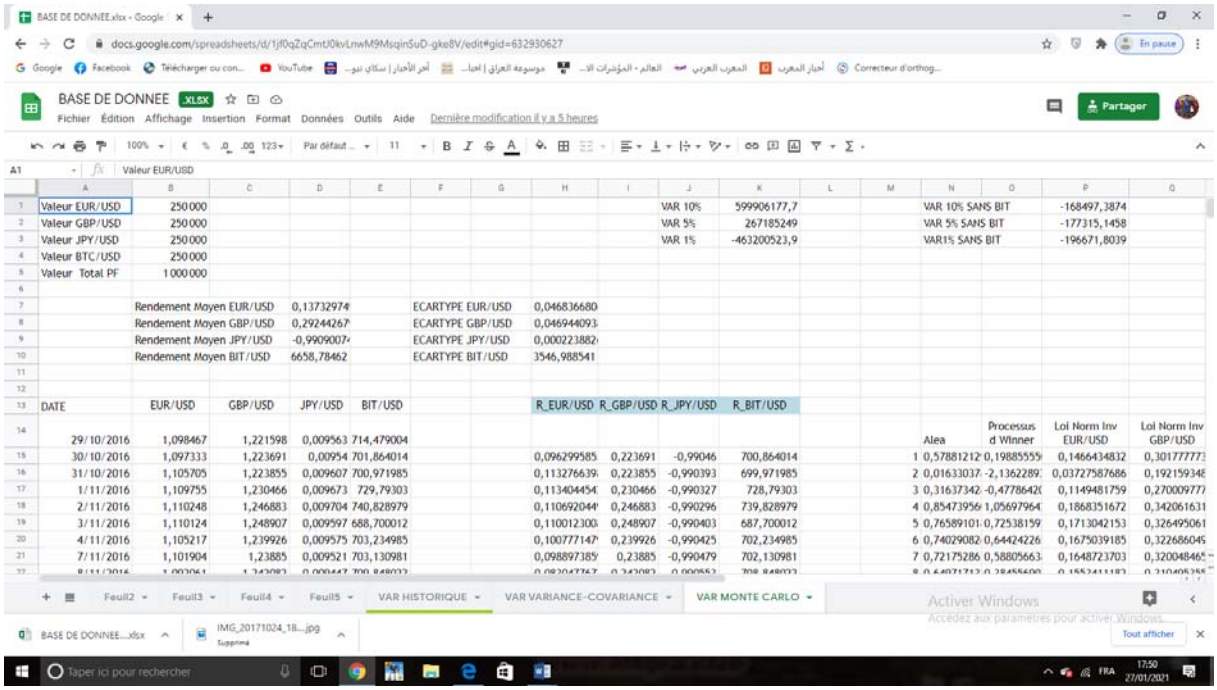



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Variance-Covariance Method




Monte Carlo Method




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### Certificate, LoR and Laser-Momento

Fellows receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member's university.

Career | Credibility | Exclusive | Reputation




## Designation

### Get honored title of membership

Fellows can use the honored title of membership. The “FMBRC” is an honored title which is accorded to a person’s name viz. Dr. John E. Hall, Ph.D., FMBRC or William Walldroff, M.S., FMBRC.

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Career | Credibility | Reputation

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Career | Financial



## GJ Account

### Unlimited forward of Emails

Fellows get secure and fast GJ work emails with unlimited forward of emails that they may use them as their primary email. For example,
john [AT] globaljournals [DOT] org.

Career | Credibility | Reputation



## Premium Tools

### Access to all the premium tools

To take future researches to the zenith, fellows receive access to all the premium tools that Global Journals have to offer along with the partnership with some of the best marketing leading tools out there.

Financial

## Conferences & Events

### Organize seminar/conference

Fellows are authorized to organize symposium/seminar/conference on behalf of Global Journal Incorporation (USA). They can also participate in the same organized by another institution as representative of Global Journal. In both the cases, it is mandatory for him to discuss with us and obtain our consent. Additionally, they get free research conferences (and others) alerts.

Career | Credibility | Financial

## Early Invitations

### Early invitations to all the symposiums, seminars, conferences

All fellows receive the early invitations to all the symposiums, seminars, conferences and webinars hosted by Global Journals in their subject.

Exclusive




## Publishing Articles & Books

### Earn 60% of sales proceeds

Fellows can publish articles (limited) without any fees. Also, they can earn up to 70% of sales proceeds from the sale of reference/review books/literature/publishing of research paper. The FMBRC member can decide its price and we can help in making the right decision.

Exclusive | Financial

## Reviewers

### Get a remuneration of 15% of author fees

Fellow members are eligible to join as a paid peer reviewer at Global Journals Incorporation (USA) and can get a remuneration of 15% of author fees, taken from the author of a respective paper.

Financial

## Access to Editorial Board

### Become a member of the Editorial Board

Fellows may join as a member of the Editorial Board of Global Journals Incorporation (USA) after successful completion of three years as Fellow and as Peer Reviewer. Additionally, Fellows get a chance to nominate other members for Editorial Board.

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## And Much More

### Get access to scientific museums and observatories across the globe

All members get access to 5 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 10 GB free secure cloud access for storing research files.

## ASSOCIATE OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL

ASSOCIATE OF MANAGEMENT AND BUSINESS RESEARCH COUNCIL is the membership of Global Journals awarded to individuals that the Open Association of Research Society judges to have made a 'substantial contribution to the improvement of computer science, technology, and electronics engineering.

The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Associate membership can later be promoted to Fellow Membership. Associates are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Associate Members.

# Benefits

## To the institution

### Get letter of appreciation

Global Journals sends a letter of appreciation of author to the Dean or CEO of the University or Company of which author is a part, signed by editor in chief or chief author.



## Exclusive Network

### Get access to a closed network

A AMBRC member gets access to a closed network of Tier 2 researchers and scientists with direct communication channel through our website. Associates can reach out to other members or researchers directly. They should also be open to reaching out by other.

Career | Credibility | Exclusive | Reputation




## Certificate

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Associates receive a printed copy of a certificate signed by our Chief Author that may be used for academic purposes and a personal recommendation letter to the dean of member's university.

Career | Credibility | Exclusive | Reputation




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Career | Credibility | Exclusive | Reputation

## Recognition on the Platform

### Better visibility and citation

All the Associate members of ASFRC get a badge of "Leading Member of Global Journals" on the Research Community that distinguishes them from others. Additionally, the profile is also partially maintained by our team for better visibility and citation. All associates get a dedicated page on the website with their biography.

Career | Credibility | Reputation

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Career | Financial



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Exclusive




## Publishing Articles & Books

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Associates can publish articles (limited) without any fees. Also, they can earn up to 30-40% of sales proceeds from the sale of reference/review books/literature/publishing of research paper.

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## Reviewers

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Financial

## And Much More

### Get access to scientific museums and observatories across the globe

All members get access to 2 selected scientific museums and observatories across the globe. All researches published with Global Journals will be kept under deep archival facilities across regions for future protections and disaster recovery. They get 5 GB free secure cloud access for storing research files.

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| Associate | Fellow | Research Group | Basic |
|---|---|---|---|
| $4800<br>**lifetime designation** | $6800<br>**lifetime designation** | $12500.00<br>**organizational** | APC<br>**per article** |
| **Certificate,** LoR and Momento<br>**2** discounted publishing/year<br>**Gradation** of Research<br>**10** research contacts/day<br>**1 GB** Cloud Storage<br>**GJ** Community Access | **Certificate,** LoR and Momento<br>**Unlimited** discounted publishing/year<br>**Gradation** of Research<br>**Unlimited** research contacts/day<br>**5 GB** Cloud Storage<br>**Online Presense** Assistance<br>**GJ** Community Access | **Certificates,** LoRs and Momentos<br>**Unlimited** free publishing/year<br>**Gradation** of Research<br>**Unlimited** research contacts/day<br>**Unlimited** Cloud Storage<br>**Online Presense** Assistance<br>**GJ** Community Access | **GJ** Community Access |

# Preferred Author Guidelines

**We accept the manuscript submissions in any standard (generic) format.**

We typeset manuscripts using advanced typesetting tools like Adobe In Design, CorelDraw, TeXnicCenter, and TeXStudio. We usually recommend authors submit their research using any standard format they are comfortable with, and let Global Journals do the rest.

Alternatively, you can download our basic template from https://globaljournals.org/Template.zip

Authors should submit their complete paper/article, including text illustrations, graphics, conclusions, artwork, and tables. Authors who are not able to submit manuscript using the form above can email the manuscript department at submit@globaljournals.org or get in touch with chiefeditor@globaljournals.org if they wish to send the abstract before submission.

## Before and during Submission

Authors must ensure the information provided during the submission of a paper is authentic. Please go through the following checklist before submitting:

1. Authors must go through the complete author guideline and understand and *agree to Global Journals' ethics and code of conduct,* along with author responsibilities.
2. Authors must accept the privacy policy, terms, and conditions of Global Journals.
3. Ensure corresponding author's email address and postal address are accurate and reachable.
4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s') names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
5. Authors should submit paper in a ZIP archive if any supplementary files are required along with the paper.
6. Proper permissions must be acquired for the use of any copyrighted material.
7. Manuscript submitted *must not have been submitted or published elsewhere* and all authors must be aware of the submission.

**Declaration of Conflicts of Interest**

It is required for authors to declare all financial, institutional, and personal relationships with other individuals and organizations that could influence (bias) their research.

## Policy on Plagiarism

Plagiarism is not acceptable in Global Journals submissions at all.

Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures

- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

## Authorship Policies

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

**Changes in Authorship**

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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**Appealing Decisions**

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

**Acknowledgments**

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

**Declaration of funding sources**

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

## Preparing your Manuscript

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.

***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## Format Structure

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

**Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

**Author details**

The full postal address of any related author(s) must be specified.

**Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

**Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

**Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

**Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

**Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

**Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

**Figures**

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

## Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

## Tips for writing a good quality Management Research Paper

Techniques for writing a good quality management and business research paper:

***1. Choosing the topic:*** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

***2. Think like evaluators:*** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

***3. Ask your guides:*** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

***4. Use of computer is recommended:*** As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

***5. Use the internet for help:*** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



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***6. Bookmarks are useful:*** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

***7. Revise what you wrote:*** When you write anything, always read it, summarize it, and then finalize it.

***8. Make every effort:*** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

***9. Produce good diagrams of your own:*** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

***10. Use proper verb tense:*** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

***11. Pick a good study spot:*** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

***12. Know what you know:*** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

***13. Use good grammar:*** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.
Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

***14. Arrangement of information:*** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

***15. Never start at the last minute:*** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

***16. Multitasking in research is not good:*** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

***17. Never copy others' work:*** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

***18. Go to seminars:*** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

***19. Refresh your mind after intervals:*** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

***20. Think technically:*** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

***21. Adding unnecessary information:*** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

***22. Report concluded results:*** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

***23. Upon conclusion:*** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## Informal Guidelines of Research Paper Writing

***Key points to remember:***

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

**Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

**The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

**General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

*Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



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- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

**Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

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*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

**Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

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*The following approach can create a valuable beginning:*

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- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
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**Approach:**

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- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
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**Approach:**

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| ***References*** | Complete and correct format, well organized | Beside the point, Incomplete | Wrong format and structuring |

# INDEX


## A

Aforesaid · 19
Amidst · 2

## C

Concur · 4
Contemporary · 1, 0
Conveyed · 2

## D

Demonstrated · 2
Depleted · 6
Dignity · 1
Dimensions · 3, 1
Diminish · 18

## F

Fragile · 14
Frown · 1
Furiously · 3

## H

Hedging · 14, 15
Hikes · 2
Hispanic · 1, 2, 3, 4

## I

Inadequate · 1, 3, 5, 6
Interrogatory · 4

## L

Lamented · 5
Lease · 1

## P

Pitfalls, · 2
Poised · 3
Presumes · 3
Prone · 2

## R

Regimes · 1
Residual · 3
Resuscitation. · 1
Retiring · 1, 3, 4, 6
Ripple · 1, 15

## S

Solely · 12
Swindles · 2

## T

Thematic · 4






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