

AN EMPIRICAL STUDY ON THEMATIC INDEX - NIFTY INDIA DIGITAL INDEX



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Abstract

NIFTY India Digital is a thematic index on the National Stock Exchange (NSE) which captures the performance of a portfolio of stocks that represent a digital theme on a real-time basis. This research paper is an attempt to explore about Nifty India Digital Index in respect of its performance. It is an empirical study based on secondary data. Simple financial tools like, Rate of Return, Average and Standard Deviation are deployed to analyze the data. The performance of Nifty India Digital Index is measured in terms of return and risk. Its performance is compared with the returns and risk of Nifty50, BSE SENSEX and Gold. The study concluded that the NIFTY India Digital Index has generated higher returns than Nifty50 index and BSE SENSEX, and lower returns than Gold. Nifty India Digital Index is riskier than Nifty50 & SENSEX, and is less risky than Gold. JEL Codes: G1, G10, G11

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1. Introduction

Digitalization is happening rapidly and is touching every aspect of our lives. The Nifty India Digital index aims to capture the performance of companies exposed to the Digital theme, which will likely continue to increase in importance in the future (Mukesh Agarwal, CEO, NSE Indices Ltd., 2021). The digital theme is now the essence of most industries including software, e-commerce, IT-enabled services, industrial electronics and telecom services companies. In 2021, the National Stock Exchange of India (NSE) has announced the launch of Nifty India Digital Index to track portfolio stocks performance representing digital theme. The index is expected to act as a benchmark for asset managers and be a reference index tracked by passive funds in the form of Exchange Traded Funds (ETFs), index funds and structured products.

Literature Review

The noticeable and quick progress of digitalization it is well accepted that digital practices is changing business landscapes. However, while this concept is being labeled in the literature it is also often used indistinctively. While going digital, firms are expecting to enhance their competitive advantage by offering services throughout virtual channels and operationalize its operations management. Furthermore, the literature suggested the development of new digital technologies along with automation and artificial intelligence is enabling a new wave of smart companies, a topic that deserves to be studied in the future (João Carlos Gonçalves dos Reis, et al, 2020).

The adoption of digital financial services has been a key driver of financial inclusion; and there is wide variation across countries and regions, with the greatest progress recorded in Africa and Asia. Given the accelerated adoption of digital payments during the COVID-19 pandemic, policies are needed to close the digital divide to ensure continued progress in financial inclusion and safeguard trust in financial services (Purva Khera and et al, 2022).

Forecasting stock exchange rates is an important financial problem that is receiving increasing attention. During the last few years, a number of neural network models and hybrid models have been proposed for obtaining accurate prediction results, in an attempt to outperform the traditional linear and nonlinear approaches (Erkam Guresen et al, 2011).

As the digital economy becomes increasingly important, digital transformation has become an inevitable trend for both survival and sustainable development of corporations. There is an impact of digital transformation on stock price crash risks. Enterprise Digital Transformation (EDT) can significantly diminish stock price crash risks. As

endogenous problems are solved, conclusions remain valid after robustness tests. In particular, the effect of EDT on reducing stock price crash risk declines as the level of the stock price bubble rises, and the effects are different in different ownership systems and industries (Xiaotong Song, 2022).

Digital technologies are deeply embedded into the daily activity of every capital markets professional. They have transformed the sales and trading business over time and will continue to do so. Digital has been transforming the capital markets landscape for the past two decades across functions and products. Virtually no area has been left untouched (McKinsey&Co, 2015).

The digital transformation has dramatically changed Stock Market access, monitoring and information flow (Punit Jain, 2021). Digital transformation has a positive and significant impact on the R&D intensity of enterprises, number of patent applications, and number of patent grants, that is, digital transformation significantly improves the innovation of enterprises. The internal logical chain of the impact of digital transformation on enterprise innovation is “digital transformation to risk-taking to enterprise innovation,” as risk-taking plays an intermediary role in promoting enterprise innovation through digital transformation. With the help of innovation channels, the incentive effect of digital transformation and innovation has a value-enhancing function (Meiyu Liu, Chengyou Li et al, 2023).

(Jongsur Park, Seunghwa Jun and Jeong Yoon Kim, 2022) has developed a new Digital Transformation Index (DTI). The new framework reflects the dynamics over time by dividing digital transformation into three stages – Foundation, Adoption and Acceleration. Furthermore, considering that digital transformation is a comprehensive process across a country’s economy, society and industry, the new framework includes five thematic pillars – Network / Infrastructure, Government, Business, People and Ecosystem, based on the political, economic, social, technological, environmental and legal (PESTEL) analysis and the circular flow model.

The digitalization in the financial services is not a new development but the application is widened with the new developments in the Financial services is key to survival in this sector will be the ability to adapt to the technological changes and adjust. The best example of transmission we can quote is the mobile loan or internet based loan which has become popular in recent years. The bankers who use to make the borrowers to stand in a big queue in the past are now behind the search of the borrowers. This became possible due to digitalization (Anand Patil, 2018).

(Jun Li, Jian Zhou and et al, 2020), analyzed the role of digital transformation in promoting the

value creation and benefit improvement of the sectors combined with indicators as market value, economic benefits of enterprise. This indicator system will help the government departments and enterprises to get a clear view on the current status of development, locate the key points of transformation and choose the right path to change, so as to realize accelerate the development of the digital transformation.

Statement of the Problem

Digitalization is an era in its beginning; it calls for huge research in all aspects. Existing literature reveals that there is relatively no research carried on digital indices; therefore this research study is undertaken to decode Nifty India Digital Index.

Objectives of the Study

1. To know about Nifty India Digital Index.
2. To study the performance of Nifty India Digital Index.
3. To compare the performance of Nifty India Digital Index with the indices, Nifty50 and BSE SENSEX, and Gold.

2. Research Methodology

This research paper is an attempt to explore about Nifty India Digital Index in respect of its performance. It is an empirical study based on secondary data. Data sources are various published research articles, authored books, business news & bulletins, National Stock Exchange website, other relevant websites and more. NIFTY India Digital Index was launched on National Stock Exchange (NSE) of India on December 14, 2021; therefore the period of study is considered from Jan 2022 to March 2023, 15 months. Simple financial tools like, Rate of Return, Average and Standard Deviation are deployed to analyze the data. The performance of Nifty India Digital Index is measured in terms of return and risk. Its performance is compared with the returns and risk of Nifty50, BSE SENSEX and Gold. Daily closing values are used to arrive at daily returns. Closing values are collected from NSE & BSE sites. Daily gold price per 8 grams is used to find daily returns.

Nifty India Digital Index - Modus Operandi

The Nifty India Digital index was launched on December 14, 2021, with the base date as April 1, 2005, and the base value at 1000. The NIFTY India Digital share price since inception has breached the levels of 5,000 at ~85x P/E multiples.

Nifty India Digital Index's basic objective is to serve as the benchmark for evaluating the Indian digital technology sector. It is a highly diversified index, as the stocks are capped at 7.5% weight. It is expected that NSE Indices Ltd will use AI/ML to identify companies for this index in the coming future.

NIFTY India Digital is a thematic index on the National Stock Exchange (NSE) which captures the performance of a portfolio of stocks that represent a digital theme on a real-time basis. It is constituted of 31 stocks that are selected on the basis of free-float market capitalization. The NIFTY India Digital Index stocks span 5 sectors: IT, Consumer Services, Telecom, Financial Services, and Capital Goods.

The NIFTY India Digital index is owned and managed by NSE Indices Limited, previously known as India Index Services & Products Limited. The India Digital index is governed by a three-tier structure comprising the BOD of NSE Indices, the Index Advisory Committee, and the Index Maintenance Sub-Committee.

The index value is calculated as follows:

$$\text{Index Value} = \frac{\text{Current Index Market Capitalization}}{(\text{Base free-float Market Capitalization} * \text{Base Index Value})}$$

Where, Current Index Market Capitalization = Shares o/s * IWF * Capping factor * Price

IWF (Investible Weight Factors) = 1 as it is based on market capitalization method

The NIFTY India Digital index is rebalanced semi-annually based on six months of data, with the cutoff date being January 31 and July 31 of each year. The replacement of stocks in NIFTY Digital (if any) is effective from the last trading day of March and September.

Constituents of Nifty India Digital Index

S.No	Company	Price (Rs.)	Change %	MCAP (Cr.)	P/E %	P/B %
1	L&T Technology Serv.	3,625.00	5.17%	38,288.95	34.48	8.17
2	KPIT Technologies	929.8	2.68%	25,489.89	90.98	18.37
3	Vodafone Idea	6.7	2.29%	32,615.39	-1.12	-0.48
4	Zomato	59.3	1.89%	50,874.58	-142	2.49
5	LTIMindtree	4,224.00	1.53%	1,24,957.59	44.9	12.89
6	Sonata Software	830.4	1.53%	11,643.24	53.66	18.97
7	Tata Elxsi	6,375.70	1.35%	39,705.59	55.63	21.04
8	Tanla Platforms	660.75	1.11%	8,880.50	51.11	15.65

9	Coforge	3,984.15	1.03%	24,341.49	36.24	9.55
10	Persistent Systems	4,514.15	0.94%	34,725.10	43.89	8.51
11	Info Edge	3,684.85	0.89%	47,602.41	134.9	3.92
12	Tata Communications	1,249.55	0.41%	35,612.17	53.46	3.69
13	Oracle Finl. Service	3,478.15	0.31%	30,056.38	16.96	5
14	Infosys	1,230.00	0.20%	5,10,306.48	21.93	7.63
15	Honeywell Automation	35,712.25	0.18%	31,575.07	79.2	10.26
16	Bharti Airtel	774.75	0.17%	4,62,380.75	-107	5.68
17	Intellect Design	431.35	0.15%	5,856.70	40.17	3.98
18	Mphasis	1,762.25	0.13%	33,211.36	24.6	7.32
19	HCL Tech.	1,064.35	-0.11%	2,88,828.94	25.21	7.03
20	Birlasoft	267.1	-0.13%	7,341.79	29.09	6.11
21	IRCTC	607.4	-0.13%	48,592.00	51.65	19.49
22	FSN E-Commerce	116.75	-0.17%	33,302.32	381.2	18.05
23	PB Fintech	577.6	-0.17%	25,998.72	0	3.64
24	Wipro	373.8	-0.20%	2,05,144.44	16.56	3.37
25	Tech Mahindra	994.3	-0.20%	96,861.00	22.6	3.68
26	One97 Communications	646.5	-0.23%	40,980.01	0	3.43
27	Happiest Minds Tech.	803	-0.30%	11,793.14	51.88	14.83
28	Cyient	1,160.85	-0.34%	12,836.10	36.18	4.75
29	Indiamart Intermesh	5,250.00	-0.46%	16,072.65	60.79	8.09
30	TCS	3,180.80	-0.54%	11,63,871.06	29.76	15.64
31	Affle (India)	883	-1.17%	11,766.07	196.4	13.29

Source: <https://ticker.finology.in/market/index/nse/niftydigital>, retrieved on 27th April, 2023

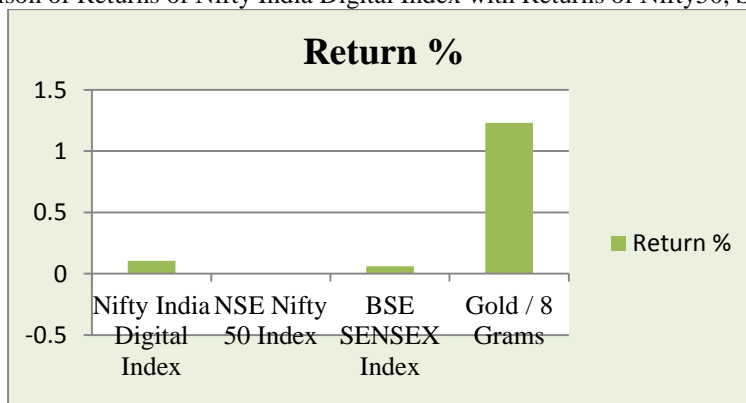
Empirical Results and Discussion

Table 1: Comparison of Return & Risk of Nifty India Digital Index with Return & Risk of Nifty50, SENSEX & Gold

Measures	Nifty India Digital Index	NSE Nifty50 Index	BSE SENSEX Index	Gold / 8Grams
Return %	0.106062397	-0.000359665	0.060153456	1.229174899
Risk %	1.323658569	1.02814673	1.089959549	2.680888139

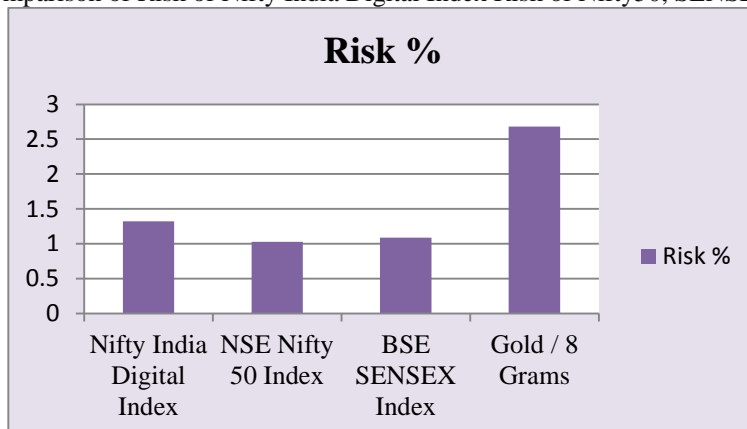
Source: Compiled from the data available on the websites of NSE, BSE & gold.org

Fig 1: Comparison of Returns of Nifty India Digital Index with Returns of Nifty50, SENSEX & Gold



Source: Compiled from the data available on the websites of NSE, BSE & gold.org

Fig 2: Comparison of Risk of Nifty India Digital Index Risk of Nifty50, SENSEX & Gold



Source: Compiled from the data available on the websites of NSE, BSE & gold.org

Table: 1 Exhibit the empirical results of the study in terms of Return & Risk. The results show that in terms of Returns Nifty India Digital Index, Nifty50, SENSEX & Gold have generated a return of 0.106062397, -0.000359665, 0.060153456 and 1.229174899 respectively. In terms of Risk Nifty India Digital Index, Nifty50, BSE SENSEX & Gold have a risk of 1.323658569, 1.02814673, 1.089959549 and 2.680888139 respectively.

It is observed (Fig: 1) that Nifty India Digital Index have generated higher returns than that of Nifty50 Index & BSE SENSEX. On the other hand, physical Gold returns are higher than Nifty India Digital Index. It is also observed (Fig: 2) that Nifty India Digital Index returns are riskier than that of Nifty50 and BSE SENSEX, whereas, Nifty India Digital Index is less risky than physical Gold. It is found that Nifty India Digital is not as closely correlated to the Nifty50 Index.

Findings

- Nifty India Digital Index has garnered positive returns with a high risk.
- Nifty India Digital Index has generated higher returns than Nifty50 and SENSEX.
- Nifty India Digital Index has generated lower returns than Gold.
- Returns of Nifty India Digital Index and Nifty50 move in opposite direction.
- Nifty India Digital Index is having high risk than Nifty50 & SENSEX.
- Nifty India Digital Index is less risky than Gold.

Suggestions

- There should be extended efforts from the mutual fund houses to increase the awareness among investors about digital investments existing in the market.
- There is relatively no awareness about Nifty India Digital Index among investors, so there should be efforts from mutual fund houses in creating awareness about this index.

- The Index has a concentrated portfolio of 31 stocks only. Hence investors should be cautious while allocating funds.

Scope for further Study

There is a lot of scope for further study. Researchers can direct their research towards digital inclusion & transformation. Research can be taken up upon impact of digital transformation on retail investors, shift in investment patterns and more.

3. Conclusion

This research study has attempted to explore about a relatively new index, Nifty India Digital Index. The study has compared the performance of Nifty India Digital Index with Nifty50, BSE SENSEX and Gold. The empirical results conclude that the Nifty India Digital Index has garnered positive returns with a high risk. The Index has generated higher returns than Nifty50 index and BSE SENSEX, on the other hand, it has generated lower returns than Gold. Nifty India Digital Index is riskier when compared to Nifty50 & SENSEX, whereas, Nifty India Digital Index is less risky than Gold. Returns of Nifty India Digital Index and Nifty50 move in opposite direction, investors can seek optimal risk diversification.

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