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Editorial

Orissa Commerce Association is working consistently with a pious mission to serve the research community of India by publishing *'Orissa Journal of Commerce'*, a quarterly peer-reviewed research journal for over four decades. The current Issue of the Journal contains ten research papers and articles from diverse fields of commerce, management and public policy.

Different currencies have different appeals, but the popularity of cryptocurrencies largely stems from their decentralized nature. The *first paper* is an attempt to check if the volatility in cryptocurrency market is influenced by the volatile behaviour of three other markets, namely, Indian stock market, Volatility index and movement in the Oil prices. The paper concluded that crude oil market and volatility index market spills the volatility in the cryptocurrency market but stock market does not play a significant role in transmitting the volatility. The *second article* develops a scale named "The InvPERC Scale" for mutual fund. The findings of this research work present a combination of three factors playing a decisive role in framing mutual fund investor.

The purpose of the *third article* is to explore the inclination of consumers towards Sambalpuri handloom. This study reveals that most consumers are highly familiar with Sambalpuri handloom. Sambalpuri bastralaya is the most preferred destination for the respondents and the usage of Sambalpuri handloom is influenced by product specifications as well as market reach. The aim of the *next paper* is to test the empirical applicability of Philips Curve in the Indian context with a focus on short-run as well as long-run relationships. The study exhibits a direct correlation between inflation and unemployment which invalidates the presence of Philips Curve in India and posed challenges to expansionary monetary policy to curb unemployment. The *fifth paper* studies how coal mining-induced displacement affects the rural livelihoods of the villages in the Talcher coal belt, Odisha. Additionally, it causes a social imbalance and a new class of vulnerable people in the area. The negative effects of coal mining significantly reduced traditional livelihoods like farming, raising livestock, and gathering minor forest products.

The *sixth paper* examines investors' perceptions related to M&A on shareholder's wealth as well as profitability with reference to Indian banks. According to the report, mergers and acquisitions in the banking industry boost shareholder value. Investors had a different perspective of shareholders' wealth after mergers and acquisitions, according to Income and qualification. The *next article* investigates and understands the association between Organizational Commitment (OC) and Organizational Citizenship Behaviour (OCB). The elements of organizational commitment are categorized as affective, normative and continuance. Results show that the elements of organizational commitment are significantly and positively related to the five dimensions OCB. The objective of *eighth paper* is to analyze financial sustainability of the Nifty 100 Index Companies for the period 2014-2015 to 2019-2020 with special focus on ESG phenomenon. The findings are out of eight variables taken into study six are significant and impacting the financial sustainability.

The *ninth paper* attempts to review 50 research papers from relevant research databases such as Emerald, JSTOR, Scopus (Elsevier), Science Direct (Elsevier) and SSRN- Social Science Research Network for the period starting from 1998 to 2020. The result of study indicates that seventy percent of studies used self-constructed index to measure voluntary disclosure and 26 percent of papers provided information relating to corporate social components and the extent of disclosure provided by companies is least due to presence of information cost. The *last paper* aims to understand the benefits inferred by implementing KM in steel industries in particular and other industries in general. The result suggests that the identified four outcomes of KM foster a deep impact on the steel industry for its all-round development in the competitive world by thriving towards the destination of success.

The readers will find this Issue with superior quality and high intellectual diversity.

Hope the readers will enjoy reading this Issue and encourage us to stride forward.

Dr. Malay Kumar Mohanty

(Managing Editor)

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Cryptoverse and its Unflinching Cog of Fickleness

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Cryptocurrency, Volatility, GARCH, Stock market, Oil prices

JEL Classification

C4, E5, F30, G1

Abstract: Investing in crypto currencies is highly risky and speculative because it is not backed by any economic fundamentals. This paper is an attempt to check if the volatility in cryptocurrency market is influenced by the volatile behaviour of three other markets, namely, Indian stock market, Volatility index and movement in the Oil prices. The time period of study ranges from February 28, 2017 to March 31, 2022 with daily frequency of data. A break point has also been identified to study the sub period movements. ARCH – GARCH family of models have been used to gauge the volatility transmissions. It is found that crude oil market and volatility index market spills the volatility in the cryptocurrency market but stock market does not play a significant role in transmitting the volatility. This is evident from the recent times when a huge fall in crypto currencies have been experienced with jig jag movements in the stock market behaviour.

1. Introduction

The concept of cryptocurrency was discovered by pseudonym researcher Satoshi Nakamoto long time ago in 2008. The whole market is outlined as the peer-to-peer cash system working on the advanced technology of block chains. The first cryptocurrency which emerged was Bitcoin (BTC) based on the SHA-256 algorithm. It is considered as the "gold standard" of all the crypto currencies since it is the oldest and most reputable one. The idea behind the introduction of the very first crypto, i.e., Bitcoin was to decentralise the digital currency and diverge it from the factors influencing fiat currency. Another coin in the evolutionary chain of cryptocurrency was Lite coin (released in the year 2011), also known as the "silver standard" of cryptocurrency, gained popularity and success making it receive a big chunk in market capitalisation after Bitcoin till 2014. Some of the other crypto currencies evolved over time include Ethereum, Cardano, Dogecoin and so on. It is indubitable that the emergence of crypto currencies will play an indispensable role in the future economic progress. Today, the market of crypto currencies is known for its volatile prices and speculative returns.

In the initial years after the launch, the purpose of isolating the cryptocurrency market from other markets was successful. However, this objective was defied after the growing popularity of various digital currencies among the return-seeking investors.

The concept of virtual currency is built upon the idea of supply and demand which altogether makes the market more volatile. The year 2017 marks as a landmark year for Bitcoin (BTC) as in this year, the value of BTC soared and leads to bubble burst ultimately hurting the investor sentiments at large. Followed by 2017; the coming years also contributed to the huge volatility showcased by the cryptocurrency market. The cryptocurrency investors can create their maximum return portfolio by not only looking at the crypto market but also the investors sentiments towards stock market and Crude oil prices in the backdrop of increasing interconnections between crypto market and other markets such as oil and stock market (Lopez-Cabarcos *et al.*, 2021). A wide research gap exists with regard to analysing the volatility of crypto market in developing countries with respect to interconnecting markets.

India is the most suitable country to study these volatility spillovers across the cryptocurrency market with the other markets such as stock market and Crude oil prices, as the first-time investors have increased their footprint in the crypto market over the years. Also, in the recent years, digital asset has proved to be the best asset class of 2021 may be because other asset classes were incapable of fulfilling the high aspirations of the smart investors who wish to grow their money in conjunction to the global growth rate. In India, the digital currency has still not got the legal tender due to the menace it may cause to the macroeconomic and financial stability. However, the union budget announcement on February 1, 2022 gave a ray of hope to many digital investors as the finance minister introduced the tax on the earnings from crypto market. Thus, due to the instability in the digital currency market, it loses the race to be called as a legal tender but is largely considered as a risk-diversifier by many investors. The extreme volatility of crypto market is higher than prominent exchange rates (Baur and Dimpfl, 2021).

The idiosyncrasy of crypto investors investing in large numbers in the digital asset despite of the high beta associated with it is of great interest. Thus, the objective of the paper is to detangle the association between different markets in Indian perspective. To elaborate, this research work aims to investigate the spill over effect from crude oil market, stock market and volatility index (VIX) to the cryptocurrency market in Indian perspective. It is important to understand the interrelation of volatility among different markets in order to let investors understand the association between fluctuations in digital market (cryptocurrency) and traditional markets (oil market and stock market). This study is novel in two ways, first, it is a unique attempt in the Indian context to find if the volatility in stock market and oil prices spills over to the volatility in cryptocurrency market, and secondly, the focus is on entire cryptocurrency market by taking S&P Cryptocurrency Broad Digital Market Index (SPCBDM) as a proxy to represent the entire crypto market rather than focussing only on the Bitcoin segment of the entire crypto market.

The rest of the paper is arranged in the following sequence - in the second section, we present a brief literature review with focus on research gaps. The third section contains the data sources used and the methodology adopted in the study. The fourth section talks about the empirical results obtained after applying several techniques. And lastly, the fifth section summarises the research findings.

2. Review of Literature

An extensive review of literature has been conducted to identify the research gaps in the existing literature. Over a period of time, cryptocurrency has gained attention of the investors globally. Due to the increased trading and awareness, the crypto market is presently strongly linked to other asset classes. This has been a point of discussion in the recent past across geographically dispersed areas among the researcher community. New fields of research have been coming up in an attempt to understand the behaviour of crypto market with respect to returns and volatility.

Brian (2015) and Corbet *et al.* (2019) points out that cryptocurrency, precisely Bitcoin acts as the asset and fails to qualify as traditional currency due to the lack of some vital fundamental values. Urquhart and Zhang (2019) further, re-confirms the status of Bitcoin as a safe haven asset. This is also supported by Shahzad *et al.* (2019). Ji *et al.* (2019a) finds that Bitcoin market is isolated from other asset classes; however, they found a significant association with some of the lagged asset classes. Further, Ji *et al.* (2019b) claimed that crypto market which used to be insulated from the shocks of other markets is turning to be interconnected over a period of time. Okorie and Lin (2020) investigated the relationship and connectedness between crude oil market and cryptocurrency market. The results suggest that there exists a bi- and unidirectional spillover effect from energy market (crude oil) to digital currency market and vice versa. Also, it has been observed that there exists a time-varying interconnectedness between financial stress and virtual asset market (Akyildirim *et al.*, 2019).

Bhullar and Bhatnagar (2020) analyses the relationship between stock exchange movements and price movement of Bitcoin in India and China and found that there is no causal relationship between these two. It further talks about the dependency of the casual relation between Indian bourses and crypto proxied by Bitcoin on economic policies.

Jeribi *et al.* (2021) studied the behaviour of five crypto currencies and five developing markets (BRICS Market). It was found that both the stock market returns as well as crypto returns are changing during the crisis period in a nonlinear and asymmetric framework. Ünvan (2021) analysed the impact of Bitcoin on USA, Japan, China and Turkey stock market indices. The findings suggested that Bitcoin had a two-way causality relation with Turkey stock market, and there is one way causality relation from China and Japan to Bitcoin.

Attarzadeh and Balcilar (2022) conducted a study to examine the interconnections between Bitcoin and other financial markets including clean energy, stock market and crude oil. The results suggest that Bitcoin and oil market transmits volatility to other financial markets. Moreover, they reported that the markets are weakly linked during non-crisis period and their linkage becomes strong during the crisis period. Katsiampa *et al.* (2019) proved that the shocks transmitted from Bitcoin market to other financial markets are largest among all the other crypto currencies but not yet dominant. This indicates that Bitcoin alone is not a good representation of the cryptocurrency market. Digging deeper, Aharon and Qadan (2018) reported that the anomaly of week of the day effect exists in the Bitcoin market as well which apparently leads to high returns and volatilities on the first day of the week, i.e., Monday.

While reviewing the literature, it has been observed that very few studies focus upon spillovers effect from different asset classes to cryptocurrency market and vice versa. Bouri *et al.* (2018) found that time and market conditions act as the major determinants in influencing the spillovers effect between Bitcoin and other asset classes. However, the paper considered only the stock market driven asset classes like stocks, commodities, currencies and bonds. A major market of Crude oil has been missed which is believed to significantly influence the stock market. Also, only a single crypto, i.e., Bitcoin has been focused upon. Various studies have used Bitcoin trading volume as a close approximation to the cryptocurrency market trade volume. However, Schinckus et al. (2019) finds that the trading volume of Bitcoin is important but fails to represent the trading volume of cryptocurrency market as whole.

2.1. Research Gaps

The present paper identifies the research gaps and attempts to fill the same. Firstly, the prior research work is largely based on the developed economies. India, being a fastest growing emerging nation and a hub for the largest number of crypto investors (close to 100 million) lags behind to be taken as the central point in any research. Secondly, the Bitcoin market is taken as a proxy for cryptocurrency market in previous research work. However, the BTC market is an inappropriate selection as a representation for the whole virtual asset market. Thus, the present work considers the SPCBDM Index as a close proxy to the cryptocurrency market. Thirdly, very few studies have considered the spillovers effect between different asset classes. The present research work is one of the few studies to undertake different asset classes for investigating the spillovers effect in two different time frames. The different periods are selected according to the Quandt-Andrews unknown breakpoint test and Chow Breakpoint test.

3. Objective and Hypothesis of the Study

The objective of present research work is to examine the volatility spill over effect from crude oil market, stock market and volatility index (VIX) to the cryptocurrency market in Indian perspective.

Accordingly, the Null Hypothesis (H_0) is that there is no volatility spill over effect from crude oil market, stock market and volatility index (VIX) to the cryptocurrency market in Indian perspective.

4. Data and Methodology

With the intention to examine the spillovers effect between four different markets, i.e., cryptocurrency market (SPCBDM), stock market, VIX (NSE Volatility Index) and crude oil market, the current study considers the period ranging from February 28, 2017 to March 31, 2022. Daily frequency of the variables has been focused upon as the linchpin of the study is to measure the flow of volatility and volatility is best measured when the frequency of the data is high. Further, the unavailability of SPCBDM prior to February 28, 2017 restrained our scope to exceed the timeline backwards in order to ensure uniformity of the variables.

The variables examined in the current study are - S&P cryptocurrency broad digital market index (SPCBDM) which is used as a close proxy to estimate the cryptocurrency market. The index considers the digital assets listed on selected open recognized exchanges that satisfies the minimum criteria of liquidity and market capitalization with an aim to track the performance of digital assets. Further, Nifty 50 is taken as a close approximation to Indian stock market; India VIX measures the volatility based on the prices of Nifty index options and has been taken to represent the volatility in Indian stock market; Brent crude oil prices to indicate the crude oil market in India. To elaborate, India has its own Indian Basket of Crude oil popularly known as IBC. The basket contains sour grade of oil imported from Oman and Dubai and sweet grade of oil imported from Brent. Petroleum Planning and Analysis Cell (PPAC), a government agency designed to monitor the crude oil prices in India reports the monthly data on IBC. Therefore, due to the non-availability of daily frequency of IBC data, the next best alternative was to represent the entire Indian crude oil market.

The variables have been extracted from reliable sources such as official website of Nifty for Nifty 50 and India VIX, S&P global ratings and yahoo finance.

The closing values of all the selected variables indicating different markets have been converted into logarithmic function. To point out, firstly, taking log values eliminates the fluctuations in the series and results in a liner form of data. Secondly, closing values of the selected variables have been considered as closing price is an outcome of post-noisy adjustments occurring during the trading period (Tripathi and Seth, 2019).

4.1. Tools Used

To measure the spillovers effect, advanced econometric tools have been used in the study, besides doing the preliminary checking of the stationarity of data using ADF and PP Unit root test. Unit root tests are commonly used to check the stationarity property of time series data. Stationary time series means when mean, variance and auto-covariance are time invariant.

ARCH Family of models are used to realize the objective of measuring the volatility spillovers. They are specifically designed to model and forecast conditional variances. Particularly, generalized autoregressive conditional heteroskedasticity (GARCH) has been used to measure the volatility and to check the asymmetry effect, exponential general autoregressive conditional heteroskedastic model (EGARCH) has been used.

Before applying models to check for Volatility clustering, the short run causality relationship between the said variables and the long run co-integration relationship has also been checked for using Granger Causality Test and Johansen Co-integration Test.

The study is also different as it examines the proposed model in two sub-periods based on the structural break. To find out the structural break, Quandt-Andrews unknown breakpoint test has been used. The date at which the time-series have a significant structural break is December 20, 2017. Further, this date has been verified by applying Chow breakpoint test. December 2017 witnesses the Great Crypto crash. Till December 17, 2017, the price of the dominant crypto, i.e., Bitcoin surged exorbitantly and soon after five days, the market crashed by 45 per cent. Further, in the early 2018, amidst the rumours of banning the Bitcoin in South Korea led to depreciation in Bitcoin prices.

Time series are time varying and highly volatile. However, all the instable movement in the series cannot be accounted for because of large number of resulting short periods. Moreover, the volatility in the crypto data is transitory and short-lived.

Hence, we have used Quandt-Andrews unknown breakpoint test to obtain a structural break and further verified it using Chow breakpoint test because the data range in the present study is already short due to paucity of crypto data. Had we use multiple breakpoint test, the data would have been divided into more shorter periods leading to inaccurate results. Moreover, the major bubble burst of utmost importance in December 2017 has been captured leading to enhanced results.

Table 1: Result for Chow Breakpoint Test

F-statistic	3.757567	Prob. F (4, 1226)	0.0048
Log Likelihood Ratio	15.03636	Prob. Chi-Square (4)	0.0046
Wald Statistic	15.03027	Prob. Chi-Square (4)	0.0046

Source: Authors' Computation

5. Data Analysis, Results and Discussion

5.1. Descriptive Analysis

To analyse the volatility effect in the selected markets using the proxies as identified above, it is important to look at the descriptive statistics of the variables used. These are reported in Table 2.

Table 2: Descriptive Statistics

	Nifty	*Oil Prices*	*SPBMI*	*VIX*
Mean	12153.29	62.73148	1521.875	18.11158
Median	11257.10	63.71000	747.2900	16.05250
Maximum	18477.05	133.1800	6215.990	83.60750
Minimum	7610.250	9.120000	98.74000	10.44750
Std. Dev.	2588.868	16.16535	1554.300	8.054081
Skewness	0.998938	0.216457	1.332152	3.604342
Kurtosis	2.789235	5.023915	3.343416	21.60932

Source: Authors' Computation

Table 2 shows that the mean values of NIFTY index, Oil prices, S&P cryptocurrency index and Volatility index as 12,153.29, $62.73148, 1521.875 and 18.11158. While the Nifty touched record height of more than 18000 points in October 2021 post pandemic, it also experienced a steep fall in the value touching around 7,600 points in January 2020 with Pandemic being anticipated to reach India. Skewness captures the asymmetry in the series distribution around its mean value. The skewness statistic is zero for a normal distribution. Here, the indices of all four markets are skewed to the right (has a right tail) or it can be said that they are positively skewed. Kurtosis values for all the series except Nifty index is more than 3, which signifies that the series distribution is leptokurtic relative to normal with fat tails. The same result is confirmed by JB statistics as well.

5.2. Correlation Analysis

Before estimating the volatility measures, it is vital to analyse the measure of association between the four markets. In other words, correlation analysis has been conducted to see the interconnectedness between the markets. Table 3 shows the result for Karl Pearson's coefficient of correlation.

From Table 3, it is found that the cryptocurrency index returns has positive correlation with the returns of stock market and the return series of oil prices. However, the volatility index is negatively correlated with crypto returns which imply that the high degree of volatility in the stock market reduces the returns from crypto currencies.

Table 3: Karl Pearson's Coefficient of Correlation

	DlogNifty	*DlogOil*	*DlogSPBMI*	*DlogVIX*
DlogNifty	1.000000	0.136391	0.100678	-0.531350
DlogOil	0.136391	1.000000	0.098222	-0.058489
DlogSPBMI	0.100678	0.098222	1.000000	-0.061343
DlogVIX	-0.531350	-0.058489	-0.061343	1.000000

Source: Authors' Computation

5.3. Unit Root Test

The result of Augmented Dickey Fuller (ADF) and Phillips Perron (PP) Unit Root test put forward that the time series of all the selected four markets in logarithm form are stationary at first difference.

Table 4: Results of ADF and PP Unit Root Test

Log of Index	*ADF (Trend and Intercept)*		*PP (Trend and Intercept)*	
	Level series	*First Differenced series*	*Level series*	*First Differenced series*
		(t – statistics)		
Nifty	-2.010471	-12.16876*	-1.768470	-37.24196*
Oil	-2.229630	-9.317459*	-1.773995	-38.10939*
SPBMI	-1.869879	-34.32016*	-1.986614	-34.46666*
VIX	-3.271056	-34.99545*	-3.443708	-34.99550*

*Significant at 1%

Source: Authors' Computation

5.4. Granger Causality Test

Granger causality test at two lags is applied on log differenced series to find out if there is presence of short run causal relationship between Nifty index stock returns, Oil price returns, Volatility index and Crypto market index.

Table 5: Results of Granger Causality

(Lags 2)	*Dlog Nifty*	*Dlog Oil*	*DlogSPBMI*	*Dlog VIX*
Dlog Nifty	-			
Dlog Oil	*	-		
Dlog SPBMI	*		-	***
Dlog VIX	**			-

* 1% level of significance

** 5% level of significance

*** 10% level of significant

Source: Authors' Computation

It is found that the Indian stock market returns are granger caused by all the remaining three variables considered in the study. This shows that the fluctuations in stock market are not only affected by the movements in other markets but also, some of the macroeconomic factors to an extent. The sub period results indicated that the causality running from Crypto market to stock market has intensified with the passage of time.

5.5. Johansen's Co-integration Test

Johansen Co-integration test is applied to check the long term relationship between the variables. It is based upon the premise that the two series may wander off in short run but they merge together in the long run. The said test is applied on the logarithm series of all the variables pair wise. All the possible models are applied based upon both Trace and Maximum Eigen value test statistics to provide robustness in the results.

As per the results presented in Table 6, Stock market series is found to have long run co-integration relationship with Oil prices and Volatility Index with at least one of the five models considered. Also, Oil market has long run co-integration relationship with Volatility Index. However, there is no indication of long run co-integration between stock market and crypto market. Even while doing sub period analysis, no long run co-integration relation is found between Nifty and crypto market

5.6. ARCH – GARCH Model

The application of Autoregressive Conditional Heteroskedasticity (ARCH) model needs the realization of two conditions:

Table 6: Results of Johansen Co-integration Test

Variables	*Type of Test*	*Co-integrating Relations reported under each Model*				
		Model 1 - No Intercept, No Trend	*Model 2 - Intercept, No Trend*	*Model 3 - Linear Intercept & No Trend*	*Model 4 - Linear Intercept & Trend*	*Model 5 - Quadratic Intercept & Trend*
Nifty – Oil	Trace test	1	0	0	0	1
	Max-Eigenvalue test	1	0	0	0	1
Nifty – SPBMI	Trace test	0	0	0	0	0
	Max-Eigenvalue test	0	0	0	0	0
Nifty – VIX	Trace test	1	0	0	0	1
	Max-Eigenvalue test	1	0	0	1	1
Oil – SPBMI	Trace test	0	0	0	0	0
	Max-Eigenvalue test	0	0	0	0	0
Oil – VIX	Trace test	0	0	0	0	2
	Max-Eigenvalue test	0	0	0	1	2
SPBMI – VIX	Trace test	0	0	0	0	0
	Max-Eigenvalue test	0	0	0	0	0

Source: Authors' Computation

(i) The presence of volatility clustering implying that the phases of high volatility are trailed by the phases of high volatility whereas phases of low volatility are followed by the phases of low volatility.

(ii) To check the presence of heteroskedasticity, the residual diagnostic ARCH test should be rejected.

The OLS regression run on log difference series of cryptocurrency market is found to have ARCH effect (the value of F-statistics is large enough with the p – value (probability value) of less than 0.05 that point towards the rejection of the null hypothesis stating there is no ARCH effect in time series residuals). Therefore, ARCH – GARCH model can be applied.

GARCH models comprises of estimation of 2 equations – Conditional Mean equation and Conditional Variance equation. The first part of the GARCH model i.e., Mean equation for Cryptocurrency market is given as:

$$DlogSPCBDM = C(1) + \varepsilon \qquad \text{Equation 1}$$

The regression is run on constant. The above mean equation can be represented through ARCH-GARCH model because it satisfies both the above listed conditions. The second part of the model i.e., variance equation for checking the volatility in cryptocurrency market is given as:

$$H_t = C(2) + C(3) * \varepsilon_{(t-1)}^{\;2} + C(4) * H_{t-1} \qquad \text{Equation 2}$$

Where,

H_t = Residual error term's variance resulting from equation (1). It is volatility of Cryptocurrency returns.

$\varepsilon^2_{(t-1)}$ = Previous day's squared residual resulting from equation (1). It is also called as previous day's stock return information about volatility or ARCH term.

H_{t-1} = Variance of Previous day's residual series. It is also called as GARCH term.

DlogNifty, DlogOil and DlogVIX are the Exogenous variables or variance regressors to check if the volatility in Nifty Index, Oil Prices and Volatility Index affects the volatility of Cryptocurrency market. The results are summarized in Table 4.

Table 7: Results of ARCH-GARCH Model

Dependent Variable/ Coefficients		*Cryptocurrency Market Coefficients (Z- Statistics in parenthesis)*		
		Whole period	*Sub-period 1*	*Sub-period 2*
ARCH Term		0.046958*	0.136965*	0.041265*
		(7.314845)	(3.041437)	(6.531953)
GARCH Term		0.928279*	0.769324*	0.932084*
		(112.6383)	(11.74832)	(109.2626)
Volatility	Nifty	0.002964	-0.127021*	0.003763
		(1.053368)	(-2.184558)	(1.336145)
	Oil Prices	-0.003368*	-0.008077	-0.003153*
		(-4.965725)	(-0.876117)	(-4.463120)
	VIX	0.003734*	0.002397	0.003555*
		(5.858990)	(0.865570)	(5.717854)

*Significant at 5% level of significance
Source: Authors' computation

As per the results reported in Table 7, both the ARCH and GARCH term are significant for the return series of cryptocurrency market. As can be observed, ARCH term is significant which implies that the lagged information exerts a strong influence on the cryptocurrency market volatility whereas significant GARCH term implies that lagged volatility influences the current crypto market volatility. The cryptocurrency market has a persistent volatility as can be deduced by the higher GARCH coefficient than the ARCH coefficient. To elaborate, higher GARCH term indicates that the volatility in the cryptocurrency market is largely influenced by the previous period's volatility more than the previous period's information. This also demystifies that the digital asset market has a longer memory. Moreover, the sum of ARCH and GARCH coefficient is close to but less than 1 indicating that the model is stable. Lastly, the significant intercept term points out at the average long-term volatility in the cryptocurrency market.

The results further indicate that the volatility in cryptocurrency market is significantly affected by the volatility persisting in the oil prices and Volatility index. To our surprise, the volatility in cryptocurrency market is not getting affected by the volatile behaviour of stock market. The presence of breakpoint indicates that the volatility transmission in crypto market from Oil price market and Volatility Index has increased post major fall in December 2017. However, the volatile behaviour of Nifty stock returns has failed to cause volatility in cryptocurrency market even after accounting for the great crypto crash in 2017.

5.7. E-GARCH Model

Exponential Generalized Auto Regressive Conditional Heteroskedasticity Model (E-GARCH) has also been applied in order to check for the presence of asymmetric effect in the stock returns data of cryptocurrency market.

Table 8: Results of E-GARCH Model

Dependent Variable/ Coefficients	*Cryptocurrency Market Coefficients (Z- Statistics in parenthesis)*		
	Whole Period	*Sub-period 1*	*Sub-period 2*
ARCH Term	0.168658*	0.188246*	0.155341*
	(7.665742)	(2.369888)	(6.983235)
GARCH Term	0.906206*	0.887026*	0.899435*
	(51.60537)	(15.56316)	(41.70074)
E-GARCH Term	-0.017404	-0.030715	-0.026813*
	(-1.564382)	(-0.60597)	(-2.301108)

* Significant at 5% level of significance

Source: Authors' Computation

The coefficient for E-GARCH term point towards the presence of asymmetric effect and it is expected to be negative. The null hypothesis states that the "negative shocks create more volatility as compared to positive shocks of equal magnitude." Table 5 indicates that the coefficient of E-GARCH term is found to be negative for the cryptocurrency market but is not found to be significant at 5% level of significance which implies that the asymmetric effect is not significant for cryptocurrency index. When checked for sub-periods, it is found that the cryptocurrency market has become more sensitive to the flow of information post break point of 20th December 2017 when a steep fall was experienced in the Bitcoin digital currency. The significant E-GARCH term indicates the presence of asymmetric effect. In other words, the crypto index has become more sensitive to the negative information flow as compared to positive information of the equal magnitude.

6. Conclusion and Implications

The hype created around the cryptocurrency market over the period of time has motivated us to examine the volatility transmission between four different markets. The digital asset has been a volatile market in itself from the start. During December 2017, the market has witnessed the great crypto crash. Bitcoin, being the most popular virtual asset and holding the large market share significantly dictated the whole cryptocurrency market. Soon after a lot of digital assets has joined the cryptocurrency market which has made the strong footprint of Bitcoin on the cryptocurrency market slightly less (Schinckus *et al.*, 2020).

The cryptocurrency market moves in tandem with the stock market return which means that as stock return goes up, the returns in the cryptocurrency market also surges and vice versa. However, the volatility index bears a negative correlation with the cryptocurrency market which indicates that as the investors expect volatility to rise in the stock market, the risk aversion trait of the investors leads to falling returns in the cryptocurrency market. The revelations after empirically testing the volatility spillovers effect have knitted the story of cryptocurrency market in a different way. It is evident that crude oil market and volatility index market spills the volatility in the cryptocurrency market (Lopez-Carbarcos *et al.*, 2021). The crude oil market has deep connections with cryptocurrency market during economic turbulence (Jareno *et al.*, 2021). To put it differently, oil price shocks or news impact the macroeconomic indicators on a broader level mainly after the financialization of the crude oil market during mid-2000s and this might be the reason behind volatility transmission from oil market to volatility market (Yin *et al.*, 2021).

However, to our amaze, stock market does not take part in transmitting the volatility significantly. Further, even after introducing the breakpoint in the model, the results did not alter significantly. The incorporation of breakpoint, however, suggests that the cryptocurrency market has become more sensitive in the post-crash period, or, it can be said that the breakpoint just enhances the previously found results. The intensity of volatility transmission from oil market and volatility index has increased in the post-breakpoint period when compared to the pre-breakpoint period. Also, the sensitivity of the cryptocurrency market to the negative shocks has escalated when compared to the positive shocks of equal magnitude.

The reason explaining the insignificant effect of volatility transmission from stock market to cryptocurrency market may be arising from the blurred dissimilitude between the stock market volatility and volatility index. The stock market volatility signifies the actual movement in the prices and on the other hand, volatility index is the expectation of the investors' sentiments related to the stock market volatility. To put it differently, VIX can be interpreted as a measure indicating how the investors perceive the stock market volatility in the next 30 days.

Therefore, the sentiments of the investors captured in VIX have a ripple effect on the cryptocurrency market and hence, the effect of the actual movement in the stock prices (stock market volatility) does not substantiate significantly. This means that investors accurately foresee the stock market volatility. In other words, even before the volatility strikes the Indian bourses, the volatility index captures the stock market volatility and spills over its effect on the cryptocurrency market. This has been supported by previous study which revealed that VIX is an accurate indicator of the stock market volatility for one month period (Kothari and Bahadur, 2020). In addition, it has also been established that VIX has a negative correlation with Nifty returns which implies that VIX dictates the stock market return and crypto market return. Due to the disadvantage of crypto market not being regularised in India, the investors are recommended to invest cautiously to avoid high risks in their portfolio amid climate changes which may hamper the entire financial system (Gupta *et al*., 2022). Though, crypto market yields high returns which are usually in tandem with the stock returns but the volatility in the market is unmatched. However, strong and growing interrelations between the stock market and crypto market do not spare the digital assets from the factors influencing the stock market returns. Thus, it is advisable that investors must scrutinize their sentiments and market conditions for avoiding irrational investment decisions (Yadav and Chaudhary, 2022).

7. Scope and Direction for Further Research

The scope of the current research work is confined to Indian stock market and Volatility Index. The future advancement in the study can include other countries where cryptocurrency is actively traded. Also, the same analysis can be performed on high frequency data, wherever applicable. Further, the study is exclusively reliant on secondary sources like official website of Nifty for Nifty 50 and India VIX, S&P global ratings and yahoo finance. Therefore, quality of the present research work is highly reliant on the precision and solidity of the secondary data sources. Moreover, it is observed that millennial footprints in the cryptocurrency market have risen over a period like stock markets (Sethi et al., 2021). Thus, efforts can be made by future researchers in comprehending the factors influencing the decision-making of largest group of stakeholders, i.e., millennials.

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The Development and Validation of InvPERC Scale: A Perception Study

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Confirmatory factor analysis, Credibility, Intrinsic fund qualities, Investor perception, Mutual funds

JEL Classification

G1, G4, G5

Abstract: The rationale behind this research is to frame a novel measurement scale for mutual funds- "The InvPERC Scale". This scale focused on ascertaining non-conventional factors, apart from risk and return, influencing investor perception of Indian mutual fund investors towards this investment avenue.The exhaustive assessment of the available literature canvass showed that no scale for measuring investor perception toward mutual fund performance is available. Therefore, the scale was developed by thoroughly analyzing investors' opinions on mutual funds. Data for the analysis has been gathered through 1280 mutual fund investors' questionnaire-based surveys and put into meticulous data analysis. The findings of this research work present a combination of three factors playing a decisive role in framing mutual fund investors' perception namely convenience, credibility, and intrinsic fund qualities.

1. Introduction

Keeping up with stock market fluctuations, regularly staying in touch with critical investors, and receiving updates about investor opinions and ideas, does not guarantee a full-proof investment strategy, as some things are left unstated. That is where a perception study comes in.

According to four relevant logic, knowing about investor perception related to mutual funds is imperative. First is the exorbitant spread of the mutual funds market, which makes it viable to reveal investor inclination at this point of the pandemic, even when in 2020, during the pandemic stock market has recorded various peaks. The global mutual fund assets market was valued at $54.93 trillion in 2019 and is expected to touch the mark of $101.2 trillion by 2027, Second, as available past literature has mentioned investors' negative or neutral perceptions about mutual funds, it was crucial to understand the investor insight and analyze whether the perception has changed over time. Third, it is mentioned in the behavioral research literature that people have stated dependency on heuristic processes to arrive at their decisions. However, due to limited information analysis capacities, people turn towards bad decision-making to arrive at the presumably right decision (Kahneman and Tversky, 1974). However, lousy decision-making cannot be afforded in investments involving finances. This has also been observed in earlier research that due to bad decision-making, individual investors withdraw their funds at an early stage from mutual funds. Fourth, the research gap identified from the in-depth literature review shows that despite the abundant availability of investor perceptions literature, presently, no scale exists for evaluating investor perceptions concerning mutual fund investment.

Moreover, available literature emphasizes risk and return as the major factors affecting investment. However, this scale focused on ascertaining non-conventional factors, apart from risk and return. Also, at the time of interviews, the researcher got to know that inbound inquiries regarding mutual funds are almost quintuple in comparison to the number of investors finally deciding in favor of mutual funds. Due to this, knowing the reasons for the gap between the final investment decisions and investor perception has become a prerequisite forasset management companies (AMCs). Moreover, investor perception is related to individual insight or awareness that is majorly influenced by market movements so continuous monitoring of investor perception is a mandate for bridging the aforementioned gap. So, to fulfill the mentioned gap, this perception study has been conducted. The novel contribution of this study is the framing of a meticulous scale in the field of mutual funds by diligently following all the critical steps in the scale development process. Therefore, the following research questions were investigated:

RQ1. What role does investor perception affect investment decisions related to mutual funds?

RQ2. Apart from risk and return, what other factors affect investors' decisions regarding mutual funds investing?

The InvPERC scale is the result of a combination of exploratory surveys and a comprehensive evaluation of investors'perceptions. The factors that the scale discovers are highly rational, feasible, hands-on, and relevant to all kinds of mutual funds. Additionally, a sample size of 1280 is adequate according to the prerequisites of data analysis through selected statistical tools (EFA and CFA). Data collection was done from investors in the regions of the 10 selected Indian states, namely Uttar Pradesh, Madhya Pradesh, Rajasthan, Maharashtra, Karnataka, Gujarat, Bihar, Punjab, Haryana, and Chhattisgarh. An average of 128 sample size of each state has been considered to have an equal representation of all the regions. Data analysis depicts that investor perception has a credible influence on individual investors' decision-making process and identifies intrinsic fund qualities, credibility, and convenience as the decisive factors for investment.

The findings of Yates *et al.* (1997) served as a base for conducting this study in India and confirming the results. They found that people brought up in Asian cultures display greater diversity in perception-induced decision-making than people in the United States or other western countries. Although India is a developing nation yet its economy has attributes similar to that of any developed nation. This evaluation would help check the prime idea of examining the perception of present-day investors regarding mutual funds and then collating it with the previous research. This research will be helpful for asset management companies in widening the boundaries of the mutual fund market even to rural areas and tier 2 and tier 3 cities.

Furthermore, this study will benefit firms planning to go beyond product and investments. This scale also emphasizes the need to understand the customer journey across multiple channels to improve investor engagement and investment decisions. Finally, studying investment decisions under investor perception will help practitioners, financial service providers, sponsors, financial institutions, and corporate giants to pre-plan their public offerings according to the expected investor reaction.

To address the above-mentioned research questions, the paper is structured as follows: immediately subsequent section reviews the available literature on background theories, various variables affecting investor perception, and what is the collective effect of these factors on investment decisions. The next sectionexplains data collection, sample profiling, and the research methodology. Section 4 discusses the detailed data analysis showing the pilot scale, initial scale, final scale, and the up-gradation of results. The last section concludes the study through findings, discussion, implications, and conclusion**.**

2. Literature Review

Walia and Kiran (2009) analyzed that mutual fund as an investment opportunity is chosen by the category of investors who either do not wish to undertake absolute capital market-related risk or are interested in relying on the expertise of mutual fund managers. Research works of Kumar and Goel (2014), Kumar and Bansal (2014), and Singh and Singh (2016) revealed that for the younger generation, mutual funds are the most chosen investment avenue. Results of Rohilla and Tripathi (2022) work shows that there is a significant positive relationship between investor sentiment and market return. Table I shows a chronological progression of investor perception with the basic notion of how investor perception of mutual funds has changed over the years. Starting from 2002 and up to 2022, the literature review revealed that the primary reason for less penetration of the Indian mutual fund industry was the lack of awareness. Post-2012, the results were commendable as the Association of Mutual Funds of India (AMFI) emphasized investor awareness initiatives, conducted various awareness campaigns, and started advertising mutual funds through various platforms. Research done during 2002-2011 revealed that investors were dissatisfied with mutual funds, but in more than a decade, situations and perceptions have changed immensely.

Table 1: Investor Perception over the Years

Author and Year of Research	*Investor Perception towards Mutual Funds*
Rajeshwari and Rama Moorthy (2002)	The highly favored investment vehicle was bank deposits.
Singh and Chander (2004)	The funds performed less in contrast to anticipation, and fund managers have also been unproductive and ineffective, so investors preferred to discontinue their mutual funds' investment.
Senthil and Zefar (2005)	Investors preferred shares to mutual funds because they thought mutual funds to be hazardous.
Bhayani and Patidar (2006)	Many investors perceived mutual funds as they could raise the amount of domestic savings and upgrade the distribution of funds through the market but were still uncomfortable investing due to a lack of awareness.

contd. table 1

Author and Year of Research	*Investor Perception towards Mutual Funds*
Gnana *et al.* (2006)	The primary interrogation was desired in cities categorized as tier 2 and tier 3, where the investor awareness level about mutual funds was shallow. The research work also found that women investors were generally confused about endowing funds in mutual funds due to their complicated procedures.
Saini *et al.* (2011)	Low yields in mutual funds were the main issue that resulted in low penetration among investors.
Parihar *et al.* (2009), Jigal (2009)	The study revealed that many investors hadnot developed any outlook on mutual funds. The root cause of this problem was the unawareness of investors about the basic idea and operational procedures of this mode of investment.
Singh and Jha (2010)	As an investment instrument,investors had a confidence awareness deficit in mutual funds primarily due to a dearth of knowledge.
Pandey (2011), Saha and Dey (2011), Saini *et al.* (2011), Dunna (2012), Ashraf and Sharma (2013), Vyas (2012)	Investors preferred mutual funds for return potential, liquidity, and safety.
Rajasekara (2013)	The majority of respondents were highly contented as a result of the numerous benefits along with the quality services offered by the asset management companies.
Prabhavathi and Kishore (2013)	Investors preferred mutual funds chiefly due to expert fund management and superior returns.
Agrawal and Jain (2013)	Amongst various conventional investment instruments, mutual funds were given priority.
Kumar and Goel (2014), Singh and Singh (2016)	They mentioned that investor perception was positivewhen investing funds in mutual funds. Therefore, a very bright future was expected of the mutual fund industry.
Kumar and Bansal (2014), Sharma (2014), Sharmaand Pandey (2014)	Mutual funds were amongst the most favoredinvestment option.
Sharma and Pandey (2014), Kumar and Goel (2014)	Most investors had a positive approach towardmutual funds investing, but due to a lack of conceptual knowledge, they avoid this investment option. Investors wished to endow their funds in mutual funds due to superior returns, tax benefits, and capital appreciation.
Kalaiselvi (2016), Sharma (2016),	The investors identified mutual funds as a good investment instrument.
Trivedi *et al.* (2017), Nautiyal (2017)	It was mentioned thatlow-risk and liquidityfactors influence investors'perceptionsregardingmutual fund investment.
Rehan *et al.* (2018)	Mutual Funds are an appealing and most invested option.
Sharma (2019), Supriya, and Sendhil (2019)	The investors identified mutual funds as a high-yielding investment avenue with a clear preference for perception-molding factors.

contd. table 1

Author and Year of Research	*Investor Perception towards Mutual Funds*
Hassan (2020)	Investors' sentiment is influential in framing investor perception toward mutual funds.
Dhall *et al.* (2021)	Investors' preference for mutual fund investment was based on tax benefit, security, liquidity, return, and reliability. In addition, it also suggests a strong associationbetween factors like gender and investors' perception, age, and investors' perception concerning returns and higher tax shields,respectively.
Sharma (2021)	Source of information, risk, quality of life, and independent decisions significantly impact working women's investment decisions.
Kaur and Singh (2021)	Factors like risk-averse behavior, spending habits, financial decision-making support, living for today, and risk-tolerant behavior influence the saving behavior of an individual.
Sharma (2022)	Factors like risk, return, fund characteristics, fund manager, and fund family significantly impact investor perception regarding mutual fund investment decisions.

Note: Table depicting chronological flow and progression of investor perception about mutual funds from 2002- 2022

Source: Author's Own Compilation

Goetzman and Peles (1997) reported that shreds of evidence present the notion of the effect and presence of investor psychology in fund selection and switching activities. Ippolito (1992) disclosed that the previous performance of a fund is a decisive factor in selecting a mutual fund. Barber and Zheng (2005) have conducted research based on an analysis of over 30,000 households. The primary outcomes given by their research are that investors tend to purchase funds with robust previous performance, and investors are quite concerned about the fund expenses. In their research, Goldstein and Krutov (2000) argued that fund expenses do not directly affect investors' decisions as they compare fund expenses in the context of returns.

Moreover, they do not mind paying even higher fund expenses if they are getting high returns with high fund expenses. Singh (2012) and Kasilingam and Jayabal (2011) researched the influential aspects of mutual funds from a retail investor's point of view. They found that a fund's return potential, flexibility, transparency, affordability, and liquidity are the crucial features affecting investors decision-making. Saha and Dey (2011) discovered that investors make investments in mutual funds mainly due to tax shelter and minimum guaranteed returns. Ranganathan's (2006) and Sharma's (2013) research factors affecting investors' investment decisions were the security of resources invested, capital inflation, and favorable credit rating of the fund.

3. Objective of the Study

Based on research questions and available literature review, the primary objective of this research work is to frame a novel performance measurement scale for mutual funds, focusing on ascertaining non-conventional factors influencing investor perception of Indian mutual fund investors.

4. Research Methodology

Due to the deficiency of empirical concepts for investor perception of individual investors about mutual funds, original statements are framed for this study. For framing measurement models methodology proposed by Churchill (1979) was followed. The data was collected via survey. The surveys were done in three phases. The pilot study was done in the first phase, followed by developing the initial scale, and the third phase was for the final scale development. A five-point Likert scale has been used (Hair *et al.,* 2006). The sample unit of the research included all the present and past mutual fund investors. In the pilot study, respondents were from Delhi/NCR only, but during the initial and final scale, respondents were from 10 Indian states, namely Uttar Pradesh, Madhya Pradesh, Rajasthan, Maharashtra, Karnataka, Gujarat, Bihar, Punjab, Haryana, and Chhattisgarh. For the initial scale,five states and five different states were considered for the final scale. An average of 128 sample sizes of each state was considered to have an equal representation of all the regions. The non-probabilitysampling-purposive sampling methodology was selected. In purposive sampling,the sample is selected based onthe population's characteristics and the study's objective. It differs from convenience sampling as, in purposive sampling, the characteristics of picking respondents are pre-defined by the researcher. Here, the pre-condition to select respondents wasa minimum of three years of market experience. The sample size in the pilot (630 for 32 items) and the final phase (1280 for 18 items) highly supported the response ratio of a minimum of 1:10. Out of 1280 respondents, the majority (61%) fall in the age bracket of 41-60 years, 23% are in the age bracket of fewer than 30 years, and the rest, 15%, are above 60 years. The education background of the majority of respondents (46%) is graduation, while only 29% are professionally qualified. Respondent's occupation spread mainly concentrates on private sector employees (62%), professionals (22%), etc. Data analysis was done using IBM SPSS version 24 for all EFA calculations and AMOS for CFA. Scale itemsfor the pilot study were generated based on a literature review, followed by statement filtration based on theoretical reasoning and statistical data analysis.

5. Data Analysis

5.1. Three Scale Levels

Churchill (1979) and Parasuraman *et al.* (1988) recommended that the refinement of a scale commences with the calculation of item-to-total correlation, and Cronbach's alpha coefficient, and goes up to exploratory factor analysis (EFA). EFA analysis gave total variance explained (%) =73.24, KMO value was 0.723, and overall Cronbach's α was 0.797. The pilot study was done with 26 items. Factor loadings for all factors (IFQ = 0.871, Cred = 0.732, Conv = 0.797, InvPerc = 0.825) were above 0.70 (hair *et.al.,* 2006).

Table 2 depicts various CFA results of pilot scales. Again, the values of pilot-scale analysis were within the acceptable limit,leadingthe researcher to move to the initial scale and final scale data collection and analysis with a different set of respondents.

Table 2: Goodness of Fit Measures Comparison of Scales

	Pilot Scale	*Initial Scale*	*Final Scale*
Absolute fit measures			
$\chi 2$ Value and significance level	1302.70 (p=0.00)	636.28 (p= 0.00)	387.108 (p=0.00)
NCP	891.07	536.83	180.3
GFI	0.76	0.88	0.97
RMSR	0.13	0.06	0.03
RMSEA	0.096	0.086	0.077
ECVI	6.52	2.58	1.36
Incremental fit measures			
AGFI	0.54	0.78	0.85
NFI	0.66	0.73	0.88
NNFI	0.84	0.90	0.94
CFI	0.85	0.90	0.93
IFI	0.80	0.89	0.91
RFI	0.72	0.80	0.85
Parsimony fit measures			
PGFI	0.46	0.61	0.65
PNFI	0.61	0.68	0.71
AIC	1340.78	692.67	479.10
Critical N (CN)	66.47	118.44	138.31

Note: This table shows the scale's improvement stages from pilot to final.

Source: Author's Own Compilation

A revised form of the pilot scale was used for the initial scale. The initial sample comprised 1205 mutual fund investors from 5 different Indian states, namely Uttar Pradesh, Rajasthan, Maharashtra, Punjab, and Haryana. The initial scale also applied EFA confirmatory factor analysis (CFA). The value of the coefficient alpha extended from 0.468 to 0.879. Five constructs including 20 items were categorized on the basis of the results of the initial scale. Factor loadings were higher than 0.40 for most of the items (Hair *et al.*, 2006), except for six items, which were eventually removed from the final scale. Table 2 shows that the initial scale's CFA outcome produced a good fit. However,despite that,there still existed a possibility for more up-gradation of the fit indicators, which led the researcher to go for final scale data analysis.

The final phase of the scale development sample included 1280 mutual fund investors from 5 different Indian states, namely Madhya Pradesh, Karnataka, Gujarat, Bihar, and Chhattisgarh.At this stage, AMOS software applied CFA with maximum likelihood estimation. Consequently, the final scale comprised 18 items (after removing two items) trimmed down to three factors. Overall á was 0.893and meticulous scrutiny of the final scale results shows that all the factor loadings were statistically relevant ($p < 0.01$) and demonstrated values higher than 0.40 (Gerbing and Anderson, 1993; Hair *et al.*, 2006; Jöreskog, 1993). The standards for evaluating the indices used were based on the suggestions given by several prominent researchers like Hair *et al.* (2006), Gerbing and Anderson (1993), Kaplan (2000), Kline (1998), and Nunnally (1978). The inclusive assessment of the goodness of fit indices illustrated remarkable up-gradation from the pilot scale to the initial scale and from the initial scale to the final scale.

5.2. Validity and Reliability

To check the convergent validity, AVE was calculated and its value was higher than 0.50 for all the factors. This exhibits that all indicators were aptly placed and could define the construct they were related to. The square root of AVE was compared with all inter-factor correlations to analyze discriminant validity (as shown on the diagonal in Table 3). All factors showed sufficient discriminant validity as the correlation values were lower than the diagonal values. In all cases, the composite reliability was more significant than the minimum standard value of 0.70, indicative of reliability in factors. Table 3 exhibits the valid convergent validity indices showing that the scale is capable to measure the context that it was intended to measure. The values of Cronbach alpha for all the constructs were reportedly greater than the minimum required standard values. The InvPERC scale, exemplifies an acceptable fit, as the items demonstrate convergent validity and consistency in their causal factors.

Table 3: Reliability and Validity Analysis of Final InvPERC Scale

	CR	*IFQ*[a]	*Cred*[b]	*Conv*[c]	*InvPerc*[d]
IFQ [a]	**0.859**	**0.821**			
Cred[b]	**0.857**	0.697	**0.833**		
Conv[c]	**0.823**	0.780	0.707	**0.793**	
InvPerc[d]	**0.807**	0.681	0.639	0.621	**0.714**

Note: * Based on (Fornell and Larcker, 1981): AVE in the diagonal and inter-construct correlation off-diagonal.IFQ[a]=Intrinsic Fund Quality, Cred[b]=Credibility, Conv[c]=Convenience, InvPerc[d]=Investor Perception

Source: Author's Own Compilation

6. Results and Discussion

The primary finding of this study is that perception plays a statistically significant role in affecting investment decisions related to mutual funds. Moreover, investor perception of this investment avenue has changed positively over time. The results of this study validated the 3-factor multidimensional scale. This scale identified factors apart from conventional factors- risk and return. Intrinsic Fund Qualities are the most influential factor. Theyare also the exclusive predictor of investor perception because fund qualities like liquidity, transparency, simplicity and the fund's objectivehold the utmost importance for a retail investor and mold their perception of any investment option, including mutual funds. This finding has been validated in the research work of Gnana *et al.* (2006) and Kalaiselvi (2016). Two more factors, Credibility and Convenience,are also vital and valid. Credibility provides self-assurance to investors regarding the well-being and safety of their funds. This finding has been corroborated in the research work of Saha and Dey (2011), Kumar and Goel (2014), and Singh and Singh (2016). In the context of mutual funds, the majority of investors in most of the research, including this study, have admitted that investing in mutual funds is primarily due to the small investment amount, along with various regulatory relaxations in the form of easy entry-exit terms and flexibility, etc. These are the reasons convenience has become a relevant perception molding factor. Managerial implications of this research study indicate more focus on the investor perception-driven mutual fund industry and a strategic focus shift by Asset management companies to derive policies with investors as the centre point.

7. Conclusion

The onlyobjective of this research was to frame a novel multidimensional scale for investor perception of mutual funds. This study contributes to the existing literature on investor perception of mutual funds by developing a perceptual instrument to measure investor perception. Due to the non-existence of a scale that captures investors' perception of mutual funds, researchers and practitioners had to rely on already available questionnaires, which have not been tested and validated well.This scale can contribute to standardizing investor perceptions. The variance explained by the proposed scale was 73.24%, indicating that 26.67% remains unidentified and appeals for substantial further research. To eliminate the problem of lack of generalizability of scale, this scale can be tested in other countries so that this scale can be robustly validated. Strengths of the InvPERC scale are its brevity, ease of administration, and confirmed validity across 10 selected Indian states. This scale has come up with very few factors limiting its scope in real market scenarios. Despite these constraints, this novel scale fulfills an essential gap as it offers future researchers a ready measurement instrument for modeling intricate relationships among various variables affecting investor perception.

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Exploring Consumer Loyalty towards Sambalpuri Handloom: A Structural Equation Modeling Approach

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Sambalpuri handloom, Consumer behavior, Market reach, User experience

JEL Classification

M21, M31, O14, Z11

Abstract: The purpose of this study is to explore the inclination of consumers towards Sambalpuri handloom. An attempt has been made to assess the consumers' loyalty through analysis of the factors influencing buying decisions towards these products. The data were collected from 550 selected respondents from the Sambalpur District of Odisha through random sampling. Exploratory Factor Analysis, Confirmatory Factor Analysis, Structural Equation Modeling, Garrett Ranking Technique and ANOVA have been applied to the data as per the objective. This study reveals thatmost consumers are highly familiar with Sambalpuri Handloom. Sambalpuri Bastralaya is the most preferred destination for the respondents and the usage of Sambalpuri Handloom is influenced by product specifications as well as market reach. Therefore, the focus of the policymakers should be on bringing handloom products within consumers' reach in terms of product, price, promotion and physical distribution.

1. Introduction

The splendour and cultural diversity of Sambalpuri handloom industries have long been a source of debate. Handloom weaving is a centuries-old cottage industry. Next to agriculture, the handloom sector is the largest employment provider in the country. The richest handcraft and weaving traditions in the nation are found in Odisha, and sambalpuri sarees pay a substantial tribute to these traditions. This provides round-the-year means of livelihood for the weaving families. The Sambalpuri handloom products play an important role in up keeping the rich tie and dye weaving tradition of western Odisha. Because of their texture, pattern and colour durability, these handlooms have a distinct identity and market demand. Due to competition from power loom products, and a shift in consumer taste towards contemporary clothes, handloom marketers are facing serious marketing challenges (Ramanna *et al.*, 2019). As a result, marketing tactics are becoming increasingly important, and customer purchasing pattern, as well as attitude research, is required (Vaishnavi and Suja, 2017). Marketers are still unsure of how consumers in two distinct buying scenarios accept goods and services as well as how they would respond (Mohanty and Das, 2021). Hence it is crucial to ensure that long-term relationships are built with clients to please them and win their loyalty (Chawla and Singh, 2022).

However, handloom items are not widely known among consumers, and only a small percentage of consumers are aware of handcrafted clothes (Kumudha and Rizwana, 2013). Additionally, consumers are not completely informed about the handloom sector (Sivasakthi and Basariya, 2018). This requires a thorough analysis of consumer behaviour, particularly their reason for purchases and devotion to Sambalpuri Handloom. On the other hand, a relatively higher level of westernisation is responsible for making people less interested in wearing traditional clothing. Increased distinctiveness and awareness of handlooms aid in the sustainability of this sector (Bharathi & and Jyothi, 2020). Taking into account all of these factors, the current study aims to investigate the purchase intention of the consumers and also explore how market and product experience affect their buying intention. It will help the handloom marketers in updating their approach to draw in a growing number of customers. Therefore, exploring consumer loyalty towards Sambalpuri handloom products is of great significance to the sustenance and growth of the industry. This research aims to study the factors influencing consumer loyalty towards Sambalpuri handloom products, which can provide insights into how the industry can better connect with consumers and promote the unique cultural heritage of the region.

2. Literature Review

2.1. User Experience

The necessity of spreading knowledge about handloom goods was stressed by Pargai and Jahan (2016). The same opinion was expressed by Nair and Kinslin (2016) who claimed that while customers are aware of handmade goods, they are less familiar with their distinctive quality. The decision-making process for handwoven products, according to Silver and Kundu (2012), is most influenced by friends and family. According to Tirpude *et al.* (2019), designers ought to create creative packaging with distinctive designs that reflect the perceptions of consumers.Product trust and perceived quality both have a favourable impact on product diagnosticity, according to Sangeetha and Charles (2020). Ruma et al.'s (2019) investigation looked at the role that social media user interactions and image-sharing services have in advancing the handloom clothing sector. In their 2017 study, Mondal and Karmakar attempted to define the idea of visual identification of ethnic products, i.e., how factors like colour, texture, motifs, etc., have a significant influence on the decision to purchase. Hamil and Natchiar (2016) outlined the complexity of consumer behaviour and recommended conducting multiple types of research on it.

2.2. Market Experience

According to Chowdhury (2020), sustainability in these industries can only be guaranteed by stable demand and the ability of artisans to develop for the benefit of both domestic and foreign customers. Behera and Khandual (2014) discovered that market success comes from spotting consumer trend emissions. According to Govindasamy and Balasubramanian (2015), the reputation and price of the shop will have an impact on a consumer's decision to buy handloom products, both of which will improve the brand's image. According to Anumala and Acharyulu (2015), age, income, and retailer-specific factors, all had an impact on consumers' overall happiness. According to Jena & Ghosh (2018), market possibilities can be created by utilising web-enabled marketing and hiring highly qualified designers. According to Satpathy and Patra (2018), the quality and longevity of handloom products keep them in demand in today's technologically advanced market.

2.3. Product Experience

According to Ramana *et al.* (2019), the inventive designs of handwoven goods combined with the distinctive abilities of weavers can only increase sales of handlooms. Quality consciousness has been shown by Prathap and Sreelaxmi (2020) to favourably impact consumers' buying intentions. Despite the most recent fashion trends, Rani and Bains (2014) found that buyers favour handloom businesses because they help the local economy. Traditional handlooms, according to Vaishnavi and Suja (2017), need an Indo-Western touch that is currently missing. According to Paul *et al.* (2017), product variety, creative product creation, and modern design development by the weavers will persuade customers to buy handloom products. According to Debnath (2021), environmental factors have an impact on how handloom fabrics and products are prepared, woven, and finished. To preserve cultural sustainability, Pradhan and Khandual (2020) discovered that exquisite traditional designs in production are necessary, and these will draw in more customers. According to Renukadevi and Henma (2020), consumer-to-consumer marketing is still the most effective strategy in the current market, and the success of handloom products is more pronounced due to the practicality and comforts that consumers enjoy.

Numerous research in the sector have been done in the past, but little attention has been paid to finding a link between market size, user experience, and product specifications. To better understand how user, market, and product-based factors influence consumer loyalty to Sambalpuri handloom, this study looks into these factors. Additionally, the study will examine the product categories as well as the choice of retailers by the consumers.

3. Objectives and Hypotheses of the Study

3.1. Objectives of the Study

Against the backdrop stated above, the present study precisely attempts to access the followings:

- To measure the association of demographic variables of consumersand their attitudes towards Sambalpuri Handloom.
- To analyze the factors influencing consumer loyalty and the reasons behind purchase decisions regarding Sambalpuri Handloom.

3.2. Hypotheses of the Study

H_1: There is a significant impact of product specifications and market availability towards the usage of Sambalpuri Handloom.

H_2: There is an association between gender, age and income level towards consumer loyalty.

4. Research Design and Methodology

4.1. Sampling and Data Collection

The study is confined to the Sambalpur District of Odisha. The random method of sampling has been used for the selection of respondents. Both descriptive and inferential research approaches have been applied to identify the perception of consumers towards Sambalpuri handloom. This study used a quantitative methodology for data collection, using a structured questionnaire as the main data collection tool. The questionnaire was developed using a five-point Likert scale and checkboxes.In this regard, data were collected (Online through Google Forms) bya survey method where the respondents filled out a questionnaire related to their buying attitude towards Sambalpuri handloom. A total of 550 respondents are selected out of 587 after thorough data screening and for further processing. These sample units meet the criteria outlined by Kline (2011) as well as Weston and Gore (2006). According to Kline (2011), 10 to 20 units may be needed for each estimator. For structural equation modelling, Weston and Gore (2006) suggested that the sample size should be more than 200. The first section gathered information on the demographic profiles like questions about gender, income details, age and professions, etc. The second set of questions is related to awareness and attachment towards Sambalpuri handloom. The study used a validated scale with 5-point Likert Scale items arraying from 1-Strongly Disagree to 5-Strongly Agree. SPSS 25 and AMOS 26 are used for data analysis.

4.2. Measurement of Reliability

Data reliability refers to the completeness and accuracy of data, and it is an important foundation for establishing data trust.Cronbach's (1951) alpha determines how closely a group of items are related to one another, which is a measure of internal consistency. It is generally recognised that this value should be more than 0.7. (Nunnally, 1988). According to George and Mallery (2003), a Cronbach's Alpha value of 0.90 or more suggests outstanding internal consistency, 0.80 or higher is good, 0.70 or higher is acceptable, 0.60 or higher is debatable, 0.50 or higher is subpar, and 0.50 or lower is unsatisfactory.

4.3. Justification of Statistical Tools

4.3.1. Exploratory Factor Analysis

EFA is generally used to discover the factor structure of a measure and to examine its internal reliability. Kaiser-Meyer-Olkin (KMO) adequacy (Kaiser, 1970) test and Bartlett's (Bartlett, 1950, 1951) test of Sphericity, communalities, and variances are generally checked before interpreting the factors. A value of more than .6 is acceptable (Cerny and Kaiser, 1977). On the other hand, Bartlett's test statistics must be significant to confirm the propinquity of variables which is also advocated by (Snedecor and Cochran, 1989). The p-value is less than 0.5 resulting in the variances being homogeneous. For factor loading the general criteria accepted is more than 0.5 (Yong & Pearce, 2013). The higher loading factor indicates the stronger affiliation of an item to a specific factor.

4.3.2. Confirmatory Factor Analysis

CFA is used to confirm the factor structure of a collection of observed variables. The link between the observable variables and the underlying latent constructs can be tested using this technique. Among a CFA's presumptions are multivariate normality, a large enough sample size (n > 200), an accurate a priori model definition, and the requirement that the data come from a random sample (Flora *et al.*, 2012). Although this study used EFA to check, organise, and load measuring scale items, it also requiredscreening the same by using CFA among all the variables while keeping the measuring scale items that were maintained by EFA.

4.3.3. Structural Equation Modelling

SEM can help in accessing the measurement properties and testing the proposed theoretical relationship by using a single technique. SEM Model consist of a measurement model and a structural model. The measurement model depicts how the observed variables are related to the construct whereas a structural model shows how the constructs are interrelated to each other. Indicators with an outside loading of less than 0.40, should always be eliminated (Hamid, *et al.* 2017). It specifies whether the relationship exists or does not exist.

4.3.4. ANOVA

ANOVA is a statistical method used to determine whether the means of two or more groups significantly differ from one another. The Levene homogeneity test (Levene, 1960) shows that all of the components have Sig. values larger than 0.05. So the variances are not significantly different. This indicates that the variances are homogeneous, allowing ANOVA to be performed.

4.3.5. Henry Garrett Ranking Technique

This technique (Garret and Woodworth, 1969) is frequently used to rank different goods, services, businesses, etc. based on the responses of respondents. Participants were asked to rank each of the factors, and the results are then transformed into a score value using the formula below:

Percentage Score = $100(R_{ij} - 0.5)/ N_j$

Where, Rij= Rank, i'th item, j'th individual and

Nj = Number of items Ranked by j'th individual.

After that, divide the Total Garrett Score by the number of choices to get the average Garrett Score.

The alternate ranking is based on the highest average value.

5. Results and Discussion

Table 1 shows the frequency analysis for the demographical aspects of the respondents. From this analysis majority of male i.e. (56.5 %) participated in comparison to female (43.5%). While considering the age groups, most of the respondents belong to 36 to 45 years (42.9%) followed by 26-35 years (39.8%). 9.8 % were16-25 years and only 7.5% were above 45 years of age. While considering

Table 1: Frequency of Demographic Characteristics

	Category	*Respondents*	*Percentage (%)*
Gender	Male :	311	56.5
	Female :	239	43.5
	Total :	550	100
Age	16 - 25 Years	54	9.8
	26 - 35 Years	219	39.8
	36 - 45 Years	236	42.9
	Above 45 Years	41	7.5
	Total	550	100
Monthly Income	Below 10,000	83	15.1
	10,000 - 20,000	37	6.7
	20,000 - 40,000	234	42.5
	Above 40,000	196	35.6
	Total	550	100
Association with Sambalpuri Handloom	Below 1 Year	140	25.5
	1-5 Years	92	16.7
	5-10 Years	78	14.2
	10 Years & above	240	43.6
	Total	550	100

Source: Authors' Calculation

respondents' income level, the majority of the respondents (42.5%) income is 20,000 to 40,000 per month. 35.6 % of the respondents earnedmore than 40,000. The rest 21.8 % are earning below 20,000 per month. In addition, most of the respondentsi.e. around 43.6 % admitted,that they are associated with Sambalpuri Handloom for more than 10 years. 14.2 % were associated with handloom products for 5 to 10 years.

Table 2: Reliability Statistics

Cronbach's Alpha	*Cronbach's Alpha Based on Standardized Items*	*N of Items*
.716	.781	17

Source: Authors' Calculation

Table 2 reveals that all the items have a strong internal consistency of data. The alpha statistic in this study is 0.716 implying that the items have sufficient internal consistency and are reliable for further analysis. It shows that the reliability of this study is substantial from every perspective.

Table 3: KMO & Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	474.082
	df	136
	Sig.	.000

Source: Authors' Calculation

KMO test revealed, that this study is highly significant and hence suitable for factor analysis. As the value is 0.813 which is more than 0.6. A value of more than .6 is acceptable (Cerny and Kaiser, 1977). On the other hand, Bartlett's test statistics must be significant to confirm the propinquity of variables which is also advocated by (Snedecor and Cochran, 1989). In the present study, with a p-value of 0.00, the statistics become significant. The P-value is less than 0.5 resulting in the variances being homogeneous.

Table 4: Factor Loading Matrices

Variables	*Factor Loading* 1	2	3	*Factor Names*	*Reliability*
I always prefer Sambalpuri Handloom over another fashion trend (Rani & Bains, 2014)	.865			User Experience (UE)	*0.865*
I must purchase Sambalpuri Handloom in Future	.865				
I recommend the Sambalpuri handloom to my friend or colleague	.824				
I must spend a little more money to buy Sambalpuri Handloom	.764				
I like to receive a compliment when I wear Sambalpuri Handloom	.762				
I like the combination of Sambalpuri Handloom with contemporary style.	.644				
Sambalpuri Handlooms are easily available in the Market (Ramanna, *et al.,* 2019)		.803		Market Experience (ME)	*0.733*
Sambalpuri Handlooms can easily be purchased online.		.666			
Design improvisation is necessary to meet the current trend (Salerno Kochan, R. 2008)		.666			

contd. table 4

Variables	*Factor Loading*			*Factor Names*	*Reliability*
	1	*2*	*3*		
Plenty of varieties are available in the market		.613			
Sambalpuri Handloom Market is ready for the growing demand		.537			
The Color Combinations of Sambalpuri Handloom are Attractive (Tripathy, 2009)			.843	Product Experience (PE)	*0.685*
The Quality of Sambalpuri Handloom is Satisfactory			.806		
Sambalpuri Handloom requires minimal maintenance (Salerno Kochan, R. 2008)			.665		
Sambalpuri Handlooms are generally durable (Salerno Kochan, R. 2008)			.611		
The price of the Product is comparatively high (Pargai & Jahan, 2016)			554		
Sambalpuri handloom is comfort to wear			.659		

Source: Authors' Calculation

Table 4 reveals that each of the three dimensions was properly come under three factors and loaded on their constructs. A higher factor loading indicates that the factor can adequately explain the variance in that variable. Loading for each item on a factorshould be greater than or equal to ± 0.40 (Hair *et al*., 2008).

5.1. Confirmatory Factor Analysis

The model would assume that market reach and product specification are indicators of the higher-order latent variable, which in turn influences the observed variable, usage of Sambalpuri handloom. The constructs of the first-order CFA (PE & ME) are highly correlated. So a second-order CFA is used. PME is the major construct in the diagram above, while product experience and market experience are its two sub-constructs. PME, the primary construct, will become a second-order construct in second-order CFA, while two sub-constructs will become first-order constructs. The model would allow for testing hypotheses about the relative importance of market reach and product specification in driving the overall demand for Sambalpuri handloom, and would help to identify areas where interventions could be targeted to increase usage of the product.

Threshold Values Source: Hair *et al.* (1998, 2010), Bryne (2001, 2010) and O'Boyle& Williams (2008).The measurement model fit indices of user experience showed an adequate fit. The observed data closely match the relationships specified in a hypothesized model. This model is reasonably consistent with the data.

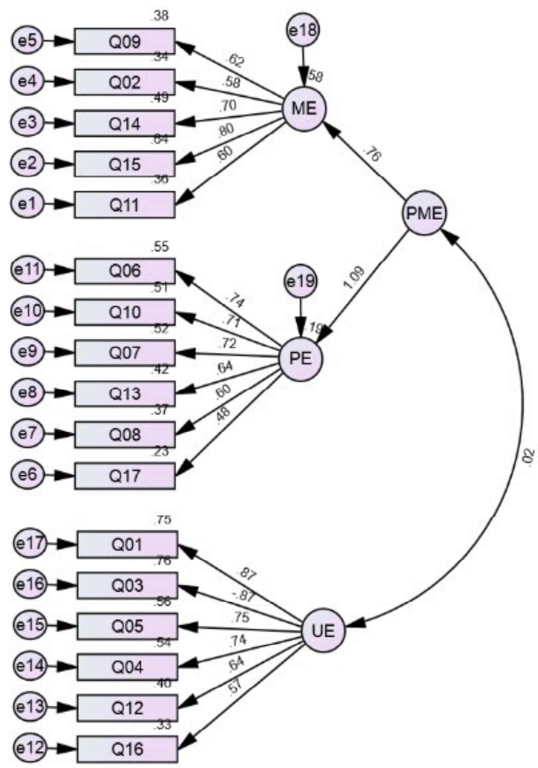

Figure 2: Diagram of 2nd order CFA and 2nd order Confirmatory Factor Analysis

Source: Authors' Compilation

Table 5: Model Fit Indices

	Absolute Fit Indices			*Incremental Fit Indices*				*Parsimony Fit Indices*	
	χ2 / df	*GFI*	*RMS*	*CFI*	*NFI*	*TLI*	*RFI*	*AGFI*	*PNFI*
	3.27	0.976	0.109	0.968	0.963	0.963	0.957	0.958	0.82
Threshold	≤ 2-5	≥ 0.90	≥ 0.08	≥ 0.95	≥ 0.95	≥ 0.95	≥ 0.95	>0.5	>0.5

Source: Authors' Calculation

Table 6: Reliability and Validity Measures

Factors	*CR*	*AVE*	*MSV*	*ASV*	*UE*	*PE*	*ME*
UE	0.816	0.530	0.397	0.349	0.730		
PE	0.732	0.559	0.482	0.007	0.022	0.748	
ME	0.796	0.542	0.397	0.356	0.735	0.120	0.736

Source: Authors' Calculation

Table 6 reflects the reliability & validity parameters of the constructs. Convergent validity is the degree to which multiple methods of measuring a variable provide the same results (O'Leary – Kelly and Vokurka, 1998). The following criteria must be satisfied towards ensuring convergent validity. CR.>0.7, CR>AVE and AVE>0.5 (Hair *et al.,* 2010). The AVE of the constructs was greater than 0.5. Further in all the cases, the (CR) alpha statistics are significantly greater than their respective AVE statistics. Thus all the constructs satisfy the prerequisites of convergent validity. Discriminant Validity shows that two measures that are not supposed to be related are in fact, unrelated. The square root of the AVE for all the constructs is more than the absolute value of the correlations with another factor. The MSV for all the factors is less than AVE.

Table 7: Discriminant Validity through HTMT Score

	UE	*ME*
UE		
ME	0.731	
PE	0.638	0.674

Source: Authors' Calculation

The above table replicates the discriminant validity. From Table 07, hence all the HTMT scores are less than 0.85, and discriminant Validity is established between the constructs (Kline, 2011)

5.2. Structural Model

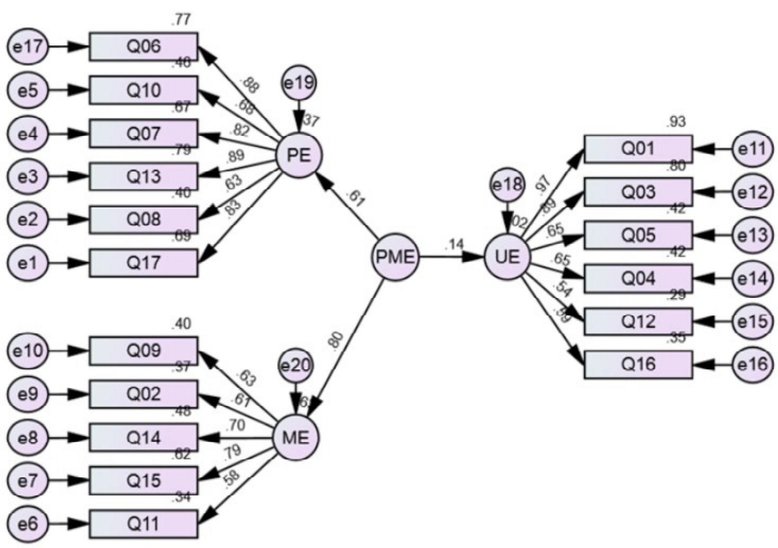

Figure 3: Path Diagram of Product Market Experience with User Experience

Source: Authors' Calculation

Table 8: Path Coefficient & its Significance

Construct	*Path*	*Construct*	*Estimate*	*P*	*Result*
User Experience	←	Product & Market Experience	.14	***	Significant

Source: Authors' Calculation

Hypothesis Testing: The structural equationmodel was examined to test the relationship among the constructs. After adjustment of the model by observing the modification indices value,the goodness of fit indicated for this model were *Chi-square/df =2.59, GFI=0.95, CFI=0.91, NFI=0.91, and RMSEA=0.07*.The obtained values are consistent with the model fit criteria which results in a "fit model". The independent and dependent variables for this hypothesis are PME and user experience (UE) respectively. The result of this analysis indicates that the path from PME to UE has a loading of 0.14 with a p-value < 0.01. Hence there is a significant impact of product and market experience on user experience.

5.3. Analysis of Garrett Ranking

Table 9: Ranking of Sambalpuri Handloom Retailers

Retail Outlet		*Rank Given by the Respondents*							
		1st	*2nd*	*3rd*	*4th*	*5th*	*6th*	*7th*	*Total*
1	SambalpuriBastralaya	166	110	116	62	52	28	16	550
2	Utkalika	80	112	86	60	32	86	94	550
3	Boyanika	62	66	74	102	122	78	46	550
4	Meher Bastralaya	158	112	88	62	38	52	40	550
5	Sakshi Handloom	138	102	90	92	49	44	35	550
6	Samaleswari Handloom	144	96	104	72	62	46	26	550
7	Bunkari	32	62	60	66	92	112	126	550

Source: Authors' Calculation

The respondents' rankings of sambalpuri handloom retailers are shown in Table 09. The respondents are given the names of a total of seven retailers, and they are asked to rank them (1–7) according to their preferences.

Table 10: Conversion into Garrett Scores

Rank	*Formula*	*Percentage*	*Garrett Value*
1	100(1 – 0.5)/7	7.14	78
2	100(2 – 0.5)/7	21.43	66
3	100(3 – 0.5)/7	35.71	57
4	100(4 – 0.5)/7	50	50
5	100(5 – 0.5)/7	64.29	42
6	100(6 – 0.5)/7	78.57	35
7	100(7 – 0.5)/7	92.86	22

Percentage Score = 100 (Rij – 0.5)/ Nj

According to Henry Garret's (1969) ranking method, the percentage score is computed as. Percentage Score, where, Rij= Rank, i item, j individual. Nj = the number of items Ranked by j individual. Garrett Values are obtained by referring Garrett ranking conversion table.

Table 11: Ranking of Retailers by Mean Scores

Retailers / Factors	*Rank Given by the Respondents*									
	1st	*2nd*	*3rd*	*4th*	*5th*	*6th*	*7th*	*Total*	*Mean Score*	*Rank*
Sambalpuri Bastralaya	12948	7260	6612	3100	2184	980	352	33436	60.79	I
Utkalika	6240	7392	4902	3000	1344	3010	2068	27956	50.82	V
Boyanika	4836	4356	4218	5100	5124	2730	1012	27376	49.77	VI
Meher Bastralaya	12324	7392	5016	3100	1596	1820	880	32128	58.41	II
Sakshi Handloom	10764	6732	5130	4600	2058	1540	770	31594	57.44	IV
Samleswari Handloom	11232	6336	5928	3600	2604	1610	572	31882	57.9	III
Bunkari	2496	4092	3420	3300	3864	3920	2772	23864	43.3	VII

Source: Authors' Calculation

Mean Score = Total score / No. of Respondents

& Score = 1st Column of 'Table 6 x 1st row of 'Table 7 and so on.

It is clear from Table 11 that, the most preferred retailer by the consumers (with the highest mean score i.e. 60.79) is Sambalpuri Bastralaya. Whereas Meher Bastralaya with a mean score of 58.41 is the second-highest in the table. Sakshi Handloom and Samaleswari Handloom with a close mean score of 57.44 and 57.9 respectively stood at 3rd and 4th Rank. 50.82 is the mean score of Utkalika and 49.8 is the mean score of Boyanika the fifth and sixth rank respectively in the table. In the ranking positions of Sambalpuri Handloom Retailers Sambalpuri Bastralaya achieved the first rank in the table.

Table 12: ANOVA Test

		F	*Sig.*
Age	Overall Loyalty	0.665	0.574
Gender	Overall Loyalty	3.77	0.042
Income	Overall Loyalty	1.211	0.305

Source: Authors' Calculation

According to Table 12, the test result for the ANOVA reveals that there is a significant difference between gender in terms of loyalty (*p-value = 0.04*). This indicates that consumers' loyalty to Sambalpuri handloom depends in part on their gender. However, because the p-value is more than the level of significance, or 0.05, the respondents' age and income differences were not found to be significant in terms of their level of loyalty. In other words, the loyalty of consumers does not change with age or income. Therefore, it is evident that there is no difference between age, income, and loyalty factors concerning Sambalpuri handloom.

Table 13: Preferred Sambalpuri Handloom

	Cotton	*Silk*	*Tassar*	*Total*
Saree	168	64	2	234
Dress Materials	256	32	2	290
Dhoti, Lungi, Napkins	8	2	0	10
Furnishing	14	2	0	16
Total	446	100	4	550

Source: Authors' Calculation

From the above table, it is clear that most of the consumers choose cotton Sambalpuridress materials, followed by sarees and other handloom items.Out of the 550 responders overall, 234 chose a saree, while 290 preferred dress materials. Nevertheless, 256 of the 290 respondents prefer cotton-based materials. 168 of the 234 respondents favour cotton sarees. Therefore cotton materials are preferred over silk and tassar materials. It may be due to the wearing of comfortable and durable colour fabrics.

6. Conclusion and Implications

43.6 % of the respondents are associated with Sambalpuri Handloom for more than 10 years and another 14.2 % of the respondents are associated with Sambalpuri Handloom for more than 5 years. The most Preferred Sambalpuri Handloom is cotton dress materials.Age and income have little bearing on a person's attachment to sambalpuri handloom; nevertheless, gender does. In other words, loyalty is unchanged regardless of an individual's age or income level. Sambalpuri Bastralaya is mostly preferred followed by Meher Bastralaya and Samleswari Handloom. Product specifications and market favorability,both factors have a joint effect on the buying behaviour of consumers.To satisfy consumers and win their loyalty to handloom products, marketers should concentrate on both product specifications and market reach. Due to the utility and comforts that customers enjoy, the success in the marketing of handloom products is more apparent.A combination of marketing communications, like promotion and publicity, participation in fairs, exhibition and personal selling, brand creation, keeping client databases etc. would help the handloom clusters grow and prosper (Debbarma and Chakraborty, 2020).Whereas according to Humbe and Bhalerao (2019), customers purchase handloom products due totheir quality artisan work.Finally, it can be concluded that this industry has all the potential that it can conquer the international textile market and also the manifest identity of our region worldwide.

This research still predicts that further research can be conducted with additional variables before generalization can be made because by adding more variables, the individual effect on the target variable can be isolated. Moreover, the study is confined to the Sambalpur district. Physical observation and data collection could have reduced the bias of the study. More study is needed to assess consumer perceptions of Sambalpuri Handloom after-sales service quality.

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Testing the Existence and Stability of Phillips Curve in India

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Abstract: The major objective of this study is to test the empirical applicability of Philips Curve in the Indian context with a focus on short-run as well as long-run relationships. For empirical analysis, the study uses five decades of data from 1968 to 2018 and applied Vector Error Correction Model (VECM) after running ADF Unit root and Johansen's cointegration. Based on the empirical analysis, the present study has observed that there is a long-run correlation between Money Supply, Inflation and Unemployment proving the relevance of the Philips curve. But, the study has observed a direct correlation between inflation and unemployment which invalidates the presence of Philips Curve in India and posed challenges to expansionary monetary policy to curb unemployment. The novelty of the study is that it provides concrete evidence for the relevance of Philips curve in the short-run as well as in the long-run using the VECM model for India since the 70s.

1. Introduction

The Phillips curve depicts an inverse association among inflation and unemployment in an economy. It is essential to study this concept because inflation and unemploymentare two of the most diligently monitored economic variables that have a substantial effects on the economy and macroeconomic policy. Moreover, it is described as an important framework often used by the central bank to maintain the targeted inflation and exchange rate stability.

This study mainly focuses the existence of the Phillips curve in Indian context. The basic theoretical framework of the Phillips curve is very simplistic to fit any economy, in reality that may not be true because it is not a simple negative relationship between the two, because various other forcesaffecteconomic performances. The study perceived that the Indian context would be appropriate because India is a highly populated country with a lot of socio-economic problems like poverty and unemployment with a high level of fiscal deficit usually causing inflation. Moreover, the finance ministry always expects expansionary monetary policy for their macroeconomic goals. For these reasons, the study uses five decades of data from 1968 to 2018 to measure the efficacy of monetary policy on the macroeconomic goals of India using the Philips curve method.

Therefore, it is necessary to understand the timing, frequency and magnitude of change in various policy rates that affect monetary policy and its efficacy. Both monetary and fisal policy (expansionary and contractionary) aid in shifts of the Phillips curve but the present study focuses solely on monetary policy and its changes in inflation rates and unemployment.

2. Review of Literature

Since 1970, extensive literature has been conducted on the applicability of the Philips curve with more variables and analyzing their dynamics, concerning monetary policy. Kim *et al.* (2013) analyzed the factors responsible for invalidating the relevance ofthe Phillips curve and observed that the surge in inflation trends led to a decline in real economic activity and increases the inflationary gap. Peterson *et al.* (1971) tried to investigate the relationship between prices and earnings using monetary rule based on the role of the Phillips curve. They observed a recurring path of unemployment and price along the Phillips curve captured by changes in prices, labour demand and money supply.

Hodes and Snyder (1981) found that the Phillips curve failed to explain the existence of inflation in absence of excess demand, which has theoretical evidence in the 1950s. Haynes and Stone (1985) tested the relevance of Philips curve and found the short-run association among inflation and unemployment but in the long-run, inflation and unemployment trade-off was lagging.Alogoskoufis (1990), tried to analyze the association between monetary policy and its implications for the Phillips curve.It reveals that with the coexistent reaction of nominal wages to unemployment, optimal monetary policy must be conditioned on both wages and prices.Leeson (1997)found that it is undesirable to set an inflation target at appoint where the wage inflation rate is greater than the amount of average productivity in the economy.

Flaschel and Krolzig (2006) analyzed Phillips curves in a simple Keynesian model of economic growth. They observed that thewage-price instability caused economic instability, which was corrected by applying monetary policy. Graham and Snower (2008) went a step ahead and tried to analyze the relevance of Phillips curve with hyperbolic preferences and found that employment cycling effects and labor smoothening effects have an inverse relationship with inflation and macro-activities while discounting effect has a positive relationship.

Gordon (2009) observed that there is an interaction of demand and supply shocks that can create both positive and negative impacts on inflation and unemployment. Turnovsky (2009) examined output-inflation trade-offs in the context of a Philips curve and observed that the Philips curvehas been improvised time and has never failed to fulfill the expectation of the short-run macroeconomicrelationship between inflation and output. Kotia (2013) tries to analyze the inflation-output dynamic for the Indian economy and estimates Phillips Curve, using the unobserved random walk method. Even though there is literature that shows the irrelevance of Phillips curve for India, this study establishes inflation and unemployment trade-off without taking into account supply shocks.Simionescu (2014), analyzed the presence of the Phillips curve in Romania using inflation, unemployment, real GDP and the money supply. This study found that all the variables are cointegrated and exhibit a long-run association. Especially, the study observed the existence of an inflation and unemployment relation in the short run, but no such association was found in the long-run.

Svensson (2015) analyzes Phillips curve in the long runfor Sweden and observed the downward-sloping curve rather than the vertical one that is theoretically proven in the long run. Zayed *et al.* (2018) tested the relevance of Phillips curve in the Philippines and the results show that the GDP is positively correlated to inflation and unemployment, which proves that the Phillips curve is irrelevant for Philippines.

2.1. Research Gap

The government of India's dependence on monetary policy for its macroeconomic goals is increasing day by day. By considering the outcome of monetary policy on growth and unemployment reduction in the short term using Philips curve approach, this study occupies a higher level of significance in social science research. Even though there are abundant studies that are available in the context of the relevance of Philips curve, their results are not concrete. Especially, studies relating to Indian case is very rare and the period of study used in the literature survey is very short-term. Finally, the focus of the study is to test the relevance of Philips curve in India from 1968, especially the advent of the labour market and stringent regulations imposed by the private and public players, the present study occupies a higher level of significance.

3. Objectives of the Study

Against the statement of the problem and issues, the main objective of this study is

- To analyze the existence of the Philips curve in India bychecking the correlation between money supply, inflation and unemployment from 1968 to 2018.
- To inspect how rational and adaptive expectations affect future inflation in the economy.

4. Research Methodology

The present study uses only secondary data and the sources of data are collected from the RBI database, the economic survey report of the government of India and World Bank data. The present study tries to explore the relevance of Philips curve in India to measure the effectiveness of the monetary policy on macroeconomic goals using Inflation, GDP, Unemployment and Money Supply. For empirical analysis, the study considers both graphical analysis and empirical inquiry. First, this study uses Augmented Dickey-Fuller unit root to check whether the collected data sets are stationary or not. After that the study uses Johensen's cointegration to test the relationship between the explanatory variables. Finally, the study will employ the Vector Error Correction model to check the relevance of Philips curve. Appropriate trend line investigation will also be used to compare the empirical outcomes.

4.1. ADF Unit Root Test

The study first appliedthe Augmented Dickey-Fuller test for respective variables using the succeedingsequenes.

$$\Delta X_t = \alpha + \beta X_{t-1} + \sum_{i=1}^{p} \varphi_i \Delta X_{t-1} + \lambda t + u_t \tag{1}$$

If the beta value is equal to zero, denoting that the designated variable Xt comprises unit root, hence the data is said to be non-stationary. Therefore, it is very essential to take account of trend (deterministic) in the equation part. If the trend is stationary and significant, then the study can execute econometric investigation.

4.2. Co-integration Test

After checking the stationarity conditions, the study will employ Johansen (1995) co-integration test to assess the association between the selected independent variables in the study and it can be given in the following form of an equation:

$$H_1(r): P_{yt-1} + Bxt = \alpha(\beta_{yt-1} + P_0) + \alpha_1\gamma_0 \tag{2}$$

Using the above equational form, the null hypothesis is used to verify the presence of a cointegration vector. Both trace and maximum Eigenvalue will be used for the test criteria.

4.3. Vector Error Correction Model

The VECM model is applied to test the long-term and short-term relationship, which runs from independent to dependent variables to determine the relevance of Phillips curve in India. It takes into account level1 of stationarity of data and the cointegrating relationship among the variables. Here, inflation is considered as dependent and the othervariables are considered as independent. The model will also include lagged values of inflation observed from the literature review. In addition, if the model is correctly specified, the VECM estimates will be more effective. The VECM model can be specified as;

$$\begin{aligned} \Delta LNI_t = \beta_0 + \sum_{j=1}^{m}\theta_k \Delta LNI_{t-j} + \sum_{j=1}^{m}\gamma_k \Delta LNGDP_{t-j} + \sum_{j=1}^{m}\psi_k \Delta LNMS_{t-j} + \sum_{j=1}^{m}\varphi_k \Delta LNUNEMP_{t-j} \\ +\lambda[LNI_{t-1} - \alpha_0 - \alpha_1 LNGDP_{t-1} - \alpha_2 LNMS_{t-1} - \alpha_1 LNUNEMP_{t-1}]\mu_t \end{aligned} \tag{3}$$

Where $I_{t,}$ $GDP_{t,}$ $MS_{t,}$ $UNEMP_t$ represents Inflation, GDP, Unemployment and Money Supply during the period t. Where λ represents the speed of adjustments from the Short run to Long Run. Δ represents the first difference and μ represents the error term.

5. Empirical Findings

The empirical analysis starts with the Unit root test to check the stationarity of the data. The study will proceed with optimal lag selection, which has been tailed by the Johansen Co-integration test. To check the behaviour of residuals, a normality test has been used. Finally, the study will employ VECM method.

ADF test has been used to evaluate the stationarity of data, with the null hypothesis that the respective variable containsa unit root. The lag is automatically selected, distinct for different variables. The results are tabulated below;

Table 1: ADF: Unit Root test

Variables	*At level*		*At first differences*	
	Test Statistic	*Prob. value*	*Test Statistic*	*Prob. value*
Inflation	0.2320	0.0004	-4.0771	0.0000
Unemployment	0.3782	0.2999	-14.8524	0.0000
Money Supply	-0.9774	0.9975	-7.5096	0.0000
GDP	0.2159	0.9530	-3.9199	0.0001

Source: Author's Own Compilation

It is observed from the probability value that the designated variables are nearly non-stationary at the level and stationary at first difference excluding Inflation. It is observed that the ADF results exposed that all the variables are stationary at first difference. Hence, it is practical from the ADF result that it is appropriate for the study to employ the VECM model for analysis.

Next, it is important to measure for *cointegration*, using Johansen cointegration test which is a precondition for running VECM. The reasons for using the Johansen test are that it provides the most accurate results and is very much compatible to run VECM and also avoids the problem of selecting a dependent variable. Most importantly,the Johansen test takes into account time series and more than two variables, unlike the Engle granger test which requires a single equation two-variable model. Correspondingly, the Johansen test applies to large samples which have asymptotic properties.

Now, the Johansen test can be performed. Trace and maximum eigenvalue indicated 2 cointegrating eauations at 0.05 level; the existence of at most 2 long-run associations in the model is a good indicator of a good fit.

Table 2: Johansen Cointegration Test

Trend assumption: Quadratic deterministic trend
Series: INF UNEMP MS GDP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration (Trace)

Hyp No. of CE(s)	*Eigenvalue*	*Trace Stat*	*0.05 Critic Value*	*Prob***
None*	0.520375	79.57931	55.24578	0.0001
At most 1*	0.446952	43.57649	35.01090	0.0049
At most 2	0.163328	14.55324	18.39771	0.1590
At most 3*	0.111910	5.815413	3.841465	0.0159

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Unrestricted Cointegration (Max Eigenvalue)				
Hyp No. of CE(s)	*Eigenvalue*	*Max-Eigen Stat*	*0.05 Critic Value*	*Prob***
None *	0.520375	36.00281	30.81507	0.0106
At most 1 *	0.446952	29.02325	24.25202	0.0108
At most 2	0.163328	8.737830	17.14769	0.5231
At most 3 *	0.111910	5.815413	3.841465	0.0159

Source: Author's Own Compilation

Now, since the two conditions are non-stationarity at a level and cointegrated series are satisfied, so the study can employthe VECM model for analysis. A rank for the test is two cointegrating equations testing both intercept and trend.

As the first step, it is neessary to determine the appropriate lag-length for an autoregressive model meaning such models almost always assume that the current value of variables is also dependent on a previous period; it is essential to how far back this dependency go. The most important criterion in making this decision is Akaike Information Criterion (AIC) followed by sequentially revised LR test statistic at a 5% (LR) and FPE. The present study employed the above-mentioned three criteria for analysis. Also for each model, the lower value is among all the lag lengths and it can be stated that the better the length, the better the model. Our lag test reveals that for all 3 criteria specified above, the lag order selected is 2 meaning that the values of variables are dependent on their previous two time periods; for example, if inflation in 2020 says at 4%, then this value of 4% is dependent on inflation in 2018 and 2019. The output generated from the VECM model is given in table 3.

C(1) and C(2) are the coefficients of the two cointegration equations. Both these coefficients are significant (p-value< 0.05) and negative implying Long-run causality from unemployment, GDP and money supply to inflation.

To check short-run causality, the Wald test needs to be run. This test checks short-run causality from each independent variable to the explanatory variable. The null hypothesis of this test is all coefficients of the first independent variable is equal to zero, implying that there is no short-run causality from the particular independent variable to the dependent variable. Results indicate that there is no short-run causality from either of the three independent variables- unemployment, GDP, or money supply to inflation (dependent variable).

Summarizing,

Short-run relationship	Does not exists
Long-run relationship	Exists

Implications-

There is no evidence suggesting a short-run Phillips curve in India for a period of 50 years from 1968- 2018. However, there is evidence pointing towards the existence of a long-run Phillips curve in

Table 3: VECM Estimation

Dependent Variable: D(INF)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Included observations: 48 after adjustments

	Coefficient	*Std. Error*	*t-Statistic*	*Prob.*
C(1)	-1.121229	0.257112	-4.360856	0.0001
C(2)	-2.647542	0.915524	-2.891833	0.0065
C(3)	0.380122	0.184390	2.061516	0.0465
C(4)	0.038947	0.160241	0.243052	0.8093
C(5)	-3.752216	6.652182	-0.564058	0.5762
C(6)	-1.273104	6.967032	-0.182733	0.8560
C(7)	-0.076773	0.052778	-1.454644	0.1544
C(8)	0.007170	0.059932	0.119638	0.9054
C(9)	1.36E-05	2.38E-05	0.571756	0.5710
C(10)	1.02E-05	2.63E-05	0.388406	0.7000
C(11)	-0.661982	3.481484	-0.190144	0.8503
C(12)	0.105977	0.284265	0.372812	0.7115
R-square value	0.524650	Mean dependent var		-0.004824
Adj R-square	0.379404	S.D. dependent var		5.881572
S.E. of reg	4.633380	Akaike info criterion		6.116768
Sum squareresid	772.8554	Schwarz criterion		6.584568
Log-likelihood	-134.8024	Hannan-Quinn criteria.		6.293550
F-stat	3.612151	Durbin-Watson stat		2.018123
Prob(F-stat)	0.001689			

Source: Author's Own Compilation

India for the same period. The model is significant and a good fit as indicated by the following parameters like R-squared value (0.524650), the p-value of f-statistic (0.0017 <0.05) and Durban Watson statistic (2.018123).

Using thedescriptive analysis from Figure 1, the study can forecastinflation anticipations and the rationality of society concerning the likelihoods.

The inflation forecast is given by IMF, it mirrors inflation expectations of the society and hence can be taken as a proxy for inflation expectations (adaptive expectations). It is observed from the graph, both inflation expectation and actual inflation move in tandem with each other. Hence, we can infer that inflation expectations affect positively on current inflation.

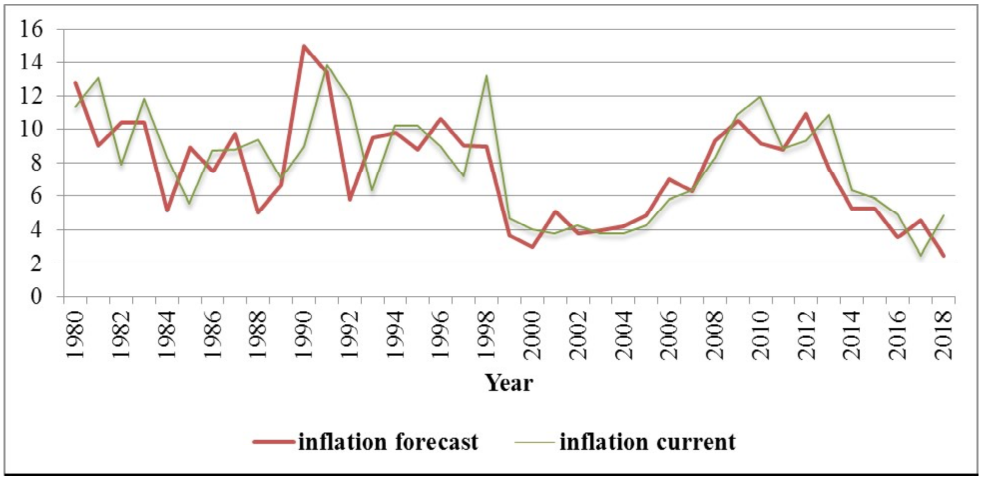

Figure 1: Trends in Forecasted and Current Inflation

Source: Author's Own Compilation

6. Results and Discussion

This paper has focused on the relevance and existence of the Phillips curve in India from 1968 to 2018. In the first step of the empirical analysis, the study ADF test to check the unit root.The unit root test result from Table 1 indicated that the p-value for all the variables are foundnon-stationary at the level and stationary at the first difference. The p- value for all the study avariables are more than 5 per cent at level excluding Inflation. But the t value for for inflation is lower than the critical value leads to the rejection of the null hypothesis and infers there is no unit root at first difference. After confirming the nonexistence of unit root from table 1, the study usesJohansen's cointegration test for association between theexplanatory variables. Test results from Johansen's test rejected the null of cointegration at 1 percent and 5 percent levels using both trace and maximum eigenvalue.

To trace the dynamic association between the selected variables, the Vector Error Correction model has been applied. The paper mainly addresses inflation and trade-off and how it reacts when we add the effect of money supply and GDP. Running VECM states that the variables are stationary at level 1 and having 2 cointegration exhibits no short-run relation exists between Unemployment, money supply, or GDP to inflation. But theoretically and past studies proved, especially from G7 countries, the variability in inflation causes a significant effect on the unemployment rate (Seyfried *et al.*, 2001; Sing et al., 2022). The study has observed increasing inflation uncertainty in prediction due to discretionary monetary policy in India. Given the above-stated arguments, the has observed that these are the reasons why money supply did not affect inflation in India. Changes in discretionary monetary policy cause uncertainty in inflation leading to variability in the inflation-unemployment tradeoff. Since this variability is affecting unemployment in the short run it becomes difficult to analyze the effect of real inflation, this can be one of the major reasons for no short-run association between inflation and unemployment and also inflation and monetary policy. In the short run, inflation variability does not influence unemployment is an interesting finding of the study.

Although, it is measured that reliable monetary policy has enhanced the capability of central banks to anchor inflation expectations, thus reducing the effect of real economic activity on inflation and invalidating the Phillips curve. But in the case of India,the credibility of monetary policy can be questioned because of its rapid changes from 1975 to 2005, especially, the regime changes three times from an ultimate focus on an annual target for credit expansion to broad money growth to a multiple indicator approach. It was also important to discuss the effects of monetary policy because theoretically the policy effects are not seen in the Indian case.

Besides, a long-run relationship existsand flows from unemployment, money supply, and GDP to inflation. However, the association between inflation and unemployment is positive. Several economists also came up with this positive association from 70s and argued that this relationship can be acceptedwithin the targeted levels.

Post 2005,the monetary policy stance has stabilized at 'multiple approaches' by focusing on movements in several variables to bring about a more holistic and informed view. As a result, the variability in inflation has also reduced to a large extent which can be seen from figure 1 which shows the trends in forecasted inflation arein tandem with actual inflation.From the results, the study found that the monetary policy is more credible in the last ten years than it has been in the earlier period, especially when the central bank started using a multiple-indicator approach. But still, over-dependence on monetary policy for macroeconomic goals may not yield desired results in India. Instead of too much dependence on money supply and monetary policy, the government has to spend more on social sector and capital formation. Also the government has to contain inflation and bolster production for unemployment reduction and macroeconomic efficiency (Behera and Pradhan, 2019).So there is a need to use a mix of both demand and supply-side policies, to boost aggregate demand by reducing unemployment and supply-side bottlenecks.

7. Conclusion

The study uses five decades of data from 1968 to 2018 and applied VECM with a unit root test (ADF) and cointegration test (Johansen). Based on the empirical findings,the study has observed a direct correlation among inflation and unemployment in the short-run which invalidates the presence of Philips Curve in India and posed challenges to expansionary monetary policy to curb unemployment. Interestingly, the study has observed a long-run correlation between Money Supply, Inflation and Unemployment proving the relevance of the Philips curve. The present study stands certain useful implications for Policymakers, Research Scholars and other academicians.

8. Implication, Limitations and Scope for Future Research

The novelty of the study is that it provides concrete short-run and long-run evidence using VECM on the relevance of the Philips Curve in India since the 70s. Also, it helps the policymakers to identify the appropriate macroeconomic policies for their macroeconomic goals instead of bypassing the responsibility of the finance ministry to the Reserve Bank of India. The main implication is that influencing real sector using monetary policy may not solve the problem of Unemployment nor GDP growth. The present study tested the relevance of Philips curve by limiting it to the Indian economy only and it can be extended to emerging economies or intra-regional trading groups like BRICS, ASEAN, European Union and others. The study uses only monetary policy to assess the association among inflation-unemployment tradeoff but there is a scope for using fiscal policy to test the relationship between inflation and unemployment and then it can be compared to the effects of monetary policy.

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Impact of Displacement on Rural Livelihood: A Case Study of Talcher Coalfield

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Abstract: Increasing demand for social and industrial development, exploitation of minerals, such as coal, is necessary. Due to the commercial purpose, developing countries turn to an area for mineral extraction. Mining projects have had a severe impact on the socio-economic and environmental setup of rural communities. Besides, cutting down the forest will have a negative impact on the human-forest relationship for many years to come. It caused severe damage to local ecology, rural livelihoods and social order as a whole. The study is looking at how coal mining-induced displacement affects the rural livelihoods of the villages in the Talcher coal belt, Odisha. Additionally, it causes a social imbalance and a new class of vulnerable people in the area. The negative effects of coal mining significantly reduced traditional livelihoods like farming, raising livestock, and gathering minor forest products. The paper concludes that while mining has given people opportunities for income, it has also put rural livelihoods in danger.

1. Introduction

Coal has a significant impact on the world economy. Asia, which is the key commercial hub of coal, is using 67 per cent of overall coal. Numerous nations across the world are dependent on coal as they do not have enough sources of energy to meet their needs. Nations like China, Taipei, Korea, and Japan access significant proportions of steam coal which is intended for power production and coking coal is used for the production of steel. Even the paper mills, alumina refineries, pharmaceutical and chemical entities and so on are the normal buyers of coal. During the assessment of the increasing demand for energy resources, it reflects that coal accounts for around half of the global energy requirement in the middle of 2000 and 2010. Coal remains as the distinctive unit of fuel to satisfy the worldwide requirement for energy (World Coal Association, 2021).

India produces 87 minerals, out of them, 04 kinds of minerals are derived under fuel classification, 10 are under metallic substances, 47 belong to nonmetallic affluence, 03 are nuclear and 23 are minor minerals. Ironically, India is a key manufacturer in mica mining around the globe, third highest producer of coal, lignite and barytes, fourth in iron metal, sixth in bauxite and manganese mineral, tenth in aluminum and eleventh in unfinished steel in the world (Niti Aayog, 2015) Amongst the nonmetallic mineral deposits, coal stands as significant and rich fossil fuel in India. It represents 55 per cent of the nation's energy requirement. It isn't just useful to produce power yet additionally advantageous to separate iron and extra metals from minerals. Besides, it has huge utility around the world. Since 2000, the utilization of coal exceeded the expectations of different fuels over the globe. This is limited mostly to the five biggest coal utilizing nations, for example, China, USA, India, Russia, and Japan. Also, these nations as a consumer of coal utilize 76 per cent of worldwide coal use (Ministry of Coal, 2014).

Essentially coal is acquired through mining, and coal is mined through surface or opencast considering the geography of the coal reserve. A major portion of coal, around 90 per cent is extracted through underground mining, which is higher than opencast mining. In many important coal-producing nations opencast mining is more in practice. Typically, most coal mines operate in rural regions where developmental activities like mining enterprises give jobs to individuals in the locality. As per the current assessment, coal mining enterprises are engaging 70 lakhs individuals across the globe and 90 per cent are from developing nations. Coal mining gives direct work as well as creates job openings in other related units. Indeed, the introduction of a huge number of coal mines is liable for the significant local incomes and allocated funds towards the improvement of regional infrastructure (World Coal Association, 2019).

On many occasions, coal mining is driving land-use clashes with local occupants. Nearby inhabitants happened to resist the presence of coal mining enterprises. Because they worry about it will disrupt their typical design of livelihood. Generally, mining happens in the natural resourceful areas where individuals are habitually reliant on natural resources to continue their livelihoods. However, business exercises like coal mining enterprises started hampering their conventional way of living. Further, they are compelled to vacate their residence lands. The claim of reclamation and reuse of land, legitimate rehabilitation, and so on remains in the documents. The government assistance serves directly to the upper sections and others stay as worst sufferers without sufficient advantages of these alleged development projects (Das and Mishra, 2015).

On this backdrop the study is dived into four sections. Section one deals with the introduction, objectives and methodology of the study. Section two provides a review on mining and livelihoods. Section three includes results and discussion and section four gives the conclusion of the study.

2. Review of Literature

From the perspective of livelihood in mining,the zone has demonstrated a dramatic revolution since its beginning. With the speedy mineral extraction and misuse, livelihood is falling rapidly. Also, mining carries with it the possible unfavorable effects on livelihood, social life, and nature. On the contrary, the positive part is mining produces foreign revenue. Mining activities aren't just having negative effects; it has some positive effects also. Further, Mining assists to increase monetary and physical capital. However, the adverse aspects, for example, air, water and soil contamination, health deprivation, displacement, loss of farming, and so on are the intolerable harms that can't be forgotten with regard to profit only. Since mining is a short time activity, how we will move towards the advantages of mining and what will be our future? (Mishra, 2009).

World's economic development including India has been contributed by the expansion of the mining industry. However, the development of local infrastructure, employment opportunities (direct and indirect), and earnings from foreign exchange make the mining industries better investors. Essentially, the development of the mining industry requires the acquisition of fertile areas, they have come to be recognized as an environmentally and socially resistant resource (Melanie *et al.*, 2007).

The project affected individuals at the Handidhua resettlement colony, who faced difficulty for sustenance of their occupation. They are involuntarily displaced from their native land and assured to provide electricity, water supply, medical services, etc. However, the assurance remained in assurance only, no change took place. Besides, the villagers claim the recycling of vacant coalfields, (Somayaji, 2008)

Mostly, the influenced communities were often reliant on common property resources for ages; however, mining-induced displacement disrupted and lessened that source of livelihood. But the advantages of mining enterprises directly go to privileged sections of society (Bhengara, 1996). In Ghana the 'culture' of extraction is predominant. The Ghana people are accustomed to movement from precious stone mining to gold mining to get rich. The money-related advantage of gold mining is genuinely higher than that of precious stone mining (Hilson, 2010).

Even though farming is reflected as the fundamental basis of occupation, besides farming the rural peoples were mainly connected to the gathering of Minor Forest Products (MFP) for the survival of their livelihood. The Kondh tribe of the Koraput, Balangir and Kalahandi belt of Odisha, use to cultivate and harvest various kinds of millet, gram, beats,eatable oil, pigeon pea, castor oil, honey, mushrooms and so on. And they have a strong financial relationship with the forest that involves them collecting various MFPs. The Kondhs were collecting MFPs for their use and sometimes they earned extra by selling. Yet, the presence of mining in the region is going to shrink the prevalent practice as well as the forest of these dwellers (Palit, 2010). Mining has horrible adverse effects on the ecology of soil, water and air. The contamination of both physical and natural resources is constantly declining the productivity of agricultural land which affects agriculture (Guha, 2014). The company should introduce and work on domains such as gender equality, women empowerment and dignity, care and support for the elderly, and livelihood enhancement programmes (Dewan and Singh, 2021). CSR initiatives have also been found to have a positive relationship with CSR performance outcomes (Anand and Kumar, 2021).

The presence of gold mine activities in the Geita District of Tanzania has delivered serious socio-natural impacts. In the close region of mining, the first major occupation is agriculture and the second is mining. Gold mining here is obtaining an unsafe socio-social effect on the livelihood as it is leaving the agriculture as well as livestock of the nearby individuals (Kitula, 2006).

Very often, the LPG model is leaving the indigenous communities vulnerable in the world. The land is the source of livelihood and way of survival for many rural communities. They are spiritually and culturally connected to traditional land. Due to the acquisition of land, for development of enterprises like mining has left the local community as quick sufferers. Further, it leads to impoverishment from the loss. The only way is to replace adequate compensation with ways to regenerate their resources. The states like Odisha, Jharkhand and Chhattisgarh of our country pleased the mineral-based businesses into its additions. However, the advantages of these enterprises are going reasonably to the upper class of society and the oppressed areas are dispensing the expense of its disturbance only (Meher, 2009).

The neoliberal economic and political changes in Peru are influential to put the nation in the worldwide market through foreign direct investment (FDI). As a result, mineral withdrawal exercises began in the tag of a few financial packages. Since the time of its operation, the multifold production of the household has been overstated. Earlier families used to draw their livelihood from the common property resources and associated with varied farming, livestock and market exercises. However, the unrest unfolded when Newmont Mining Corporation's Yanacocha (MYSA) began its activity. Although it has been known that a few societies recognized their access to monetary and human capital yet, all the families lose their access to common and social resources (Meher, 2009).

3. Objective of the Study

Based on the above literatures, it is understood that though different study exists in the area. But very few studies available in Talcher region. Accordingly the following objective is framed;

- To analyze the effect of coal mining induced displacement on rural livelihood.

4. Research Methodology and Data Analysis

The study was conducted using household data collected through interview schedule. In order to fulfill the objective of the study data were collected from primary and secondary sources. In addition to the quantitative techniques tools like case study, interview schedule and few techniques of Participatory Rural Appraisal (PRA) i.e. focus group discussion was used to collect the household data. By using random sampling four villages were selected for the study purpose; two mining villages are located near the mine and two control villages are located in the same agricultural-climatic area but far from the coal mining. The study area includes the Lingaraj coal area of Talcher coalfield, Odisha, which is coming within the purview of Mahanadi Coalfields Limited (MCL), a subordinate of Coal India Limited (CIL). Talcher coalfield is in the Angul district. The Talcher coal area is spread over an area of 150,966 sq. km. Of the total 08 opencast and 03 underground coal mines in Talchercoalfield, there are a total of 11coal mines in Talcher coalfield, namely Jagannath area, Bharatpur area, Lingaraj area, Hingula area and Talcher area. A total of 12719,134 hectares of land has been acquired for coal mining in the Talcher coal area through the Coal bearing Act (Niti Ayog, 2015).

MCL archives reflect that it has eight opencast coal mining projects namely Ananta Opencast Coal Mining Project(OCMP), Bhubaneswari OCMP Jagannath OCMP, Hingula OCMP, Balaram OCMP, Bharatpur OCMP, Kaniha OCMP and Lingaraj OCMP. Apart from that, the opencast mines are more damaging than the underground quarries, this is why the mining-affected communities near-surface quarries were chosen for the current study. Considering the distance from mines, two villages are selected that are affected by mining activity around Lingaraj OCMP. As the opencast mines are functional over the last 20 years, information was gathered from households on pre and post-mining conditions by using the recall method. Further, to comprehend the effect of coal mining the study was undertaken by selecting two villages as the control in the same agro-climatic zone, where there is no mining impact and individuals are performing traditional livelihoods for decades. The socio-economic condition, conventional sources of occupation and cropping patterns are identical to both mining villages and control villages. The major difference is the availability of service opportunities and environmental pollution. The data collected from the households of mining villages can be juxtaposed with the data of the control village concerning the effect of mining on the rural livelihoods of local societies. For this study purpose, 300 sample households were selected from the mining villages andcontrol villages through systematic random sampling. The detailed demographic and key features of the sample villages are placed in Table 1 and Table 2.

Table 1: Demographic Details of Sample Village

	Mining villages		*Control villages*		
Basic information	*Balugaon Khamar*	*Langijoda*	*Deragoda*	*Saradhapur*	*Total*
Total Household	140	90	90	130	450
Total Population	880	654	400	503	2437
Sample Household	75	75	75	75	300
SC Household	21	3	6	25	55
ST Household	1		4	1	6
OBC Household	40	45	49	21	155
General Household	13	27	16	28	84

Source: Authors' Own Compilation

Table 2: Key Features of Sample Villages

	Mining villages		*Control villages*	
	Balungaonkhamar	*Langijoda*	*Deragoda*	*Saradhapur*
Distance from the nearby mines (in KM)	3-6	0-3	30	30
Total population	880	654	400	500
Social composition	Mixed	Mixed	Mixed	Mixed
Livelihoods	Mine's employee and day labourer	Mine's employee and day labourer	Agriculture and day labourer	Agriculture and day labourer
Electricity	Available	Available	Available	Available
Source of Drinking water	Tube well	Village bore well	Tube well	Tube well

Source: Authors' Own Compilation

For the research, both primary and secondary sources were used to collect the data. Both qualitative and quantitative methods are used in the present study. For the collection of primary data collection key informant interviews, case studies, observation and some PRA tools like focus group discussions and resource maps were used. However, for the collection of quantitative data household study was conducted using schedules. The secondary data was gathered from official sources i.e. policy documents, journals, published reports and available literature.

5. Results and Discussion

5.1. Effect of Mining on Livelihood Activities of Household

A detailed study regarding the effect of coal mining on rural livelihood is conducted. The paper has attempted to disclose the process of transformation has community gone through. Both the villages Langijoda and Balugaon Khamar were there before mining started in the region. Before beginning mining, the villagers were engaged in agriculture and allied activities, which is the primary source of livelihood. Over the years the community went through transformation and the focus shifted from agriculture to non-agriculture activities for sustenance. The poor households used to practice several farm activities at their household levels such as crop agriculture and animal husbandry. But the fact remains that on many occasions the poor and small farmers are not able to generate a secure livelihood.

5.2. Sample Household's Socio-economic and Livelihood Activities

Table 3 represents the economic and livelihood activities of sample households. Most of the Talcher area is filled with coal, which is attracting mining enterprises and mining activities are considered positive circulation towards income generation to carry out the operation. Agriculture and allied activities are predominantly considered the primary source to sustain a livelihood for ages. But after the existence of mining companies and their regular expansion, has already taken away productive agricultural lands. The local individuals are shifted from predominantly agro base livelihood to non-farm and mining base to sustain their livelihoods. Agriculture started losing its prominence after the mining period. Mining is a profitable activity, but it doesn't have security. Being marginalized and vulnerable, the rural people practice a variety of livelihoods. The present research tries to provide a picture of a comparison between the pre-mining and post-mining eras.

Table 3 shows around 60 per cent of sample households were practicing and relying on agriculture as a source of livelihood in mining villages during the pre-mining period, which has been significantly reduced by 6 per cent in post-mining time. This is due to the loss of crop productivity. But in the control villages, a major chunk of the sample households is still depending on agriculture. Currently, mining turns out to be the single largest livelihood activity in the villages near mines. A total of85 households have received jobs against compensation, resulting in high MCL job holders in the post-mining period at mining villages. Besides permanent jobs in mines, many locals are engaged as contractual labourers in MCL.

The table unfolds that 52.6 per cent of sample households in mining villages were practicing farm wage labour in the pre-mining era. But in the post-mining period, it has been reduced to 28 per cent and shifted to non-farm wage labour. As most of the cultivable land has been acquired by MCL and many of the lands are filled with coal dust, left the locals uncertain. However, in private employment, the percentage of households is increased in the post-mining period compared to pre-mining. The reason is that mining companies often invite agencies, and farms through tender for undertaking different jobs; as a result, local people get the opportunity for private employment. This has also directly encouraged the lodging and hotel industries in the Talcher area, as a result, many hotels, restaurants, and lodging have opened in Talcher town. Further, engagement of traditional occupation stands at 6 per cent in the pre-mining period, which has been surprisingly not practiced by any household in either post-mining or control villages.

Table 3: Livelihood Activities of Sample Households (Figures in Bracket %)

Livelihood Activities	*Mining village*		*Control village*
	Pre- mining	*Post- mining*	
Agriculture	89 (59.3)	9 (6)	107 (71.3)
Wage labour	79 (52.6)	42 (28)	122 (81.3)
Govt. employment	15 (10)	13 (8.6)	5 (3.3)
Private Employment	14 (9.3)	22 (14.6)	8 (5.3)
MCL employment	20 (13.3)	97 (64.6)	
Business	13 (8.6)	12 (8)	6 (4)
Traditional occupation	9 (6)	-	-

Source: Authors' Own Compilation

5.3. Occupation of the Head of Households

It has been reported that the only permanent source of employment for sample households in mining communities is mining-related activities. People of all ages and genders are either directly or indirectly involved in mining. But in control it is different. Currently, the villagers rely on agriculture and related activities. A detailed narration of the categories of occupation is as follows;

Table 4: Main Occupation of the Head of the Household (Figures in Bracket %)

Occupation	*Mining village*	*Control village*
Cultivation	1 (.7)	71 (47.3)
Dairy	1 (.7)	—
Goat and another animal rearing	1 (.7)	4 (2.7)
Daily wages-agricultural laborer	2 (1.3)	35 (23.3)
Skilled wage labourer	14 (9.3)	1 (.7)
Semi/unskilled wage labourer	43 (28.6)	25 (16.7)
Service-private sector	6 (4)	5 (3.3)
Service-govt. sector (mining)	78 (52)	3 (2)
Trade/business-from fixed premises	1 (.7)	1 (.7)
Other-self employed	3 (2)	5 (3.3)
Total	150(100)	150(100)

Source: Authors' Own Compilation

According to the above table, mining is the primary source of employment in mining villages, with the majority (52 per cent) of households employed in this sector. But in control villages, 47.3 per cent of the households are practicing agriculture. But in the case of daily wage agriculture labour, it is also high in control villages in compared to mining villages. However, in the semi/unskilled category wage labourers are higher in mining villages.

5.4. Annual Income of Sample Households

With the purpose of measuring the effects of mining on household income, an evaluation was prepared to find the difference between the pre-mining and post-mining income levels of sample households in mining villages. Further, it has compared with the income level of the control village. Though mining took place with huge scale displacement it endorses changes in the mining villages from a financial point. It was reported that the income level of mining villages is healthy, as many locals are employed at MCL mines directly and indirectly and receive a pretty income. The comparison of pre-mining and post-mining income levels of mining villages show that before mining most of the households 82 per cent we reengaged in agriculture and wage labour activities, so their income was below 30000 rupees. Another group of people who are dependent on business are coming under the 30000-50000 rupees income group, 2^{nd} in the rank. And there are only 15.3 per cent of people whose income is above 50000 rupees. However, in the pre-mining period, no income group is available 1 lakh- 1.5 lakh rupees, which shows an extreme change in the post-mining period, the majority of 65 per cent of households are coming under this category. It is also surprising to see 10 per cent of households coming under the category of above 2 lakhs rupees, as both the categories are represented by MCL employees. It is established that families reliant on mining jobs have higher annual incomes than other sources. This is because the wage in coal mining is higher than in other sectors, which has improved the income discrepancy between mining and control villages. A caste-wise detailed annual income status is placed below both in the pre-mining period and post-mining period along with the control village.

Table 5: Social Category Wise Annual Family Income in the Pre-mining Period (Figures in Bracket %)

Caste of the Households	*Total Annual Family Income in the Pre-mining period*				
	Below 20000	*20000-30000*	*30000- 50000*	*Above 50000*	*Total*
General	18 (12)	5 (3.3)	10 (6.6)	7 (4.6)	40 (26.6)
OBC	44 (29.3)	21 (14)	9 (6)	11 (7.3)	85 (56.6)
SC	7 (4.6)	10 (6.6)	3 (2)	4 (2.6)	24 (16)
ST	0	0	0	1(.6)	1(.6)
Total	69 (46)	36 (24)	22 (14.6)	23 (15.3)	150 (100)

Source: Authors' Own Compilation

Table 6: Annual Family Income in Post-mining Period (Figures in Bracket %)

Caste of the Households	*Total Annual Family Income in the Post-mining period*				
	Below 50000	*50000-1 lakh*	*1 lakh-1.5lakh*	*Above 2 lakh*	*Total*
General	5 (3.3)	0	29 (19.3)	6 (4)	40 (26.6)
OBC	18 (12)	3 (2)	58 (38.6)	6 (4)	85 (56.6)
SC	6 (4)	5 (3.3)	10 (6.6)	3 (2)	24 (16)
ST	0	0	1 (.6)	0	1 (.6)
Total	29 (19.3)	8 (5.3)	95 (65.3)	15 (10)	150 (100)

Source: Authors' Own Compilation

According to the tables above, mining has a positive impact on the annual income of families in mining-affected villages. Prior to mining, the majority of households reported being low-income. However, the family's annual income changes dramatically after mining. In thepre-mining period, the majority of46 per cent were earning 20000 – 30000 categories. But in the post-mining period, the majority of 65.3 per cent off amiliesearned 1 lakhs – 1.5 lakhs category. Further, it is clear from the table that both General and OBC are more dominant caste in mining villages and earn more than SC and ST households. Particularly, OBC households are the dominant caste, and they are earning more than other households in the mining villages. But across caste and communities,all are monetarily benefitted because of coal mining operations in the region. The scenario shows 82 per cent of households earn below 30000 but in the post-mining era the figure has significantly come down and now to 19 per cent.

A huge contrast is found between households' annual income in mining villages and control villages. This is because the majority of the households from the mining villages are employed in mining and has a higher income than other non-mining sources of income. Whereas in control villages families practice agriculture and farm wage labour. The control village also has a similar representation to mining-affected villages i.e., both General and OBC caste are dominating on others. The caste wise annual income status is given below.

Table 7: Annual Family Income in the Control Villages (Figures in Bracket %)

Caste of the Households	*Total Annual Family Income in the Control Villages*				
	Below 25000	*25000-50000*	*50000- 1 Lakh*	*Above 1 Lakh*	*Total*
General	6 (4)	21 (14)	12 (8)	5 (3.3)	44 (29.3)
OBC	2 (1.3)	33 (22)	28 (18.7)	7 (4.7)	70 (46.7)
SC	1 (.7)	19 (12.7)	9 (6)	2 (1.3)	31 (20.7)
ST	0	5 (3.3)	0	0	5 (3.3)
Total	9 (6)	78 (52)	49 (32.7)	14 (9.3)	150 (100)

Source: Authors' Own Compilation

Thus, the introduction of mining has extended financial growth to many households of the locality and the nation by providing work both directly and indirectly in mines. Thus, it has resulted in increased purchase ability among the households. Also, mining created infrastructural development in the region.

5.5. Possession of Physical Assets

Physical assets involve the essential physical services and product units expected to construct sustainable livelihood. The significant part of physical services, which are typically necessary for sustainable livelihood are reasonable conveyance, secure shelter and buildings, adequate water supply and hygiene, clean cheap energy, and access to information. Table 8 presents the effect of mining on physical capital assets. Here, mining affects physical resources in a mixed way. As the past segment appears, mining has a constructive effect on the annual income of the individuals. Thus, the family unit's ability to keep durable assets in the home is likewise more.

Possession of assets such as motorcycles, tractors, television, cycle, bullock cart, pump set, TV, etc. is higher in mining villages than in control villages.There are fewer households having livestock in pre-mining villages than in post-mining villages. Besides, it found that possession of livestock is less in post-mining villages compared to control villages. In the post-mining period, no grazing land was available for livestock rearing, as mining has claimed all lands. Hence, only 46 per cent of households owned livestock in mining villages compared to 58 per cent in control villages. As agriculture is not practised as a primary occupation in mining villages, the possession of the assets i.e. ploughs, and livestock are very low. Likewise, a few households(11.33per cent) in the mining village own pump sets, as they engage in agriculture, while in the control villages, the percentage is less than one as they have less annual income.

The percentage of households possessing tractors as an asset is more in mining villages, as they engage in commercial purposes i.e., in mines and carrying of construction materials. Most households own TV, which is more in mining villages than in control villages. Also, it is evident that most households in mining villages own motorcycles, as they have a better financial condition than control villages.

Table 8: Possession of Assets by Households

Assets	*Before Mining*	*After Mining*	*Control village*
Cycle	124 (82.6)	136 (90.6)	117 (78)
Motor cycle	31 (20.6)	95 (63.3)	9 (6)
Tractor	5 (3.3)	11 (7.3)	0
Pump set	17 (11.33)	6 (4)	1(.6)
Plough	59 (39.3)	20(13.3)	79 (52.6)
Bullock cart	57 (38)	11 (7.3)	43 (28.6)
TV	38 (25.3)	115 (76.6)	24 (16)
Livestock	95 (63.3)	69 (46)	87 (58)

Source: Authors' Own Compilation

5.6. Landholding Size

Land is another vital physical asset and source of livelihood for many households. Table 10 presents that the percentage of sample households' land ownership in mining villages is lower in the post-mining period than in the pre-mining period, as land is acquired for the expansion of mines by MCL Since a majority of households in control villages rely on agriculture, the percentage of household's land holding is more than mining villages. Most all the landholding households got landless because of mining. Around 94 per cent of households became landless (Table 10).

Table 10: Landholding Size of Sample Households (Figures in Bracket %)

Landholding size	*Mining village*		*Control village*
	Pre	*Post*	
Landless	42 (28)	141 (94)	28 (18.6)
Less than I acre	24 (16)	4 (2.6)	52 (36.6)
1-2.5 acre	50 (33.3)	5 (3.3)	61 (40.6)
2.5-5acre	20 (13.3)	—	8 (5.3)
5-10acre	10 (6.6)	—	1 (.6)

Source: Authors' Own Compilation

6. Conclusion and Policy Implication

In view of above, it is understood that rural livelihood at Talcher coalfield is going through a change. Mining led displacement has directly benefitted people from monetary perspective. In the pre mining period people have diversified sources of livelihood. But in the post mining phase, it has witnessed considerable modification. But it has impacted the rural livelihood pattern. It likewise finds that mining has increased the financial and off-farm assets of families. Yet, it has severely affected natural, human and social capital. With the start of coal mining, the economy and way of life have risen however individuals endure socially and ecologically. The constructive outcome of mining has changed numerous rich, however, the absence of access to natural assets is making few vulnerable. Mining led displaced has acquired all the agricultural patches. So earlier a producer now becomes a consumer and depends on the market. Because of exhaustion in forest assets, the job of the women is declined as they can't gather MFP and add to their family income. It is observed that in the wake of mining, significant increase in service opportunities for mining. Numerous local people who were denied employment as remuneration were functioning as wage labourers in mines, as the pay is higher than others. The families having land possession are eligible for compensation and rehabilitation; hence the landless families got no advantage and are left denied. The advantages of mining are short term. After mining they won't have their employments and cultivation will not be possible, as lands will not be in a condition for cultivation. The present research clearly reflected that mining has positive impact on the monetary aspect of the project affected communities. Simultaneously it has narrow down the conventional sources of rural livelihood in Talcher coalfield region.

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A Study on the Investors' Perception Related to M&A on Shareholders' Wealth and Profitability of Banks in India

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G11, G21, G30, G34

Abstract: The purpose of this research is to understand investors' perceptions related to M&A on shareholder's wealth as well as profitability with reference to Indian banks. A total of 219 investors in India's banking sector made up the study's population. The study used an online questionnaire to gather quantitative data, which was then processed using the statistical software SPSS. According to the report, mergers and acquisitions in the banking industry boost shareholder value. Investors had a different perspective of shareholders' wealth after mergers and acquisitions, according to Income and qualification. This paper will focus on different individual perception towards Shareholders wealth and profitability of Banks according to the demographic factors. This paper will benefit the Acquiring Companies to understand investors' perception of their shareholders' wealth post announcement of M&A. Accordingly the Policy makers can frame policies post studying the perception of Investors.

1. Introduction

Around the globe, mergers & acquisitions have a significant impact on how businesses operate. M&A provides businesses with an inorganic growth that spans national and international boundaries. According to Kumar (2009) Takeovers, mergers, acquisitions, and other forms of restructuring are frequently used to reduce competition. M&A are becoming more common across all industries. Mergers and acquisitions are motivated by a variety of factors, including the creation of value for the shareholders of acquiring companies and different stakeholders, as well as creating synergy (Kwoka and Pollitt, 2010). As a result, shareholder value has increased. However, the findings of this study reveal that not all mergers and acquisitions add value to shareholders. The target company's shareholders benefit greatly, especially if the acquirer pays a premium to compete with other acquirer as well to motivate target company shareholder for M&A (Teti and Tului, 2020). The acquirers, on the other hand, see their stock price underperform in the months after the purchase, with no major long-term gains. Business success is not only a solitary endeavor, but a collective initiative aimed at achieving a common goal of shareholder wealth and profitability maximization.

Business organizations are increasingly using M&A as a key strategy to fully satisfy and meet client expectations in today's fast-paced commercial market (Pathak, 2016). Because of their ongoing restructuring initiatives, including mergers and acquisitions, major financial firms still exist today (Mohapatra and Jha, 2018). Businesses engage in mergers and acquisitions for a variety of reasons, including the expansion of company prospects, the reducing of risk, and the development of market power. To generate economies of scale, promote product and market diversity, and replace management teams who are ineffective, mergers and acquisitions have been used by many organizations (Pawaskar, 2001).

2. Review of Literature

The performance of regional rural banks (RRBs) in India was examined by Chaudhary *et al.* (2021). All the chosen profitability proxies, except for ROE after amalgamation and before amalgamation, indicate no statistically significant change. The panel data technique indicates a favorable and considerable impact of the merger on the profitability (ROE) of RRBs and demonstrates that equity return significantly increased in the post-merger period.

Badreldin and Kalhoefer (2009). studied Egyptian banks from 2002 to 2007 and concluded that there was no significant improvement in ROE as compared to pre-M&A deal. While the profitability of the banks did not improve, there was a slight improvement in credit risk.

Fiordelisi and Molyneux(2010) used samples of European banks from 1998 to 2005 for their investigation of the elements that contribute to the generation of shareholder value. Economic development, company expansion, and efficient capital allocation can all have an impact on the bank's performance. Using dynamic panel data, where different industries, macroeconomic conditions, and bank-specific features are linearly coupled, the bank's shareholder value is modelled. It indicates that increases in cost efficiency have a positive link with shareholder value, and changes in revenue efficiency have a positive association with economic gains. It has been established that bank performance is impacted by leverage, credit losses, liquidity risk, and market risk.

Hanvanich *et al.* (2005)created a joint ventures theory that considers the relationship between the job and the effects of national cultures as well as the impact of shareholder value generation on technology. To learn how the parents of the US partner affected the creation of shareholder value in a joint venture, an event-study methodology was adopted. The findings highlight the intricate relationship between knowledge type, national cultural differences, and work relevance.

De Beule and Sels (2016) have researched the significance of a developing market's ability to absorb developed market share while simultaneously generating shareholder value. It calculates the anomalous cumulative return of listed Indian companies that have made cross-border acquisitions in Europe, focusing on the level of acquirer research. The outcome demonstrates a U-shape association between the cumulative abnormal return and the level of Indian buyers' inquiry into European acquisitions. Although firms with excellent capacity in research lead the competitors of India, the firm could access advanced targets that have no capacity in research that could satisfy from the acquisition.

This is because the firm's capacity has adsorption, which exploits and explores the knowledge based on target acquired.

Teti and Tului (2020) examined the Abnormal Returns of targeted companies, which had a statistically significant positive impact, compared to the positive but non-statistically significant CAARs earned by acquire firms, using samples from a global dataset of record infrastructure companies from 1997 to 2017—80% of which were utilities. The result shows how restructuring, which profoundly defined the 20 years by altering the environment's architecture and encouraging the spread of mergers and acquisitions, had an impact.

The effect of sentiment on market return in India was studied by Rohilla and Tripathi (2022). The findings suggest that investors get higher returns during bullish sentiments and vice versa. When sentiment is negative, they lose their money, which might cause a snowball effect. Asset pricing and return models like CAPM, the three- and five-factor Fama-French models, and the four-factor Carhart model should take market sentiment into account.

Colombo and Turati (2014) focused on all merger and acquisition (M&A) activities that took place in the Italian banking industry between 1995 and 2006 that had a regional impact. It wasclearly evident that regional economic and social factors have a significant direct impact on both the concentration of the banking sector in Italy and the concentration of acquiring banks in agglomerations in highly developed regions.

The performance impact of post-merger mergers and scarce determinants have been explored by Kiesel *et al*. (2017). It examines the performance based on long-term and short-term abnormal shareholder returns using 826 samples of transaction announcements that took place between 1996 and 2015. It has been discovered that the service offered affects how well acquiring companies function after a merger. While sea freight carriers have little impact and CEP firms have no impact, short-distance railway, term trucking, air cargo, and 3PL companies have atypical returns as positive. Long-term returns are abnormal for 3PL and the railroad firms, whereas losses are experienced by CEP and no returns are seen in trucking, air cargo, or sea freight. Overall, full-service providers outperform diversified transactions when focus expanding transactions of specialized operators are included.

Boubaker *et al*. (2014) claim that Going Private Transactions (GPTs) announcements have resulted in an accumulation of average anomalous returns, with the pre-transaction shareholders' averages being paid as a raw premium. The rise in shareholder value of GPTs will have an effect on the increasing potential value created by private ownership.

A technique for evaluating supply chain integration called the "industry exchange effect on calculating shareholder value" has been looked into Mitra and Singhal (2008).Along with the worth of the shareholders' influence, the importance of the stock market's reaction or unexpected returns associated to joint industry exchanges or announcements to form are analyzed. It was shown that the successful outcome shows anomalous returns from the industry engagement.

3. Objectives and Hypotheses of the Study

3.1. Objectives of the Study

- To study investors' perception towards shareholders value post Mergers and Acquisitions of Banks based on Demographic factors.

- To study the investors' perceptions towards profitability of Banks post Mergers and Acquisitions of Banks based on Demographic factors.

3.2. Hypotheses of the Study

H01: There is significant difference between investors perception towards shareholders value post Mergers and Acquisitions of Banks based on Income.

H02: There is a significant difference between investors perception towards shareholders value post Mergers and Acquisitions of Banks based on Qualification.

H03: There is significant difference between investors' perceptions towards profitability of Banks post Mergers and Acquisitions based on Income.

H04: There is significant difference between investors' perceptions towards profitability of Banks post Mergers and Acquisitions based on Qualification.

4. Research Methodology

Utilizing digitally delivered questionnaires to the respondents, statistical research design is used. The questions were presented as statements that required the respondent to assess their impression and assign a score using a Likert scale. The questionnaires are divided into two sections. The demographic information comes first, followed by the primary body of the research, or several claims. As a sampling technique, convenience sampling is employed. The sample size for the study is made up of 219 investors. Frequency, mean, and one-way ANOVA are the analytical methods employed in this study.

5. Data Analysis and Interpretation

Table 1: Income

		Frequency	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	1	71	32.4	32.4	32.4
	2	33	15.1	15.1	47.5
	3	60	27.4	27.4	74.9
	4	35	16.0	16.0	90.9
	5	20	9.1	9.1	100.0
	Total	219	100.0	100.0	

Source: Authors' Own Compilation

Table 2: Qualifications

		Frequency	*Percent*	*Valid Percent*	*Cumulative Percent*
Valid	1	41	18.7	18.7	18.7
	2	119	54.3	54.3	73.1
	3	10	4.6	4.6	77.6
	4	49	22.4	22.4	100.0
	Total	219	100.0	100.0	

Source: Authors' Own Compilation

Table 3: Cronbach Alpha Score

Sr. No	*Independent Variable*	*Questions Asked*	*Cronbach Alpha Score*	*Test Result*
1	Shareholders wealth	6	0.90	Satisfied
2	Profitability	6	0.838	Satisfied

Source: Authors' Own Compilation

The Cronbach Alpha Score for both the variable is more than 0.7. Thus, we can conclude that the scale is reliable and satisfactory.

H01: There is significant difference between investors perception towards shareholders value post Mergers and Acquisitions of Banks based on Income.

F-test is applied to test the above null hypothesis using ANOVA Table 3 Results are as follows.

Table 4: ANOVA

Shareholders Wealth

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	10516.244	4	2629.061	13.941	.000
Within Groups	40357.300	214	188.586		
Total	50873.544	218			

Source: Authors' Own Compilation

5.1. Interpretation

The above table shows that on the basis of different level of income, most of the Investors are having the perceptions that post Mergers and Acquisitions, Prices of shares will increase, demand for shares will increase, increase in EPS, Dividend issued will raise, Frequency of Dividend will increase, Investors Voting power will dilute.

The p-value (Sig.) calculated using Anova Table for F-test is 0.000 which is very low as compared than standard 0.05. Hence null hypothesis is rejected. The POST HOC test is applied to test difference between perceptions towards shareholders wealth in every group (Income) is significant or not.

H02: There is a significant difference between investors' perception towards shareholders' value post Mergers and Acquisitions of Banks based on Qualification. F-test is applied to test the above null hypothesis using ANOVA recorded in table 5.

Table 5: POST HOC TEST (Multiple Comparisons)

Dependent Variable: Shareholders Wealth LSD

(I) Income	*(J) Income*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*	*95% Confidence Interval*	
					Lower Bound	*Upper Bound*
Upto 3lakhs	3-5 lakhs	12.96018535541*	2.89324151737	.000	7.2572844294	18.6630862814
	6-8 lakhs	13.59221998745*	2.40815818690	.000	8.8454722750	18.3389676999
	9-11 lakhs	16.27249209633*	2.83624601857	.000	10.6819356396	21.8630485530
	12 lakhs and above	1.21126760612	3.47640757138	.728	-5.6411184941	8.0636537063
3-5lakhs	Upto 3 lakhs	-12.96018535541*	2.89324151737	.000	-18.6630862814	-7.2572844294
	6-8 lakhs	.63203463205	2.97620637287	.832	-5.2343992546	6.4984685187
	9-11 lakhs	3.31230674093	3.33209693716	.321	-3.2556270435	9.8802405254
	12 lakhs and above	-11.74891774929*	3.89152773639	.003	-19.4195518800	-4.0782836186
6-8lakhs	Upto 3 lakhs	-13.59221998745*	2.40815818690	.000	-18.3389676999	-8.8454722750
	3-5 lakhs	-.63203463205	2.97620637287	.832	-6.4984685187	5.2343992546
	9-11 lakhs	2.68027210888	2.92083025421	.360	-3.0770092869	8.4375535047
	12 lakhs and above	-12.38095238133*	3.54575344580	.001	-19.3700269153	-5.3918778474
9-11lakhs	Upto 3 lakhs	-16.27249209633*	2.83624601857	.000	-21.8630485530	-10.6819356396
	3-5 lakhs	-3.31230674093	3.33209693716	.321	-9.8802405254	3.2556270435
	6-8 lakhs	-2.68027210888	2.92083025421	.360	-8.4375535047	3.0770092869
	12 lakhs and above	-15.06122449021*	3.84934190780	.000	-22.6487056593	-7.4737433212
12lakhs and above	Upto 3 lakhs	-1.21126760612	3.47640757138	.728	-8.0636537063	5.6411184941
	3-5 lakhs	11.74891774929*	3.89152773639	.003	4.0782836186	19.4195518800
	6-8 lakhs	12.38095238133*	3.54575344580	.001	5.3918778474	19.3700269153
	9-11 lakhs	15.06122449021*	3.84934190780	.000	7.4737433212	22.6487056593

*. The mean difference is significant at the 0.05 level.
Source: Authors' Own Compilation

Table 6: ANOVA Shareholders Wealth

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	3170.033	3	1056.678	4.762	.003
Within Groups	47703.511	215	221.877		
Total	50873.544	218			

Source: Authors' Own Compilation

The above table shows that on the basis of different level of Qualifications, most of the Investors are having the perceptions that post Mergers and Acquisitions, Prices of shares will increase, demand for shares will increase, increase in EPS, Dividend issued will raise, Frequency of Dividend will increase, Investors Voting power will dilute.

The p-value (Sig.) calculated using Anova Table for F-test is 0.003 which is very low as compared than standard 0.05. Hence null hypothesis is rejected. The POST HOC test is applied to test difference between perceptions towards shareholders wealth in every group (Income) is significant or not.

Table 7: Post Hoc Test- Multiple Comparisons (Dependent Variable: Shareholders Wealth)

(I) Qualifications	*(J) Qualifications*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*	*95% Confidence Interval*	
					Lower Bound	*Upper Bound*
Graduate	Postgraduate	-1.03651216657	2.69743212537	.701	-6.3533103636	4.2802860305
	Diploma	16.83623693405*	5.25350443103	.002	6.4812691021	27.1912047660
	Ph.D.	-2.13752399950	3.15273326834	.499	-8.3517476677	4.0766996687
Postgraduate	Graduate	1.03651216657	2.69743212537	.701	-4.2802860305	6.3533103636
	Diploma	17.87274910062*	4.90430326572	.000	8.2060774110	27.5394207902
	Ph.D.	-1.10101183293	2.52836088735	.664	-6.0845606240	3.8825369581
Diploma	Graduate	-16.83623693405*	5.25350443103	.002	-27.1912047660	-6.4812691021
	Postgraduate	-17.87274910062*	4.90430326572	.000	-27.5394207902	-8.2060774110
	Ph.D.	-18.97376093355*	5.16873074482	.000	-29.1616348180	-8.7858870491
Ph.D	Graduate	2.13752399950	3.15273326834	.499	-4.0766996687	8.3517476677
	Postgraduate	1.10101183293	2.52836088735	.664	-3.8825369581	6.0845606240
	Diploma	18.97376093355*	5.16873074482	.000	8.7858870491	29.1616348180

Source: Authors' Own Compilation

H03: There is significant difference between investors' perceptions towards profitability of Banks post Mergers and Acquisitions based on Income

To test the above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

Table 8: ANOVA

	Sum of Squares	*df*	*Mean Square*	*F*	*Sig.*
Between Groups	12935.449	4	3233.862	21.273	.000
Within Groups	32532.224	214	152.020		
Total	45467.673	218			

Source: Authors' Own Compilation

The above table shows that on the basis of different level of Income, most of the Investors are having the perceptions that post Mergers and Acquisitions, market share will enlarge, Net and Gross profit will increase and also number of clients will increase.

The p-value (Sig.) calculated using ANOVA Table for F-test is 0.000 which is very low as compared than standard 0.05 (5% significance level). Hence null hypothesis is rejected. POST HOC test is applied to test the difference between perceptions towards shareholders wealth in every group (Income) is significant or not.

Table 9: Post Hoc Test-Multiple Comparisons (Dependent Variable: Profitability LSD)

(I) Income	*(J) Income*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*	*95% Confidence Interval*	
					Lower Bound	*Upper Bound*
Upto 3lakhs	3-5lakhs	13.6723371*	2.5976493	.000	8.552081	18.792593
	6-8lakhs	18.1918176*	2.1621252	.000	13.930028	22.453607
	9-11lakhs	16.4231101*	2.5464768	.000	11.403721	21.442499
	12 lakhs and above	10.9537223*	3.1212353	.001	4.801420	17.106024
3-5lakhs	Upto 3lakhs	-13.6723371*	2.5976493	.000	-18.792593	-8.552081
	6-8lakhs	4.5194805	2.6721379	.092	-.747601	9.786562
	9-11lakhs	2.7507730	2.9916684	.359	-3.146138	8.647684
	12 lakhs and above	-2.7186147	3.4939442	.437	-9.605567	4.168338
6-8lakhs	Upto 3lakhs	-18.1918176*	2.1621252	.000	-22.453607	-13.930028
	3-5lakhs	-4.5194805	2.6721379	.092	-9.786562	.747601
	9-11lakhs	-1.7687075	2.6224194	.501	-6.937788	3.400373
	12 lakhs and above	-7.2380952*	3.1834964	.024	-13.513121	-.963070
9-11lakhs	Upto 3lakhs	-16.4231101*	2.5464768	.000	-21.442499	-11.403721
	3-5lakhs	-2.7507730	2.9916684	.359	-8.647684	3.146138
	6-8lakhs	1.7687075	2.6224194	.501	-3.400373	6.937788
	12 lakhs and above	-5.4693878	3.4560683	.115	-12.281683	1.342907
12 lakhs and above	Upto 3lakhs	-10.9537223*	3.1212353	.001	-17.106024	-4.801420
	3-5lakhs	2.7186147	3.4939442	.437	-4.168338	9.605567
	6-8lakhs	7.2380952*	3.1834964	.024	.963070	13.513121
	9-11lakhs	5.4693878	3.4560683	.115	-1.342907	12.281683

Source: Authors' Own Compilation

H04: There is significant difference between investors' perceptions towards profitability of Banks post Mergers and Acquisitions based on Qualification.

To test the above null hypothesis ANOVA is obtained and F-test is applied. Results are as follows.

Table 10: ANOVA (Profitability)

	Sum of Squares	*Df*	*Mean Square*	*F*	*Sig.*
Between Groups	4075.416	3	1358.472	7.056	.000
Within Groups	41392.257	215	192.522		
Total	45467.673	218			

Source: Authors' Own Compilation

Table 8 shows that on the basis of different level of Qualifications, most of the Investors are having the perceptions that post Mergers and Acquisitions, market share will enlarge, Net and Gross profit will increase and also number of clients will increase.

The p-value (Sig.) calculated using ANOVA Table for F-test is 0.000 which is very low as compared than standard 0.05. Hence null hypothesis is rejected. The POST HOC test is applied to test difference between perceptions towards shareholders wealth in every group (Income) is significant or not

Table 11: Post Hoc Test- Multiple Comparisons (Dependent Variable: Profitability LSD)

(I) Qualifications	*(J) Qualifications*	*Mean Difference (I-J)*	*Std. Error*	*Sig.*	*95% Confidence Interval*	
					Lower Bound	*Upper Bound*
Graduate	Postgraduate	5.3611689*	2.5126668	.034	.408554	10.313784
	Diploma	20.9337979*	4.8936565	.000	11.288112	30.579484
	Ph.D.	8.5956055*	2.9367813	.004	2.807036	14.384175
Postgraduate	Graduate	-5.3611689*	2.5126668	.034	-10.313784	-.408554
	Diploma	15.5726291*	4.5683745	.001	6.568093	24.577165
	Ph.D.	3.2344366	2.3551764	.171	-1.407755	7.876629
Diploma	Graduate	-20.9337979*	4.8936565	.000	-30.579484	-11.288112
	Postgraduate	-15.5726291*	4.5683745	.001	-24.577165	-6.568093
	Ph.D.	-12.3381924*	4.8146895	.011	-21.828230	-2.848155
Ph.D.	Graduate	-8.5956055*	2.9367813	.004	-14.384175	-2.807036
	Postgraduate	-3.2344366	2.3551764	.171	-7.876629	1.407755
	Diploma	12.3381924*	4.8146895	.011	2.848155	21.828230

Source: Authors' Own Compilation

6. Results and Discussion

It has been found that on the basis of different level of income, most of the Investors have different perceptions towards shareholders wealth post Mergers and Acquisitions. It can be said that a lot of investors have mixed understanding related to impact on the share price, demand for shares, EPS, Dividend, Frequency of Dividend and Investors Voting power.It has been observed that on the basis of different levels of Qualifications, most of the Investors have different perceptions towards shareholders wealth post Mergers and Acquisitions. It can be said that a lot of investors have mixed understanding related to impact on the share price, demand for shares, EPS, Dividend, Frequency of Dividend and Investors Voting power.

It is analyzed that on the basis of different level of Income, most of the Investors have different perceptions towards profitability post Mergers and Acquisitions. It can be inferred that lot of investors have mixed understanding related to impact on market share, Gross and Net profit and solvency position. It is noted that on the basis of different level of Qualifications, most of the Investors have different perceptions towards profitability post Mergers and Acquisitions. It can be inferred that a lot of investors have mixed understanding related to impact on market share, Gross and Net profit and solvency position.

7. Conclusion

From the above study it has been concluded that Post Mergers and Acquisitions, Investors have a different perception towards shareholders' wealth and profitability according to Income and qualification.

There is a significant difference in Investors' perceptions according to Income and Qualifications towards shareholders wealth post Mergers and Acquisitions. Investors with different income levels and qualifications have different perceptions towards shareholders' wealth. Also, there is a significant difference in Investors 'perceptions according to Income and Qualifications towards profitability post Mergers and Acquisitions. Investors with different income level and qualification has different perception towards Profitability.

Thus, it is necessary for investors to do in-depth analysis using historical data to understand the impact on the shareholders wealth as well as on the profitability of the company post M&A. The investor should also examine the underlying reason of M&A along with its long-term impact on the acquiring company.

Also, companies who are planning to go for Merger or Acquisition should thoroughly review the price paid to target company as well as analyze the synergies that will impact the shareholder wealth. It is important for acquiring a company to build confidence among shareholders by clearly disseminating the deal information. This will eventually lead to positive impact on the Shareholders wealth.

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Impact of Organizational Commitment on Organizational Citizenship Behaviours: An Empirical Analysis

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Organizational citizenship behaviour, Affective commitment, Continuance commitment, Normativecommitment, Work attitude

JEL Classification

C12, C83, D23, O15

Abstract: The aim of this particular research is to investigate and understand the association between Organizational Commitment (OC) and Organizational Citizenship Behaviour (OCB). The elements of organizational commitment are categorized as affective, normative and continuance. All these three components has been considered and measured in this study. The Organizational Citizenship Behaviour scale used here measures all its five dimensions such as altruism, conscientiousness, courtesy, sportsmanship and civic virtue. Dataset of 167 members, under four different sectors belonging to 28 organizations in India is taken for the study. The method of data collection employed here is through the use of a questionnaire. Results show that the elements of organizational commitment are significantly and positively related to the five dimensions OCB (p value < 0.01). However only the Affective Commitment and in some cases Normative Commitment affects the five dimensions of OCB (p value < 0.01). Various implications of the analysis outcome has been discussed.

1. Introduction

Organizations now-a-days are extremely careful about the shifting work attitude and mindset of their people. Organizations believe that the work related attitudes play major role in driving positive behaviour among employees. These positive employee behaviours are the source of overall performance growth of everyorganization and their people. One of such vital work attitudes is Organizational Commitment (OC), which has made its place in organizational behavior research. Committed individuals are deemed more inclined to remain with the organization for an extended duration as well as fundamentally work towards organizational goal accomplishment (Ostroff, 1992; Mowday *et al.*, 1982).Organizational commitment is looked upon as the strong aspiration of an individual to stay with the organization, readiness and willingness to exercise significant effort in support of the company, while accepting its major goals and values from core (Porter and Lawler, 1968). A review of twenty seven studies stated that the correlation between commitment and performance is most prominent among newly hired employees and significantly less prominent among those with more experience (Wright and Bonet, 2002). The practical application of organizational commitment provides solutions to address significant workplace behaviors, such as employee turnover and absenteeism. Alongside OC triggers a lot of positive behaviours amid the employees. In accordance with the definitions of organizational commitment, an employee's level of commitment not only ensures their continued tenure with the company, but also facilitates their participation in positive and constructive organizational behaviors and activities (Steyrer *et al*, 2008). One of such positive behaviours among employees are the organizational citizenship behaviours. Organizational citizenship behaviour represents the actions and behaviours in which individuals are willing to exceed their assigned duties or responsibilities. Organizations are constantly looking for people whom they can depend on and who can influence the environment with more positive behaviours like OCBs. This positive behavior can be seen as the outcome of a healthy work culture, a friendly work environment, HR policies that prioritize employees' well-being, and work-life balance practices that organizations adopt (Volety and Nayak, 2022). Organizations which have employees exhibiting such behaviours outperform those that don't.

Elevated levels of Organizational Citizenship Behavior (OCB) can contribute to increased organizational efficiency and aid in the acquisition of new resources for the organization (Organ, 1988). Hence to make an organization outperform through its workforce, organizations need to enhance and encourage the citizenship behaviour among its people. The colossal research done in the last 20 years even concludes that both organizational and individual performance enhances with more involvement with OCBs (Organ and Lingl, 1995).The question that arises here is how will the employees of any organization exhibit OCBs? As OCBs are considered to be extra-role behaviours, they are neither mentioned in the job description nor enforced by any organization through their Code of Conducts. Considering the existing literature, it has been established that OCB towards an employer is anassured outcome of various positive experiences like satisfaction, trust, leadership, justice which employees undergo during their journey with the organization.One of the strongest drivers of OCB is considered to be irrepressible employee commitment towards their job and organization as a whole. The aim of this research study is to examine the relationship and the degree of its influence between organizational commitment and organizational citizenship behavior. This examination can assist organizations in developing strategies to enhance commitment and encourage citizenship behaviors among their employees.

2. Review of Literature

2.1. Organizational Commitment (OC)

The level of organizational commitment can have a significant impact on an employee's work behavior (Mayer and Allen, 1997). There is an argument that employees who are committed are more inclined to exhibit behaviors that contribute to their own growth and benefit the organization. Organizational commitment is defined as the attitude of people and high level of identification toward the organization's values and goals. It is evaluated by considering the individual's level of skill and participation within a specific organization (Mowday *et al.*, 1982). Various forms of commitment, such as family and career commitment, can have an impact on an employee's workplace behavior.

The three elements of organizational commitment constitute namelycontinuance, affective, and normative commitment (Allen and Meyer, 1991). The affective component also referred as the emotional aspect of organizational commitment pertains to an employee's level of identification, attachment, and involvement with the organization. It means that people stay with the organization as they want and enjoy their stay.They also cherish their relationship with their organization. Consequently, when employees have a strong sense of commitment to the organization's values and feel a deep emotional connection to it, they tend to take ownership of the organization's goals, resulting in increased productivity and lower job turnover rates. Among the different types of commitment, affective commitment is considered the most desirable component (Sinclair *et al.*, 2005; Murphy, 2009). The continuance component refers to commitment based on the costs that the employee associates with leaving the organization. Continuance commitment is associated with the inclination to remain with an organization due to the costs of leaving or the advantages of staying (Meyer and Allen, 1997). Consequently, employees who possess a high level of continuance commitment may not be fully engaged in their work. As a result, this type of commitment is generally regarded as less favorable compared to other components of commitment (Murphy, 2009). Finally, the normative component pertains to an employee's sense of obligation to remain with the organization, reflecting their responsibility as a member of the organization. This type of commitment arises from the perception that the organization has treated the employee well, thus creating a sense of reciprocity and a desire to behave in a manner that reflects that treatment (Meyer *et al*, 2002).Organizational commitment involves a readiness to exert additional effort for the betterment of the organization, as well as a deep-seated desire to maintain membership in the organization (Mowday *et al.*, 1979). Organizational commitment is also one of the direct and indirect factors that influence job satisfaction among the individuals along with many other positive feelings in an organizational setup (Rakatu *et al.*, 2021).The cultivation of organizational commitment occurs when both the employee and the organization share a mutual interest in sustaining their professional association(Davenport, 1999). Therefore, it is reasonable to expect a positive correlation between OC and OCB (Allen and Meyer, 1991). Organizational commitment is often cited as a precursor to OCB (Schaubroeck and Ganster, 1991; Schappe, 1998; Ngunia *et al.*, 2006).

2.2. Organizational Citizenship Behaviors (OCB)

OCBaccording to Organ (1988) is the "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization".Research suggests that employees who possess an emotional attachment to their organizations tend to exhibit greater Organizational Citizenship Behavior (OCB) (Meyer *et al.*, 2002). OCB refers to functional, pro-social, and extra-role organizational behaviors aimed at assisting individuals, groups, or the organization as a whole. These helpful behaviors are not formally mandated by the organization, and there are no direct rewards or punishments associated with them. According to Organ, it is too broad to define Organizational Citizenship Behaviour (OCB) exclusively as actions that are not officially acknowledged, given that only a small number of "in-role" behaviors are genuinely guaranteed to receive formal recognition.In the same context the broader construct of "extra-role behavior" (ERB) is defined as "behavior which benefits the organization and/or is intended to benefit the organization, which is discretionary and which goes beyond existing role expectations" (Dyne *et al.*, 1995).

According to Organ (1988) OCB is composed of five factors namely altruism, courtesy, conscientiousness, sportsmanship and civic virtue. The first factor, altruism points tothe helping nature of an individual towards any coworker on performance of any task or solving problems. The second factor, courtesy, pertains to an employee's effort to notify other members of the employment about any alterations that may create an impact on their daily task. This helps in creating internal acceptance and prevents work related problems.Conscientiousness, the third factor of OCB, involves fulfilling one's responsibilities beyond the minimum expectations. For instance, an employee who strives to boost profitability by working more and resting less is an example of conscientious behavior.The fourth factor,sportsmanship reflects refraining from complaining about trivial mattersand practicing more tolerance and forgiveness. Civic virtue is the fifth and final factor of OCB, which pertains to involvement in the governance of the organization. It assists in presenting a positive image of the organization to external parties by recognizing environmental opportunities and threats, even if it incurs personal costs (Mackenzie *et al.*, 1993; Bell and Menguc, 2002).

3. Conceptual Framework

Becker's (1992) research provides evidence for a substantial correlation between commitment and OCB. Accordingsignificant link exists between the quality of the relationship between a supervisor and subordinate and the level of commitment and altruistic organizational citizenship behaviordisplayed by the subordinate (Truckenbrodt, 2000). When employees are satisfied with their job or have a strong commitment to their organization, they are more inclined to exhibit behaviors that go beyond their job requirements. (Bolino *et al.*, 2002). Previous studies have provided data establishing the strong and positive relation between affective and normative commitment with employee outcomes like citizenship behaviour and performance and negative relation of these with continuance commitment (Shore and Wayne, 1993). This current study makes an attempt to look into understanding of the similar relationship in a different demographic scenario. Along with finding the wholesome relation between these two variables the research will also look into the depth of the sub-variables in order to establish or contradict the work done by previous researchers.

Figure 1 shows the conceptual framework of the current study.

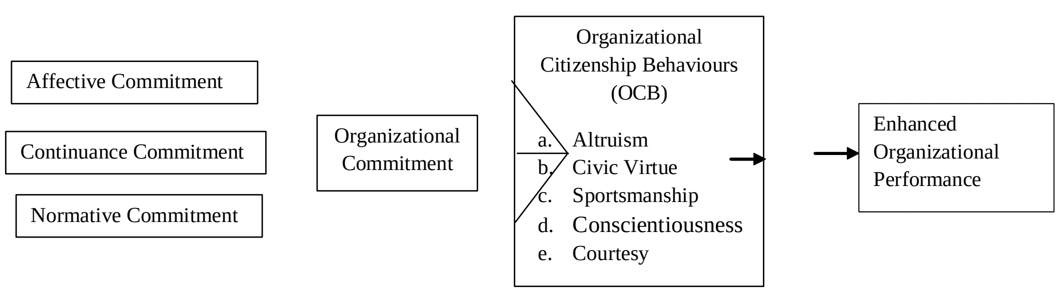

Figure 1: Conceptual Framework

Source: Authors' Own Compilation

4. Objectives and Hypotheses of the Study

4.1. Objectives of the Study

This study has the following two objectives:

- To study the relationship between organizational commitment and organizational citizenship behavior.
- To understand which element of organizational commitment leads to which OCB traits.

4.2. Hypotheses of the Study

Based on the objectives mentioned above, we framed the following alternate hypothesis:

H1a: Organizational Commitment and OCB are related to each other

H1b: Organizational Commitment affects OCB

5. Research Design

This is an empirical study conducted to understand the extent of relationship between Commitment and OCB. The various elements of research design in terms of data collection, sample distribution, measures, toolsand techniques used are mentioned below.

5.1. Variables

The control variables taken for the study are: gender, age, marital status, total job experience and tenure in the current job. The predictor variable taken here is Organizational Commitment considering its three elements Continuance, Affective and Normative Commitment. The criterion variable is Organizational Citizenship Behavior including its five dimensions: altruism, conscientiousness, courtesy, sportsmanship and civic virtue.

5.2. Data Collection and Sample Description

A self-structures questionnaire was used to conduct the research. The questionnaire was emailed to working people in various sectors. A total of 210 responses were received of which only 167 were found usable for the purpose of this research. The sample is spread across four different industries in India – automobile, banking and finance, construction, FMCD. Within these sectors, around 28 organizations were reached out to collect the data for the research.

Age is measured here in years under three categories where the mean is 30.33 and standard deviation is 8.89. In the sample, 47% of the respondents are females and 53% re males.Regarding marital status, 64% are married and 36% are unmarried.Like age, the total job experience and experience in the current job has also been captured in years each under respective categories.The dataset represents a good wide range of distribution under each control variable.

The summary statistics of the sample demographics is presented in the Table 1.

Table 1: Summary Statistics

Variable	*Frequency*	*Percentage (%)*	*Mean*	*Std Dev*
Age				
• 18-25	63	38	30.33	8.89
• 26-35	68	40	Years	Years
• 36 and above	36	22		
Gender				
• Female	79	47	NA	NA
• Male	88	53		
Marital Status				
• Married	107	64	NA	NA
• Unmarried	60	36		
Job Experience (in years)				
• 0-2	59	35		
• 2-5	50	30	5 Years	4.17 Years
• 5-10	28	17		
• 10 and above	30	18		
Job Tenure (in years)				
• 0-2	99	59		
• 2-5	30	18	2.92 Years	2.64 Years
• 5 and Above	38	23		

Source: Authors' Compilation

5.3. Survey Instrument

The present study used a survey tool comprising of three sections. The first and second section required the participants to provide the responses to organizational commitment and organizational citizenship behavior respectively. The third section comprised of the various demographic variables like name, age, gender, job experience, job tenure etc. The first and second section comprised of the tools to measure following variables pertaining to this study.

5.4. Measures

The variables examined in this study are Organizational Commitment (OC) and Organizational Citizenship Behavior (OCB). Three elements of organizational commitment i.e. affective, normative and continuance are measured using the scales developed by Meyer, Allen and Smith (1993). This particular questionnaire contains total 18 items (Annexure – I) with 6 items under each commitment. The responses are collection on a 7 pointer Likert scale ranging from 1 as strongly disagree and 7 as strongly agree.

The dimensions of OCB adopted in this study include: altruism, consciousness, civic virtue, sportsmanship and courtesy (Organ, 1988). The original scale of OCB consists of 24 items. But for this study the modified version containing 15 items (Annexure II) has been used as given by Mohd. Muzamil Kumar, 2015. Every dimension of OCB consists of three items each. The responses are collection on a 5 pointer Likert scale ranging from 1 as strongly disagree and 5 as strongly agree.

5.5. Data Analysis Technique

The Statistical Package for Social Science (SPSS) software version 23.0 was used for data analysis. To examine the relationship between Commitment and OCB, a Pearson's Product Moment Correlation coefficient was calculated. Furthermore, a stepwise multiple linear regression analysis was performed to evaluate the predictive ability of commitment regarding OCB.

6. Results and Findings

The internal consistency and reliability of the instruments used were evaluated by calculating Cronbach's coefficient alphas. Table 2 presents the values obtained. In this study, the alpha values ranged from 0.732 to 0.966, which were above 0.60 and therefore considered acceptable according to the criteria set by Nunnally and Bernstein (1994).

Table 2: Summary of Cronbach's Alpha Reliability Analysis (Full-scale study, n=167)

Variables	*Cronbach's Alpha*
Affective Commitment (AC)	0.732
Continuance Commitment (CC)	0.846
Normative Commitment (NC)	0.868
Altruism (AL)	0.966
Courtesy (CO)	0.93
Civic Virtue (CI)	0.905
Sportsmanship (SP)	0.806
Conscientiousness (CN)	0.911

Source: Authors' Own Compilation

As indicated in table 3, Affective Commitment (AC), Continuance Commitment (CC) and Normative Commitment (NC) are positively correlated with all the dimension of OCB: Altruism (AL), Consciousness (CN), Civic Virtue (CI), Sportsmanship (SP) and Courtesy (CO). Thus, supporting hypothesis H1a. The result is concurrent with available literature (Kim T and Chang K., 2014).

Table 3: Summary of Pearson's Correlation Analysis between Employee Advocacy Readiness and Research Variables

Variables	*AC*	*CC*	*NC*
AL	0.482	0.228	0.329
CO	0.425	0.203	0.249
CI	0.425	0.306	0.384
SP	0.439	0.326	0.244
CN	0.417	0.315	0.463

All correlation values are significant at LOS = 0.01

Source: Authors' Own Compilation

The step-wise multiple linear regression model employed to examine the causal relationship between Organizational Commitment over Organizational Citizenship Behavior. The results of this model are summarized in Table 4.

Table 4 : Summary of Step-Wise Multiple Linear Regression Outputs

Dependent Variables	*Independent Variables*	*Beta Values (β)*	*Adjusted R^2 (ΔR^2)*	*Significant Values*	*Model Significance (F value)*
AL	AC	0.377	0.232	0.000	F value = 49.904 P value = 0.000
CO	AC	0.306	0.180	0.000	F value = 36.298 P Value = 0.000
CI	AC NC	0.211 0.129	0.212	0.000 0.002	F value = 22.104 P Value = 0.000
SP	AC	0.277	0.192	0.000	F value = 39.312 P Value = 0.000
CN	NC AC	0.144 0.113	0.242	0.000 0.000	F value = 27.540 P Value = 0.000

Source: Authors' Own Compilation

The studies in the past show a relationship between OCB and OC but fail to show a significant predictive relation of OC over OCB (Kim, T. & Chang K. 2014; Chib, S., 2016). As seen in Table 4, multiple regression analysis results led to emergence of affective commitment as the significant predictor for all the dimensions of OCB. Hence the research as well shows that the affective commitment is more positive and bring in a positive attitude among these committed employees. Continuance commitment has not emerged as a significant predictor for any dimension of OCB, which was even previously established in different research studies. The normative commitment leads to CI and CN, thus partially supporting hypothesis $H1_b$.

7. Discussion

The outcome reached through this research is the findings of post pandemic mindset and attitude of people from industry. Hence it holds a lot of significance in the current scenario for the organizations to consider and reflect upon. The result of the current study confirms affective commitment significantly impacting the citizenship behaviours among the employees. This is in congruence with the findings of numerous researchdone by Podsakoff *et al.* (2000), Feather and Rauter (2004), Rifai (2005) Sinclair *et al.* (2005) and Murphy (2009). The current study confirms that normative commitment partially impacts OCB which does not match the finding of Bakshi, *et al.* (2011) which states that only normative commitment is the only commitment which positively correlated with OCB, whereas affective and continuance has no significant impact.

Needless to say that still there seems to be little more time required by the Indian corporates to understand, inculcate and encouragethese behavioural competencies among their people.The findings of this study hold significant implications for both Indian organizations and their employees, particularly in the current post-pandemic scenario.The result ones again confirm that people are more emotionally connected to their organizations. This emotional connect in the workplace definitely reflects the interest and understanding of the people and their organizations for each other. In Indian context especially, the organization even becomes the second home for the employees. Also employees connected to their organization due to some obligation tends to stay and work within the boundary of job role and policies. This reflects no additional and accelerating attitude and effort. While considering the implications, few imperative recommendations are also provided.

(i) With the job market opening up, there are many opportunities available for the workforce in 2022-23. As a result, employees are considering switching jobs. Organizations must focus on enhancing the commitment of their talent pool to retain them.

(ii) Organizations that expect employees to go beyond their prescribed job roles should focus on increasing their commitment to the organization, with particular emphasis on affective commitment. Employees often leave their jobs because they feel that their organizations do not take care of them. The current workforce, especially women, is seeking flexible work options in terms of location and time. Therefore, organizations should consider redesigning job roles and increasing employee satisfaction.

(iii) The pandemic has caused increased burnout, stress, and work pressure, which has affected the emotional well-being of employees. As a result, employees now seek instant recognition for their achievements from their employers. Therefore, organizations should consider redefining and redesigning their policies related to employee training, career management, performance evaluation, and recognition.

(iv) Building trust within the organization is crucial for enhancing commitment and engagement among employees. This can be achieved by promoting open communication channels and developing better interpersonal relationships with managers and colleagues. Organizations should also focus on creating a culture of transparency and trust in their systems and processes to encourage employees to engage in extra-role behaviors.

(v) During these demanding times, organizations should prioritize developing emotional bonds with their employees and foster a work attitude that encourages empathy, caring, and generosity. The pandemic has been a challenging period for everyone, and organizations need to be more understanding and supportive towards their employees.

8. Conclusion and Future Scope

As researchers we believe that organizational citizenship behaviour the need of the hour if organizations want to gain a competitive advantage through their people and are to survive. Previous studies also support the thought. High level of commitment by the people impacts the performance of their organization positively. The primary aim of this research was to investigate the association between organizational commitment and organizational citizenship behavior, and to determine whether commitment influences the performance of OCB. The findings indicate a significant positive correlation between OC and OCB, with affective commitment showing a particularly strong influence on the demonstration of OCB.

Certain limitations are evaluated in the current study which can be converted to opportunities for future research in this area. Like many other researches in the areas of commitment and citizenship behaviour, this current study has been conducted covering four major different sectors in India. Hence it will be wrong to generalize the result of this study across sectors and also global framework. As already highlighted in the study that the concept of OCB is much popular in other foreign countries both in research as well as practice. But it is not at all known or popular with the Indian organizational framework. Also the current study did not consider the impact of the different control variables. There may be certain impact of age, gender, work experience as well as academic background on people's work attitude and behaviour. Future research can explore this dimension of the study. The sample size used for this research is very small. Future research may consider a bigger sample size for better interference.

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Annexure – I

Variables	*Items*	*Questions*
Affective Commitment (AC)	AC1	I would be very happy to spend the rest of my career in this organization
	AC2	I really feel as if this organization's problems are my own
	AC3	I do not feel like 'part of my family' at this organization
	AC4	I do not feel 'emotionally attached' to this organization
	AC5	This organization has a great deal of personal meaning for me
	AC6	I do not feel a strong sense of belonging to this organization
Continuance Commitment (CC)	CC1	It would be very hard for me to leave my job at this organization right now even if I wanted to
	CC2	Too much of my life would be disrupted if I leave my organization
	CC3	Right now, staying with my job at this organization is a matter of necessity as much as desire
	CC4	I believe I have too few options to consider leaving this organization
	CC5	One of the few negative consequences of leaving my job at this organization would be the scarcity of available alternative elsewhere
	CC6	One of the major reasons I continue to work for this organization is that leaving would require considerable personal sacrifice
Normative Commitment (NC)	NC1	I do not feel any obligation to remain with my organization
	NC2	Even if it were to my advantage, I do not feel it would be right to leave
	NC3	I would feel guilty if I left this organization now
	NC4	This organization deserves my loyalty
	NC5	I would not leave my organization right now because of my sense of obligation to it
	NC6	I owe a great deal to this organization

Annexure – II

Variables	*Items*	*Questions*
Altruism (AL)	AL1	I willingly help fellow professionals when they have work related problems
	AL2	I willingly help new comers to get oriented towards job
	AL3	I am always ready to lend a helping hand to those around me
Courtesy (CO)	CO1	I always try to avoid creating problems for co-workers
	CO2	I am mindful of how my behaviour affects other people's jobs
	CO3	I don't abuse the rights of others
Civic Virtue (CI)	CI1	I always keep myself abreast of changes in the organization
	CI2	I keep myself updated with organizational announcements & memos
	CI3	I attend meetings that aren't compulsory but help my department anyway
Sportsman-ship (SP)	SP1	I always require frequent doses of motivation to get the work done
	SP2	I usually find fault with what my organization is doing
	SP3	I usually focus on what is wrong rather than positive side of situation
Conscientiousness (CN)	CN1	I obey organizational rules even when no one is watching
	CN2	I don't take extra or long breaks while on duty
	CN3	My attendance at work is above the norm

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A Study of Financial Sustainability under ESG Approach: An Empirical Analysis of Nifty 100 Index Companies

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G3, K4, M0, M4

Abstract: With Securities and Exchange Board of India (SEBI) circular dated 10 May 2021 on business responsibility and sustainability reporting disclosures of listed entities, it is inevitable to undertake a study on the determinants impacting the sustainability of the companies with emphasis on Environment, Society and Governance (ESG) approach. The objective of the paper is to analyze financial sustainability of the Nifty 100 Index Companies for the period 2014-2015 to 2019-2020 with especial focus on ESG phenomenon. The Panel data is modeled in term of regression equation. The variables modeled are capital structure, employee size, size of the business, liquidity, social responsibility, environment, governance and return on asset. The findings are out of eight variables taken into study six are significant and impacting the financial sustainability. The variables employee size, society and governance are positive significant. The variables size, liquidity and environment are negatively impacting the financial sustainability. The findings are relevant both for the corporate world and the government.

1. Introduction

The financial reporting of the corporates are no longer adequately addressing stakeholders, because the financial statements alone do not contain information about the social and environmental aspects of the company's operations (Martínez-Ferrero *et al.,* 2013). Simply sustainability means doing business without adversities for the future generation. The sustainability is a wider term and connotes different concerns including environment, society, governance, stakeholders and government. The Sustainable Development Goals (SDGs) targeted by the United Nation general assembly in 2015 to be achieved by 2030 by the member countries are also emphasizing the environment, society and governance issues inter alia 17 SDGs. The sustainable finance can be expressed as the provision of the financial capital to project business that does not harm economic prosperity, environment and social justice. The different stakeholders viz creditors, suppliers, customers, investors, employees, society at large and government require corporates to be more transparent and accountable as sustainable enterprise. The Indian laws attempting to inculcate the social and environmental responsible behavior of the business houses. ESG (Environmental, Social and Governance) is a term for a set of criteria used to screen potential investments by evaluating firm's behavior on governance parameter and its influence on the environment and society. The approach to management decision making has undergone drastically changed by focusing not only on the financial aspects of business performance but also on the social and environmental issues (Laskar and Maji, 2016). In the lineup number of initiatives are contemplated and made mandatory including mandatory setting aside 2% of profit for CSR activities and SEBI circular on Business Responsibility and Sustainability reporting by Listed Entities No. SEBI/HO/CFD/CMD-2/P/CIR/2021/562 dated 10 May 2021 mandating new disclosures on sustainability. Bondy *et al.* (2012), although opines that the sustainable policy is not a simple and direct task for the governments because there are number of instances of failed policies in the developed countries. In fact it can be assisted through evolving holistic and integrated sustainability programs that targets the major industrial challenges. The present article trying to investigate financial sustainability of the Nifty 100 Index Companies for the period 2014-2015 to 2019-2020 with especial focus on ESG phenomenon.

2. Rationality

The dynamic change in the developing countries including India has given rise to knowledge economy. It is affecting to a great extent the business houses which earlier focusing on tradition approach of accumulating profits over the decades to socially responsible firms which are not only accountable to its stakeholders but also to all its participants in a comprehensive intelligence. It is been widely accepted fact that it is not the only responsibility of state to care for the society, environment and good governance practice. The shift is on PPP models wherein it is the joint responsibility of the state and the Industry to strive for ESG models. The state has the onus to work for socially and environmentally friendly policies. In Indian context one study Gupta (2022) made a sincere attempt to measure growth performance of ESG themed mutual funds and reported that ESG mutual funds have beaten the market returns. The ESG themed mutual funds in fact earned higher returns than their counterparts. The study concluded that ESG investments not only accomplishing sustainability targets but also earning handsome returns. The voluntary observance of Global Reporting Initiative (GRI) based sustainability reporting by Indian corporates proves the relevance for the study of ESG approach affecting the financial sustainability. The topic always remain debatable whether ESG concerned corporate are more sustainable than their counterparts which believe in the profit theory only. Although some scholars may doubt it might impact economic growth and negatively erode the stakeholder's wealth. However the same cannot be accepted. Fox *et al.* (2002) reports that Environmental Tax Reforms (ETR) like initiatives were successful in the strict test of sustainability because of many reasons. The clarity and coherence of the Environmental Tax Reforms that effort towards the implementation and the contribution of the stakeholders. The paper reports that a similar concept of ETR has not achieved desired results in other countries because of the not specific clarity in the guidelines of the regulations. There are countries where we can see the impact is minimal and the firms have started looking at it in coherence. In India we are practicing successful models of CNG motor vehicles, solar and wind energies and very recent in the row are E- vehicles launched in India. The Tata group being the big conglomerate in India is the leading in this row.

The significance can be found from the point of view of government, investor, society and other stake holder who eyes such corporates with respect and believe that their funds are deployed in the corporates who behave responsibly towards to the environment and society. The relevance also been traced when in the very recent time many corporates found concerned for the environment and society.

3. Review of Literature

Every country in the world now talking of the sustainable performance of the corporate firms. The sustainability of the business performance can be measured from different perspective. The question of the hour is will we be able to optimize the performance taking together the care for the environment, society, governance and transparency? Sustainability is a phenomenon that helps to create an active society and a standard of life at the same time preserving the ecology and the environment. It demonstrates the principles that the coming generation should live in a world with the same resources; current generation is living (Clough 2006). Sodhani and Munjal (2020) finds that Sustainability report is the determinant that affect the reporting value. Verma *et al.* (2021) suggested that the reporting of environmental aspects is necessary especially for environmentally sensitive companies on a mandatory basis. The disclosure of CSR aspects and the performance of CSR are related connotation. Companies with significant contribution towards CSR may be more likely to have greater impact on the readability of their reporting. Hidayah *et al.* (2019) examines the factors that impact the sustainability of the corporate disclosure. The article finds that the variable Current Ratio (CR), Size and Audit Committee Meetings have significant effect, while the governance committee and the type of industry effect are not significant. Therefore, it concludes that Companies having bigger size of assets and significant debt capital must disclose the information in a sustainability report. The nature or environment has been the major concern that being depleted by the corporate; so from time to time it has drawn the attention of social activists, environmentalist, local residents and of course the state concerned. Hu *et al.* (2019) worked on whether the air pollutant emission corporate worth the yearly billions environmental input? The various industries are researched to form the opinion that to set different regulations for different industries. Darus *et al.* (2020) examines sensitivity of the corporate towards climate change and the impact of financial structure and corporate governance structure on the reporting of carbon information. The results of the study revealed that carbon information disclosure are the highest and that climate change risks had the lowest disclosure. Further it reported positive association of profitability with carbon disclosure while debt capital is negatively significant. The paper finds that the governance structure variable is insensitive to the disclosure of carbon information. It is equally to worth mentioning that these days the ESG approach is linked to CEO compensation or salary packages. AI-Shaer and Zaman (2019) examine relationship between board level sustainability committees and independent external assurance on the sustainability-related targets in CEO compensation contracts. The paper finds both board-level sustainability committees and sustainability reporting assurance have a significant positive association with the inclusion of sustainability terms in compensation contracts of CEOs. Whereas Francoeur *et al.* (2017) measures environmental sustainability trough data on actual performance, reporting procedures, policies and guidelines, and management systems. The paper reports environment sustainable firms pay their executives less remuneration and rely less on incentive-based compensation than their counterparts. D'Apolito *et al.* (2019) investigates the financial and non-financial impacts of relating the sustainability phenomenon with the executive remuneration in banks. The paper found that it (a) negatively impact economic performance, (b) negatively impact the riskiness profile, and (c) positively impact sustainability performance. Alhaj (2019) found that through effective corporate governance firms increase their profitability, effectiveness and efficiency, improve their credibility, sustainability, transparency, disclosure, reputation, competitiveness and quality in all aspects and enhance management control, risk management, financial management, oversight and relations with key stakeholders. Therefore previous studies are linking the performance and growth with the environment, society and corporate governance practices of the firms. In Indian context although legal provisions are there but it is equally area of research that leaving apart the legalities, whether ESG phenomenon impacting sustainability of the Indian corporates? It is equally interesting to investigate in which direction the resources employed on environment safety, society welfare and good governance practices impacting the financial performance of the companies.

4. Objectives and Hypotheses of the Study

4.1. Objectives of the Study

On the backdrop of the discourse on the past literature work; the financial parameters and the ESG parameters impacting the financial sustainability are taken into the ambit of the paper. The primary objective of the paper is to study the impact of ESG phenomenon on the financial sustainability of the Nifty 100 Index Companies. The secondary objective is to study the impact of the other financial parameter on the sustainability of the companies.

4.2. Development of Hypotheses

The hypotheses can be listed as under:

H1: Profitability Margin is negatively associated with Capital Structure.
H2: Profitability Margin is positively associated with firm Employee Size.
H3: Profitability Margin is positively associated with Size of the firm.
H4: Profitability Margin is negatively associated with liquidity.
H5: Profitability Margin is positively associated with Society Expenditure.
H6: Profitability Margin is negatively associated with Environment concerns
H7: Profitability Margin is positively associated with Governance Practices
H8: Profitability Margin is positively associated with Return on Asset.

5. Research Methodology

5.1. Sample, Time Period and Data

The sample consists of panel data of NSE-100 Index as on April 22, 2022 from prowess corporate data base as provided by Centre for monitoring Indian economy. NSE-100 Index. The sample is selected to ensure balanced selection from all the industry groups. In order to measure higher accuracy in the model and results, those corporates for which data for modeled variables are not available have been removed; primarily banking companies. This resulted in selection of 88 companies. Among these too, very few entries were still missing for some of variables. So the panel data is an unbalanced one. The time period for panel data is financial year 2014-2015 to 2019-2020.

5.2. Modelling

The study involves estimating the following Panel data model.

$$PM_{it} = a+b_1CS_{it} +b_2ES_{it} +b_3Size_{it} +b_4Liq_{it} +b_5Social_{it} +b_6ENV_{it} + b_7GOV_{it} + b_7ROA_{it}$$

Where variables selected are

PM_{it} is Profit Margin of i_{th} company for "t" time period. The profit margin has been computed as Net Income/ Revenue. The profit margin count the potential of the company for future sustainability of the company. The variable is taken as dependent variable.

CS_{it} is the Capital Structure of i_{th} company for "t" time period. The capital structure is the ratio of Debt over Equity. Does source of financing impacting the sustainability of the company is to be answered by the modelling.

ES_{it} is the Employee Size of i_{th} company for "t" time period and expressed as ratio of labor cost over Net Sales. The employees are the blood of any corporate without which it cannot think of future survival. How it is impacting the financial viability is the question of enquiry.

$Size_{it}$ represents respective size for i_{th} company for "t" time period. It is taken as natural log of Total Asset. It is generally believed that large the scale, higher the financial viability. Does the same postulate applies to our sample data of Nifty 100 index companies shall be answered by the testing?

Liq_{it} computes the level of liquidity for i_{th} company for "t" time period. It is the ratio of current assets over current liabilities. Higher the liquidity, lower the profitability and vice versa is the theory need to be tested for the sample data.

$Social_{it}$ is the proxy variable. The key element of ESG phenomenon therefore measuring impact of ESG phenomenon on financial sustainability. It has been measured as the actual amount of expenditure incurred by the company for the society.

ENV_{it} is also a proxy variable which is prominent part of ESG phenomenon. It is the common interpretation that more the power and fuel used; more will be deterrent to the environment. Therefore it is inferred that there is inverse relationship between clean environment and fuel being burned into the environment.

GOV_{it} is a proxy variable for measuring impact of ESG phenomenon on the financial sustainability. The governance is measured through the size of the board.

6. Analysis and Findings

6.1. Descriptive Statistics

Table 1 reports descriptive statistics for dependent and independent variables over the selected time period of 2014-2015 to 2019-2020. The average profit margin reported is 47.49 whereas the minimum is in negative or losses. The median value for profit margin is 12 percent. The mean corporate structure is 23.78 meaning thereby that on average the corporate have 23.78 times debt capital over the equity part. The average employee cost as percentage of its revenue is 24.01. The environment variable is counted as inverse relationship to the usage of power and fuel. The average mean inverse relationship stands at 0.25 whereas the maximum is 3.04. The average board size counted is 14.56 or rounded off to 15 whereas the minimum board size is 1. The liquidity mean counted at 1.68 i.e. on average the corporate retain liquid asset to the tune of 1.68 times of their liquid liabilities. The mean size of the corporate is Rs 552118.7 million whereas the minimum size is Rs 4983.60. The contribution of corporate for the society in terms of money is found to be mean of Rs 741.86 million and minimum of Rs 0.50 million. The return on asset variable found mean value of 0.09 or 9% return i.e. on average sampled companies earn 9% return on their Total Assets. The minimum return value is negative 5.2 %. The other descriptive are also shown in the Table 1.

Table 1: Descriptive Statistics

	CS	*EMP Size*	*ENV*	*GOV*	*LIQ*	*Size*	*Social*	*PM*	*ROA*
Mean	23.78	24.01	0.25	14.56	1.68	552118.7	741.86	47.49	0.09
Median	11.95	0.068	0.0007	14.00	1.46	189916.0	267.95	0.12	0.08
Maximum	371.78	2236.83	3.04	26.00	7.82	9721190	9087.10	4090.17	0.77
Minimum	0.00	0.0098	6.36	1.00	0.00	4983.60	0.50	-1.2	-0.52
Std. Dev.	40.34	191.60	0.76	3.66	1.09	988845.3	1272.74	384.85	0.10
Skewness	4.77	9.50	2.72	0.28	1.84	4.39	3.47	9.41	1.56
Kurtosis	33.47	97.50	8.63	4.04	8.63	30.20	17.13	93.57	16.80
Jarque-Bera	18611.33	169585.1	1121.78	25.81	826.86	14913.18	4526.09	156188.5	3655.25
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source: Author's Own Compilation

6.2. Panel Unit Root Test

The null hypothesis (H_0) is that the variable has unit root. Using PP - Fisher Chi-square unit root test, all panel data series found to be stationery at second level and consequently any further analysis is undertaken at the second level of the respective variable. The result of unit root test are shown in Table 2.

6.3. Auto Correleation Test

Serial Correleation (LM) test best judged for macro panel data with long time series for instance over 20 years. Serial correlation causes the standard error of coefficients to be smaller than they actually are and higher R Squared (Baltagi 2021). The Durbin Watson is relied to check for auto correlation problem.

Table 2: Panel Unit Root Test

Stationarity Test for Panel Data: PP - Fisher Chi-square unit root test

Variable	*statistic*	*Prob.*
PM	470.486	0
CS	460.541	0
LIQ	426.378	0
SIZE	511.727	0
EMP SIZE	393.650	0
ENV	324.006	0
SOCIAL	417.440	0
GOV	417.256	0
ROA	816.526	0

Source: Author's Own Compilation

6.4. Multicollinearity

Correleation test result are shown in Table 3. As low degree of correlation is found among independent variables as shown in Table 3, therefore the variables are fit for the modelling.

Table 3: Correleation Matrix

	CS	*EMP Size*	*LIQ*	*Size*	*ROA*	*ENV*	*GOV*	*Social*
CS	1.00	0.09	-0.11	0.04	-0.16	-0.009	-0.029	-0.05
EMP SIZE	0.09	1.00	-0.08	0.01	-0.05	-0.2	-0.024	-0.02
LIQ	-0.11	-0.08	1.00	-0.12	0.22	0.12	-0.038	0.07
SIZE	0.04	0.01	-0.12	1.00	-0.21	0.08	0.182	0.06
ROA	-0.16	-0.05	0.22	-0.21	1.00	0.08	0.057	0.01
ENV	-0.009	-0.2	0.12	0.082	0.088	1.00	0.121	0.13
GOV	-0.02	-0.02	-0.03	0.18	0.05	0.12	1.00	0.26
SOCIAL	-0.05	-0.02	0.07	0.06	0.01	0.13	0.263	1.00

Source: Author's Own Compilation

6.5. Hausman Test: Fixed Effect Model Vs Random Effects Model

The Hausman test is performed over the panel data to determine the applicability of random effects model. The null hypothesis is preferred model is random effect model vis a vis alternate the fixed effect model. It determines whether the unique error (μ_i) are correlated with the regressor. The test results are shown in Table 4.

Table 4: Hausman Test for Appropriate Panel Data

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	*Chi-Sq. Statistic*	*Chi-Sq. d.f.*	*Prob.*
Cross-section random	7.671529	8	0.4662

Source: Author's Own Compilation

As the P-value is 0.4662 we accept null hypothesis. Therefore the result suggest that the random effect model is most appropriate among the fixed effect, random effect and simple pooled cross section time series models.

7. Empirical Result and Analysis

The table 5 reports the empirical result found for the impact of selected variables on the financial sustainability of the panel data of Nifty 100 index companies. We applied panel regression on the model and found the result.

Table 5: Empirical Result

Random Effect Model: Dependent Variable Profit Margin

Variable	*Coefficients*	*Std. Error*	*t-Statistics*	*Prob.*
C	1.39	7.34	0.19	0.84
CS	-0.19	0.212	-0.89	0.37
Emp Size	2.55	0.29	8.54	0
SIZE	-15.29	9.26	-1.65	0.09
LIQ	-8.77	3.17	-2.7	0.00
SOCIAL	10.70	4.27	2.50	0.01
ENV	-27.02	13.97	-1.93	0.05
GOV	55.12	25.97	2.12	0.03
ROA	-12.19	27.22	-0.44	0.65
R-Square		0.92		
Prob (F-Statistic)		0.00		

Source: Author's Own Compilation

As we can witness through the result we have eight independent variables into the model. The R-square value is high as 92 %. It means 92 % proportion of variance in the profit sustainability can be explained by the model or the independent variable fitted into the model. The Prob (F-statistic) is found "0" and overall significance of the regression. The variable corporate structure is found to be insignificant. That is source of financing viz debt capital or equity capital does not have any impact on the financial sustainability for the nifty 100 index company for the selected period. The variable employee size have impact on the profitability. The variables comes to positive significant as P-value less than 0.05. The coefficient is 2.55. It determines that 1 % increase in the employee cost would result in 2.55 % increase in the financial sustainability. The variable size of the company is also negatively significant at 10 % level. What comes out of the results is that for selected Nifty 100 companies 1 % increase in size would result in negative 15.29 % change in the profitability margin and vice versa. The variable liquidity is negatively significant to the financial sustainability. It reports that 1% increase in liquid assets of the company would result in fall of 8.8 % in financial sustainability. The variable social positively determines the profitability. This is what the corporate social responsibility phenomenon advocates. The coefficient calculated is 10.70. That indicates 1 % increase in the amount spent by the corporates for the society would bring 10.70 % increase in the profitability returns. The variable environment also determines the profitability sustainability. In our testing it is negatively impacting the profitability. It is significant at 6% level of significance. The 1% increase in the environment safety measures would result in 27% decrease in the profitability margins. The next variable governance which is eyed as transparency and accountability factor in the decisions and working of the corporates. The variable governance is positively significant. The coefficient is reported as 55.12 which indicates that 1% increase in the good governance parameters it would result in 55.12% increase in the sustainability of the company. The last variable ROA i.e return on assets is being reported as insignificant.

8. Summary and Conclusion

We have tried to attempt to gauge the financial sustainability and the variables determining the financial sustainability with especial emphasis on the ESG phenomenon. The SEBI circular dated 10, May 2021 mandating new disclosures on sustainability for top 1000 listed entities with effect from Financial Year 2023 is worth mentioning. The circular introduced format for Business Responsibility and Sustainability report (BRSR). It will require details on water and energy, green houses and air pollutions emissions, waste generated and their respective disposal etc. We have incorporated eight independent variables into the model. The first element of ESG phenomenon is environment which is taken as variable into the model and reported negative significant to the financial sustainability. The variable Social which is discharging the obligation towards the society as a return is generally presumed that in the long run the corporate have favorable impact on their profitability and assets. In our results also it is reporting positive significant. Therefore we can conclude that the mandatory provision in the Company Act 2013 to set aside 2% out of the profits for the betterment of society is in fact repaying the corporate in terms of their increased profitability. The third parameter of ESG phenomenon is governance. The governance is also positive significant in our model and can be inferred that higher the transparency in the governance the more is the profitability. The board decisions have been questioned with suspicion especially in the recent liquidation process of the company like Diwan Housing Finance Ltd. (DHFL), Future Retrail Ltd under Insolvency and Bankruptcy Code 2016. The variable capital structure does not determine the profitability margin. It is irrelevant which source of finance is taken to fund the operations of the company. The employee size is positive significant. The interpretation would be the higher and skillful work force, the positive impact on the financials of the company. The variable size negatively impacting the financial sustainability. It appears that it becomes difficult to maintain the higher returns at the large scale of operations. The liquidity reports there should be trade-off between the level of liquidity and risk associated with the funds. Higher liquidity reporting falling margins. The variable ROA is insignificant as far as impact on Profit Margin (PM) are concerned for the Nifty 100 index data base for the selected period.

9. Recommendation

The findings are relevant both for the corporate world and the government. The variables environment, society and governance are impacting the sustainability of the business corporate. It is advisable, therefore in the long run the companies have to give ESG approach the due weightage in their decision making process. The other financial variables impacting should also be the focus areas of the key management of the companies. It is suggested that the public and private sector should venture to identify all the potential challenges that may be faced during the implementation of ESG sustainability phenomenon with the regulatory mechanism from the state side.

10. Limitations

The results are valid for the selected Nifty 100 Index companies and it may vary to the large sample data. There are few companies who are following Global Reporting Initiative (GRI) standard in India, therefore we could not build a model gauging sustainability phenomenon taking GRI standards into the Indian corporates data base.

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Voluntary Disclosure Practices: A Systematic Review of Literature

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JEL Classification
M14, M41, G32, G34

Abstract: Nowadays, presence of information asymmetry and lack of enhanced disclosure influences the investors to make investment decisions wisely. The importance of voluntary disclosure in annual reports has increased manifold as lower information availability carries more risk premium for investors. Corporate Scandals across the globe shattered the confidence of investors and enhances the significance of disclosure in annual reports. The purpose of the study is to provide better insights of voluntary disclosure practices and measurement context of voluntary disclosure used by researchers. The study reviewed 50 research papers taken from relevant research databases such as Emerald, JSTOR, Scopus (Elsevier), Science Direct (Elsevier) and SSRN- Social Science Research Network for the period starting from 1998 to 2020. The results of study indicated that seventy percent of studies used self-constructed index to measure voluntary disclosure and 26 percent of papers provided information relating to corporate social components and the extent of disclosure provided by companies is least due to presence of information cost.

1. Introduction

The history of scams in the corporate sector shattered the confidence of investors in capital market. The presence of information asymmetry and agency conflict signals the poor quality of disclosures provided by the companies (Mahajan, 2013). Information Asymmetry have a strong influence on the liquidity of stock prices (Dutta *et al.,* 2022). Accountability of the firm is discharged only with the presentation of financial statements to the stakeholders whereas the major concern of the stakeholders is the disclosure of factual information which assists them to have a better understanding of corporate strategy and overall business environment in which the company operates (Francis *et al.,* 2008). The presence of information asymmetry due to agency function influence the investor's want to gather more information for efficient decision making (Mahajan, 2013; Francis *et al.,* 2008). With the increasing uncertainty in the market, corporate have realised the importance of voluntary disclosure to diminish information asymmetry and gain investor's confidence (Zaini *et al.,* 2016). The prima facie objective of voluntary disclosure is to improve financial reporting by providing relevant information to the users to make informed decisions. Voluntary disclosure continued to be a rich field for empirical enquiry (Healy and Palepu, 2001; Sharma and Davey, 2013). Companies disclose voluntary when they perceive the benefits of disclosing exceeds the costs associated with it (Francis, 2008). Previous studies reported lack of literature availability on voluntary disclosure (Chau and Gray, 2008; Ho and Wong, 2001; Siregar and Sigian, 2013; Hashim, 2011).

2. Voluntary Disclosure – An Overview

The narrative of disclosing qualitative information voluntarily behind the veil of financial statements has increased in the last decade (Mahajan, 2013; Francis *et al.,* 2008). The reason mentioned is to provide the user with enough information to make informed decisions.Information on corporate governance influence the extent of Environmental, Social and Governance Disclosures (Matta et al., 2021). A plethora of literature is available in this context to match the increasing disclosure employing different methodological approaches. Literature has examined various disclosure trends, motives of disclosure and theoretical development of disclosure and its different counterparts implying environment concern, risk disclosure, social aspect and other non- financial arenas (Sahoreand Verma, 2017; Barros *et al.*, 2013; Fahad and Rehman, 2020; Matta, 2022). The presence of adequate literature around the globe gives a reason to compile and analyse the available literature till date. Despite enough literature available, there is a dearth of studies in this context in India. (Belal *et al.,* 2013; Hossain and Hammami, 2009).

3. Foundation Theories of Voluntary Disclosure

Over the years, voluntary disclosure of information contributed to theoretical development of literature. McKinnon (1984), Haely and Papelu (2001) emphasised the usage of different theoretical perspective; researchers highlighted the elements of theories to provide a better insight by deploying statistical analysis with human information processing. (McKinnon, 1984; Botosan, 1997; Zaini *et al.,* 2016). The underlying theories existing in the literature influences the company's intention to disclose information voluntarily. Keeping in view the significance of existing theories, the theories used by researchers are identified into two groups; economic theories (i.e. agency theory, signalling theory and capital need theory) and socio- political theories (i.e. legitimacy theory, stakeholder theory, political economy theory and institutional theory) (Zaini *et al.,* 2016). The decision to deploy a particular theory to emphasize voluntary disclosure depends on the internal and external factors to be deployed.

4. Objective of the Study

The objective of study is to provide better insights about the theoretical development of voluntary disclosure, practices used by management and measurement of voluntary disclosure.

5. Research Methodology

The paper endeavours to review the academic research on voluntary disclosure practices and their measurement for corporate sector. The research is based on the review of research papers, articles and theses relevant to the research study after checking for the authenticity of research papers reviewed and journals in which research work was published. The most relevant research databases such as Emerald, JSTOR, Science Direct (Elsevier), Scopus (Elsevier) and SSRN- Social Science Research Network are used to retrieve the required research work to be reviewed.

The study examined a sample of 50 research papers for years starting from 1998 to 2020 to assimilate the findings provided by different researchers across countries. The scope of voluntary disclosure used for the review includes overall categories and specific disclosure segments such as general corporate and strategic information, intellectual capital disclosure, corporate social disclosure, ESG disclosures, forward looking information.

Sequential steps are designed to review the available literature including classification of literature and review summaries. The information gathered based on review of published research work is analysed by using various statistical tools and to the best of researcher's knowledge the findings are integrated to focus on the increasing need to disclose information voluntarily.

Table 1: Categorization of Reviewed Papers

No.	*Authors*	*Year*	*Country Examined*	*Measurement Approach*
1	Mac and Eng	2003	Singapore	Disclosure Score involving Strategic, Financial and non financial disclosure (as used by Eng and Teo (1999) and Eng *et al.* (2001)).
2	Sahoreand Verma	2017	India	Self constructed Index of Financial and Non financial disclosure items
3	Barros, Boubaker and Hamrouni	2013	France	Self constructed index involving strategic, financial, non-financial and governance information
4	Fahad and Rahman	2020	India	Advanced Bloomberg ESG disclosure score
5	Sharma, Pandey, Dangwal	2020	India	Self Constructed ESG disclosure index
6	Kent and Ung	2003	Australia	Rating Scale for forward looking disclosure
7	Davey andEggleton	2011	New Zealand	Theoretical Framewoek
8	Mahajan	2013	India	Self constructed Disclosure index (75 items)
9	Mondal and Ghosh	2020	India	Disclosure Index (45 items)
10	Dhaliwal, Li and Yang	2011	Singapore	N/A
11	Aboudand Diab	2018	Egypt	ESG disclosure index
12	Kajarah	2019	Malaysia	Checklist (74 items)
13	Chen, Cheng, Gong and Tan	2013	China	VD checklist
14	Ji, Lu and Qu	2017	China	Voluntary issue of internal control weakness
15	Francis, Nanda and Olsson	2008	U.S.A	Self constructed index of coded items

contd. table 1

No.	*Authors*	*Year*	*Country Examined*	*Measurement Approach*
16	Belal	2001	Bangladesh	3 categories (disclosure on employee issues, ethical disclosures and other disclosures) and sub categories
17	Belal and Owen	2007	Bangladesh	Interviews with CS
18	Chan and Welford	2005	China	No index but divided into 4 environmental categories
19	Qu and Leung	2006	China	CG index- 6 areas
20	Liu andAnbumozhi	2009	China	16 Environmental items
21	Qu, Cooper, Wise, and Leung	2012	China	Checklist with 12 categories
22	Wang, Ali, and Al-Akra	2013	China	Disclosure index and econometric
23	Meng, Zeng, Shi, Qi and Zhang	2014	China	Environmental disclosure checklist
24	Dong, Burritt and Qian	2014	China	Disclosure index and econometric
25	Tsang	1998	Singapore	3 social responsibility areas
26	Perry and Sheng	1999	Singapore	Survey
27	Cheng and Courtenay	2006	Singapore	Disclosure index
28	Lambino	2013	Phillipines	Categories of areas
29	Sumiani, Haslinda, and Lehman	2007	Malaysia	Environmental checklist
30	Amran and Devi	2008	Malaysia	CSR checklist
31	Ahmed Haji	2013	Malaysia	CSR checklist
32	BasalamahandJermias	2005	Indonesia	Review of report-content analysis
33	Naser, Al-Khatib, and Karbhari	2002	Jordan	Disclosure index and econometric
34	Kamla	2007	Arab Middle East	GRI items (Economic, Environmental, General social, Other social characteristics of reports)
35	Al-Akra, Eddie, and Ali	2010	Jordan	Disclosure index and econometric
36	Al-Akraand Hutchinson	2013	Jordan	Disclosure index and econometric
37	Aksuand Kosedag	2006	Turkey	Disclosure index (modified S &P Index)
38	Abeysekeraand Guthrie	2005	Sri Lanka	Index with quantitative scoring via information
39	UyarandKılıç	2012	Turkey	Disclosure index (modified index based on prior studies)
40	Beddewela and Herzig	2012	Sri Lanka	Index with quantitative scoring via information categories
41	Dissanayake, Tilt and Xydias-Lobo	2016	Sri Lanka	Reporting scoring model and econometric
42	Abeywardana and Panditharathna	2016	Sri Lanka	Unweighted disclosure index and econometric

contd. table 1

No.	Authors	Year	Country Examined	Measurement Approach
43	Sharma and Davey	2013	Fiji	Index with quantitative scoring via information categories
44	Sharma, Low and Davey	2013	Fiji	Index with quantitative scoring via information categories/themes
45	Abhayawansaand Azim	2014	Bangladesh	IC index
46	Khanna and Chahal	2019	India	Voluntary disclosure checklist (55 items)
47	Kao	2022	USA	Interview
48	Murthy	2008	India	No Index but use themes to categorise (i.e. Human resources, community development)
49	Agcaand Önder	2007	Turkey	Disclosure index (modified index)
50	Tilt	2016	Sri Lanka	Reporting scoring model and econometric

Source: Authors' compilation

6. Results and Discussion

Thorough review and examination of articles are reported in three sections: - a) Evolution of Publications b) Theories used for explaining voluntary disclosure c) Measurement and approaches used in Voluntary Disclosure literature d) Conclusive summary of the review.

6.1. Evolution of Publications

Figure 1 represents the evolution of publications relating to voluntary disclosure. Before 2000, few studies were conducted in this arena and then the peak started moving upwards due to the presence of

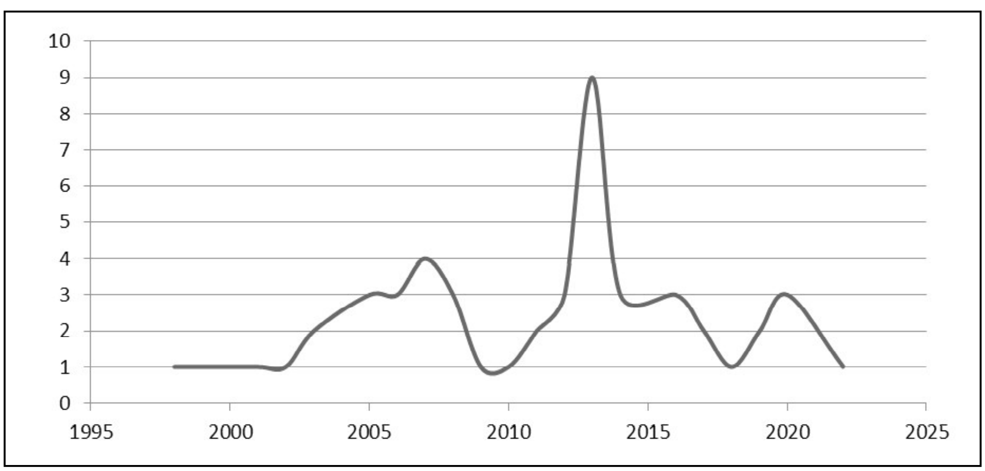

Figure 1: Evolution of publications (1998-2020)

Source: Authors' compilation

scams in capital market. Investors became more conscious of giving premium for information disclosure while analysing beta for their securities or portfolio.

Between 2010 and 2015, peak number of articles was published and continuance was observed till date. Consequently, it can be admitted that theme under analysis for consolidation of literature is relevant and recent.

6.2. Theories used for Explaining Voluntary Disclosure

Table 2 represent the classification of research papers using theories to elucidate voluntary disclosure practices and measurement. The usage of agency theory (32%) was employed by a large number of researchers for explanation of need for disclosure voluntarily, followed by Legitimacy theory (14%), Stakeholders theory (6%) and Institutional Theory (4%). The strange finding came out of classification of data as 24% of the research papers have not used any theory for laying the foundation of voluntary disclosure.

Table 2: Theory Based Categorization of Reviewed Papers

Theories	*Number of Papers*	*Percentage of Total*
Agency Theory	16	32
Legitimacy Theory	7	14
Post colonial Theory	1	2
Institutional Theory	2	4
Stakeholder Theory	3	6
Political economy accounting Theory	1	2
Legitimacy theory and Voluntary disclosure theory	1	2
Legitimacy and proprietary theory	1	2
Institutional and Legitimacy Theory	1	2
Legitimacy and Stakeholder theory	1	2
Stakeholder theory and Agency Theory	2	4
Agency, signal and capital market theory	2	4
No Related theory	12	24
Total	50	100

Source: Authors' compilation

6.3. Theoretical Framework for Measurement

Voluntary disclosure measurement context has been classified broadly for the complete analysis of factors used by researchers in their research work. The major finding of compilation is that all categories (34%) of financial, non- financial and strategic disclosure remained a common focus for research area followed by Corporate Social disclosure (26%) and Environment disclosure (14%). In contrast, forward looking information, product quality related information and internal control weakness disclosure studies are scarce and lagged behind as an area of research.

Table 3: Context Wise Categorization of Reviewed Papers

Voluntary disclosure measurement context	*Number of papers reviewed*	*Percentage of Total*
Corporate Governance	2	4
Corporate Social	13	26
Human and Intellectual capital	4	8
ESG disclosure	4	8
Environment	7	14
Forward looking Information	1	2
Internal control weakness	1	2
Product Quality	1	2
All categories	19	34
Total	50	100

Source: Authors' compilation

6.4. Region Wise Allocation of Reviews

Research articles have been classified according to region to analyse the research work carried out in different countries across the globe. South East Asia region including countries like Malaysia, Singapore, Philippines, Indonesia and Thailand worked as a priority region for research studies relating to voluntary disclosure (22%) followed by South Asian region comprising Bangladesh and India (20%). The reason due to increasing number of studies in the emerging countries is due to lack of effective regulatory system for the corporate and governance mechanisms which gives the opportunity to research to pursue research in the upcoming arena. The least proportion of research work was published in the country of France (2%), Egypt (2%) and Australia (2%). The Longitudinal studies (58%) were carried out by researchers in large proportions across the globe followed by one year studies (30%) and comparative studies (20%) due to the volatile external environment. The analysis of research work on time series as well as cross sectional became the major focus for the researchers.

6.5. Voluntary Disclosure Measurement Practices

Table 5 represents the approaches used in the literature to measure voluntary disclosure. Content Analysis in Annual Reports has been deployed by majority of studies to find out disclosure aspects provided by companies. Out of readymade indexes available and self constructed disclosure indexes, Self constructed indices are used by 70% of studies reviewed whereas only 4% of studies used readymade indexes (Fahad and Rahman, 2020; Aksuandkosedag, 2006), and scoring model and econometrics (Dissanayake *et al.,* 2016; AbeysekeraandGuthrie, 2005). Specific division of categories are used by 8 studies reviewed (Tsang, 1998; Liu andAnbumozhi, 2009; Qu and Lueng, 2006; Lambino, 2013).

Table 4: Categorization of Reviewed Papers according to Region and Nature of Study

Region	*Papers Reviewed*		*Nature of Study*		
	Number	*%*	*Comparative*	*Longitudinal*	*One year*
South East Asia (Malaysia, Singapore, Philippines, Indonesia, Thailand)	11	22	1	6	4
Middle East (Jordan, Turkey, AME)	7	14	2	2	3
France	1	2	0	1	0
East Asia (Hong Kong, China)	9	18	0	6	3
South West Asia (Egypt)	1	2	0	1	0
Australia	1	2	0	1	0
Asia Pacific (Sri Lanka)	5	10	1	4	0
Pacific (New Zealand and Fizi)	3	6	1	2	0
South Asia (India and Bangladesh)	10	20	1	5	4
United States of America	2	4	0	1	1
Total	50	100	6	29	15
Percentage			12	58	30

Source: Authors' compilation

Table 5: Approaches Used to Measure Voluntary Disclosure

Measurement approach	*Number of papers reviewed*	*Percentage*
Survey and Interview	3	6
Readymade Index (Bloomberg, S &P disclosure index)	2	4
Rating scale	2	4
Sub Division of Categories	8	16
Self constructed disclosure index	35	70
Total	50	100

Source: Authors' compilation

The reason behind the use of self constructed disclosure index analysed from literature is the non-availability of the readymade index in many countries.

7. Findings of the Study

The study aimed to consolidate the expansive literature to inform the readers about the significance of area and investigation that have been carried out of a diverse group of factors.

In South East Asian Countries, a considerable amount of research has not been carried out in Singapore and Malaysia (Mac and Eng, 2003; Dhaliwal *et al.,* 2011) whereas in contrast, a limited number of studies was observed in Phillipines. Most of the literature reveals that developing countries ignore the social and community involvement aspect and therefore have weak governance mechanisms (Mahajan, 2013; Ibrahim and Samad, 2011; Wolenzon and Morck, 2005). Majority of the studies focused on specific group of disclosure factor as a part of voluntary disclosure instead of focusing on overall aspect of disclosure (Ahmed, 2013; Amran and Devi, 2008; Perry and Sheng, 1999). Checklist method for disclosure of specific area was used by researchers on priority basis in South East Asian countries.

In Central Asian Countries involving Bangladesh and India, the research focus was least on information disclosure rather the studies were focused on association of voluntary disclosure or specific information disclosure with other external factors such as earnings quality, value of the firm and corporate governance. (Mahajan, 2013; Mondal and Ghosh, 2020; Khanna and Chahal, 2019). Leading group of research papers followed self constructed disclosure scores and checklist method to analyse the disclosure patterns in overall categories rather than single category of disclosure (Sharma *et al.*, 2020; Sahore and Verma, 2017; Mahajan, 2013; Khanna and Chahal, 2019).

In East Asia countries including Hong Kong and China, the major research focus lied on Environment and Corporate Social disclosure to ascertain the status of disclosure practice followed by corporate in this region (Qu *et al.*, 2012; Wang *et al.,* 2013; Dong *et al.,* 2014). Like Central Asian Countries, studies conducted in this region identified other factors to associate with voluntary disclosure as Chen *et al.,* 2013 associate the value of firm with disclosure and Ji *et al.*, 2017 tried to associate disclosure with earnings quality. The studies focused on specific factors of disclosure complementing the finding of South Asian countries by deploying index with subcategory of one particular category of disclosure (Qu andLueng, 2006; Chen *and* Welford, 2005; Meng *et al.;*2014).

In Middle East, especially Jordan studies focused on implementation of IAS and their association with voluntary disclosure (Naser *et al.,* 2002; Al-Akra *et al.,* 2010). Number of studies published in Arab Middle East were very few and least in Turkey. The studies on majority used Disclosure Index and econometrics method to analyse the extent of disclosure in Middle East with mixed finding of specific factors and overall categories of disclosure items (Naser, 2002; Kamla, 2007; Al-Akra, 2010).

Countries like Fizi falling into Pacific region have a business environment influenced by monopoly. To provide information voluntary, Sharma and Dabey, 2013 found societal values and norms as a major factor. The research work is in the growing stage and improvement in disclosure was evidenced by recent studies (Sharma *et al.,* 2013; Sharma and Davey, 2013). Asia Pacific region involving countries like Sri Lanka pointed the growing usage of voluntary disclosure as a medium to build reputation and goodwill (Abeysekera and Guthrie, 2005; Beddewela and Herzig, 2012; Dissanayake *et al.*, 2016). The studies used Index with quantitative scoring as a measurement method for disclosure covering corporate social and intellectual disclosure context.

In other countries apart from the cited above, studies conducted in France focused on corporate governance mechanisms as an influencing factor for disclosing information in all categories voluntarily measured by self constructed index (Barros *et al.,* 2013). In developed countries like Australia and USA, the major leading factors for inducing disclosure of information in annual reports are market structure and good earnings quality. Studies in Australia focused on Forward looking information as a leading indicator of disclosure (Kent and Ung, 2003) whereas studies conducted in USA used overall categories and product quality information disclosure as a sub category by conducting interviews with key persons involved in companies (Francis *et al.,* 2008; Kao, 2022).

8. Conclusion

The paper investigated the literature available on voluntary disclosure practices in different countries across the world. The analysis is conducted on the basis of evolution of publications, theories used to explain voluntary disclosure, proxies used by researchers to measure voluntary disclosure and methods used for data collection and analysis. Corporate Scandals contributed to the increasing attention of the investors toward expansive disclosure practices. The paper contributed to the literature of voluntary disclosure by enhancing the better understanding of voluntary disclosure and tabulation of previous empirical papers from 1998 to 2020. Between 2010 and 2015, peak number of articles was published and continuance was observed till date. Majority of the studies observed were longitudinal studies as compared to one year and comparative studies. In Central Asian Countries involving Bangladesh and India, the research focus was least on information disclosure rather the studies were focused on association of voluntary disclosure or specific information disclosure with other external factors. A leading group of research papers followed self constructed disclosure scores and checklist method to analyse the disclosure patterns in overall categories rather than single category of disclosure. There is a continuous need of enhanced disclosure provided by companies to enhance scope and quality of disclosure, should be fulfilled by policymakers and regulators. The research elucidates the importance of disclosure and its quality for growth and development of corporate. A comprehensive study of disclosure quality can be conducted to analyse the relationship between voluntary disclosure and its quality aspects.

9. Directions for Future Research

This research has various limitations involving a small sample size of papers reviewed. The researcher used their judgement for selection of papers from quality journals and till date, a large number of papers have been published after 2020, which imparts difficulty in generalising the results. For future research prospect, bibliometric analysis can be deployed by assessing various other databases to analyse the reviewed literature like Scopus, b-on, abi/inform and scielo. Further investigations should analyse external factors for using the voluntary disclosure index and related variables like earnings quality and value of firm for a comprehensive analysis of literature.

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Outcomes of Knowledge Management in Selected Steel Industries: An Empirical Study

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Knowledge management, Steel industry, Organizational effectiveness, Organizational learning, Innovation, Competitive advantage

JEL Classification
L61, M50, O33, L21, D83

Abstract: The decision on implementing knowledge management (KM) depends on the benefits of the KM system in any organization. This study aims to understand the benefits inferred by implementing KM in steel industries in particular and other industries in general. We intend to identify and examine four important outcomes of KM in the steel industry in Odisha: organizational effectiveness (OE), organizational learning (OL), innovation (INO), and competitive advantage (CA) which are found to be strongly significant in our study. We have sourced data from the two steel plants: TATA Steel, Kalinganagar as a private entity, and Rourkela Steel Plant, Rourkela, as a public entity. With confirmatory factor analysis, consistency between items and constructs are strongly significant. In Structural equation model, we see a strong association between independent and dependent variables. Hence, the result suggests that the identified four outcomes of KM foster a deep impact on the steel industry for its all-round development in the competitive world by thriving towards the destination of success.

1. Introduction

Modern businesses, especially large manufacturing industries are increasingly facing stiff competition due to globalization, innovative technology, volatile consumers, cross-cultural employees amongst others. These are driving forces which have increased the quest to leverage techniques to achieve competitive advantage (CA)in every successful organization. In such a scenario, 'knowledge' is believed to be a vital indicator for bringing organizational success in every field (Allameh *et al*., 2014; Panda *et al*., 2021).

A firm having a proper knowledge management (KM) system is capable of using resources more efficiently and performs better than one that has adopted it rampantly (Darroch 2005; Allameh, 2018; Dang and Hoai, 2019). A good quality of organizational knowledge improves performance significantly in the organization (Zaied *et al.,* 2012). Some authors have identified outcomes of KM, such as competitive advantage, innovation, improved financial performance, anticipation of problems etc. in the organization. Hung *et al.,* (2005) suggested that to measure the significance of KM systems, three variables such as product or service competitiveness, overall performance, and long-term competitiveness, should be taken into consideration.

Steel industries are generally larger in terms of investment, production and overall progress of infrastructure development of any civilization. Evidence of studies of KM in steel industries can be found in Wiig (1999), where a systematic and comprehensive implementation of KM in Chaparral steel mill, a mini steel mill in Texas, USA in the year 1975 is explained. In the modern Indian steel industries, such as Steel Authority of India limited, Jindal Steel and Power limited, and TATA Steel, KM is actively used in practice (Dash & Rath, 2021). Collinson (1999) has said that KM in the steel industry is used in varied functions such as practices and procedures of governing it, inter-divisional coordination, management roles, budgeting & resource allocation, networking and information exchange, human resource development, employee relations, and employee motivation. Steel industries are large-scale organizations require a long time to make profit. Thus, the sustainability of the organization is essential in such industries which partly depends on employees' innovation capacity and their knowledge. Thus, KM has a greater impact on the steel industry.

The state of Odisha consists of very high-grade mineral deposition (Mishra et al, 2022). Iron ore reserves in Odisha comprise about 25% of the country. Two remarkable works i.e. industrial policy resolution in 2001 and enactment of the Odisha Industrial Facilitation Act, 2004 changed the industrial scenario of the state. Since then, 49 iron and steel industries have made memorandum of Understandings (MOUs) with the state government to start their operation. Some of them have 'started their operation', 'under construction' and withdrawn their MOUs because of varied reasons (Mishra *et al.*, 2017).

In such, little literature is available for the academicians, industry managers and policy makers in the context of Odisha, which has motivated us to conduct this study.

The aim of this study is to identify and analyse outcomes of KM practice in the steel manufacturing industries in Odisha. This is a quantitative study, where emphasis has been given to define the outcomes through a contextual model. The hypotheses are analysed through Confirmatory Factor Analysis (CFA). Our study has both theoretical and managerial implications. Theoretically, we have focused on developing a model capable of understanding the relationship between observed variables and measured variables of different outcomes of KM and the covariance between the outcomes of KM in steel industries. In managerial implications, we provide a general guideline on prioritizing the variables under each outcome of KM while implementing or redesigning KM in the steel industry.

Remaining parts of the paper are as follows. Section-2 literature review on outcomes of KM, section-3 objectives and hypotheses, section-4 methodology used for various purposes, section-5 data analysis though quantitative techniques, section-6 results & discussion section-7 conclusion and scope for further study.

2. Review of Literature

2.1. Organizational Effectiveness (OE)

KM effectiveness is the result of organizational performance, which can be determined by considering the following three aspects: efficiency, adaptability, and innovativeness (Du Plessis, 2007). KM is an intervening mechanism between organizational context and OE (Zheng *et al.*, 2010). Through KM, OE such as 'person job fit', 'innovation in production and service', 'coordination among units', 'adoptable capacity to unanticipated changes', 'reduced time', 'reduced overlapping development of corporate initiatives', and 'empowerment of employees' are achieved in the organization (Gold *et al.,* 2002; Azmawani *et al.*, 2013).

2.2. Organizational Learning (OL)

King and Lekse (2006) suggest that KM practice enhances the learning attitude of the employees and converts the organization into a learning and teaching organization in the future. An organization with KM practices provides new learning opportunities for its workers by developing a learning framework, and adopting appropriate knowledge tools and technology (Heisig *et al.*, 2016). Attia and Eldin (2018) argued that KM has a direct effect on improving the learning capability of individuals. A good KM practice contributes to financial performance and long-term sustainability of the organization. Thus, OL is considered as a major goal of KM. The KM enhances learning skills of the employees in various ways, such as rectifying prejudices, enhancing creativeness, extending business practices, and improving skills for executing organizational goals (Vandenbush and Higgins, 1996; Lee, 2012).

2.3. Innovation (INO)

To exploit a firm's innovative capacity, it is required to formulate organizational strategies to overcome human barriers. Knowledge exploitation and knowledge exploration have positive and significant effects on innovation. Different processes of KM such as knowledge storage, transfer, and application are positively related to innovative performance. Organizations require specific tools and practices for knowledge exploration and exploitation. In exploitation, the central goal is to use past knowledge and link the exploitative activities with learning and innovation. According to Donate and Gundamillas (2011) the innovation capacity in an organization improves due to interaction of culture and leadership. Darroch (2005) has identified that firms with greater capability to manage knowledge enhance innovation. According to Sareen and Pandey (2021) information on innovation is largely achieved through a proper relationship with customer, investor and supplier. Hence, a network relationship with the customer is constituted to enhance innovation capacity. According to (Tushman and Anderson, 1986; Darroch, 2005) innovation is of two types, i.e. 'incremental innovation' and 'radical innovation'. Incremental innovation is competence enhancing. Radical innovation puts business at risk because the existing KM does not have any impact on it.

2.4. Competitive Advantage (CA)

The CA of the organization can be created if knowledge is managed effectively (Basu and Sengupta, 2007). Organizations manage knowledge to utilize intellectuals and transform knowledge assets into

CA through enhanced organizational performance. Mainly, it concentrates on three basic things such as 'what it knows', 'how it uses what it knows', and 'how fast it can learn new things' (Singh and Sharma, 2011). CA is achieved by integrating individual knowledge in the context of the fulfilment of a common task (Linder and Wald, 2010). KM helps the organization to assess the KM capabilities and identify the gaps, then suggest measures (Zaied *et al.*, 2012). When competition increases, the organization intensifies its KM to boost CA with the limited available resources (Lin, 2014). According to Wahyono (2020) KM has an effect on achieving CA but it is mediated through product innovation. Hence, it is believed that KM leads to CA in the organization.

From the above literature, we identify that OE, OL, INO, and CA are the most significant outcomes of KM practices in different industries or sectors. Therefore, in our study we focused on assessing the above four critical attributes of KM practices while evaluating steel industries in Odisha.

3. Objectives and Hypotheses of the Study

3.1. Objectives

Two main objectives undertaken in our research are as follows:

- To identify key outcomes of KM practices and develop a conceptual model, and
- To examine and validate our developed model for KM outcomes in the steel manufacturing industry in Odisha.

3.2. Hypotheses

From the above literature, the following alternate hypotheses were drawn:

H_1: OE is a significant outcome of KM

H_2: OL is a significant outcome of KM

H_3: INO is a significant outcome of KM

H_4: CA is a significant outcome of KM

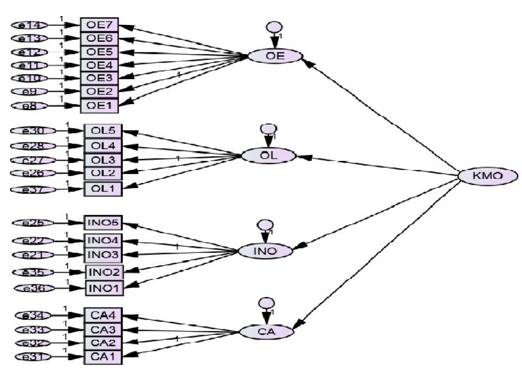

Figure 1: Second Order Model of KM Outcomes

Source: Authors' Own Compilation

Figure 1 is the proposed model. In this model, 'e' means error, 'rectangles' are the items and 'circles' are the unobserved variables '→' symbols are path icons(Shanthi, 2020). OE, OL, INO, and CA are latent variables comprising 7, 5, 5, and 4 observed variables respectively, which will be tested in further analysis.

4. Research Methodology

4.1. Scale

The items under scale have been identified from literature. For face validity of the questionnaire, a five-phase discussion with experts from industry and academia has been carried out to fix scale items. In the instrument, a total of four constructs, namely OE, OL, INO and CA, and 21 variables are considered. Data has collected by using a five-point Likert scale from (1) strongly disagree to (5) strongly agree. The sample of the instrument is given in the annexure.

4.2. Sample Size and Sampling Method

The total population for this study is 2810, which consists of all executives of two leading large-scale steel manufacturing companies in Odisha, i.e. TATA Steel, Kalinganagar as a private entity and Rourkela Steel Plant (RSP) as a public entity. The sample size for our study is 350, which is chosen according to a formula given by Yamane (1967).

We use the stratified proportionate random sampling technique for determining the number of samples in the study. A proportion of 204 samples from RSP and 146 samples from TATA Steel are collected for the study.

4.3. Data Collection

Data has been collected from both on-line and on-cite sources, where 42 filled in questionnaires received though online. This was a mere 12% of the total response. Therefore, we adopted a scheduled method to collect our required amount of sample data.

4.4. Pilot Study

Before the pilot study, the questionnaires were sent to 3 academicians and four industry experts to establish the face and content validity. The suggestions of the experts were incorporated to make the variables comprehensive and usable. 70 respondents were invited to carry out the pilot study. The reliability of the total scales and subscales was found to be significant. The Cronbach Alpha Values (CVA) of the scale items are reported in table 1.

Table 1: Cronbach Alpha Values

Constructs	*Items*	*Alpha Values*
OE	7	0.852
OL	5	0.897
INO	5	0.835
CA	4	0.831
Total	21	0.959

Source: Authors' Own Compilation

From table-1 we can see the CAV of 4 outcomes and a total value. All the individual construct's Alpha values are above 0.8, means reliability is good for all constructs. The total Alpha value is above 0.9 indicates that the reliability of the instrument is excellent.

4.5. Data Preparation

In the dataset, initially a total of 44 missing values were observed and by following up with respective respondents, all missing values were removed. We applied the 'Cook's distance' method (Shanthi, 2020) to detect sample outliers. A total of 32 outliers were detected and removed where the new data set included 318 respondents. The absolute value of skewness ranged between +2.89 & -2.89 and the kurtosis value ranged between -0.41 & -6.19 indicating that the value falls within the threshold value in social science, i.e. 3 for skewness and 10 for kurtosis (Cohen *et al.*, 2003).

5. Data Analysis

5.1. The Measurement Model

A measurement model is used in the case of CFA analysis where the effect and relationship between observed variables and constructs are determined. The model has been identified by using AMOS (analysis of movement structure) of the SPSS-23 package.

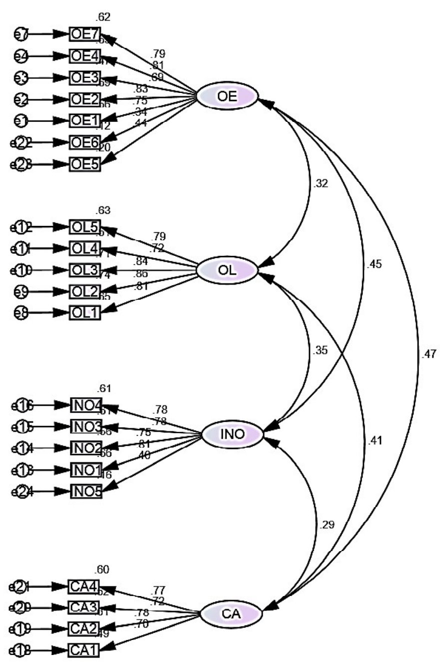

Figure 2: The Measurement Model of KMO

Source: Authors' Own Compilation

In figure 2, the model is a recursive model and comprises of 46 variables, of which 21 are observed variables and 25 are unobserved variables. Also, this model explains the relationship between observed and measured variables and among constructs. Symbol '↔' are the covariance icons. This is used to measure the correlation between unobserved variables.

Modification indices are used for the improvement of the model. In the model, only the covariance value between e-8 and e-10 is 37.206, where the values of different model fit measures are above the threshold values. Hence, no covariance between observed items is undertaken in this model.

The constructs are OE,OL, INO, and CA. The factor loadings of observed variables OE-5 (0.44), OE-6 (0.34), and INO-5 (0.40) are below a standard regression weight value of 0.7 and removed.

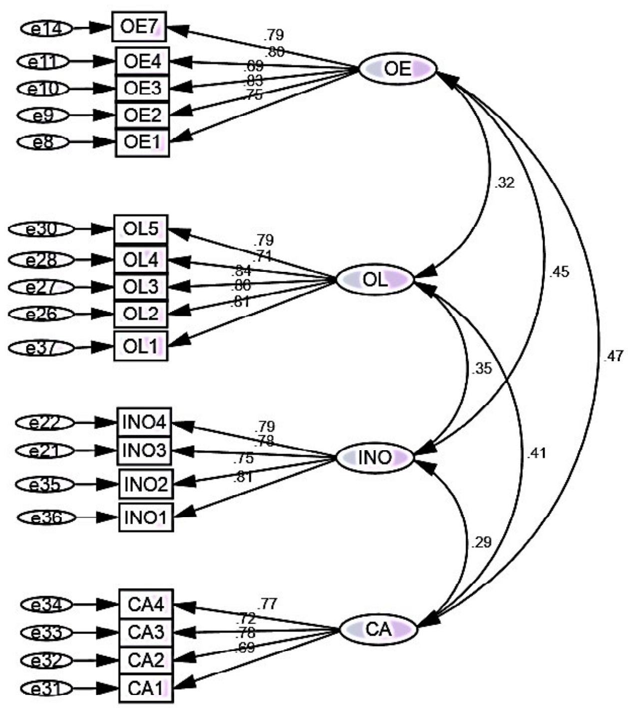

Figure 3: Modified Standardised Measurement Model of KMO

Source: Authors' Own Compilation

Figure 3 comprises 18 observed variables and 22 unobserved variables and further analysis was carried out with this new model. After removing the items, the new model is found to be more composed and fit.

5.2. Construct Wise Analysis

The analysis below has been carried out from figure-3, where we found the following details.

Construct-1: Organizational effectiveness

In OE, observed variables are five. The standard regression weights (SRW) of variables are OE-1(0.75). OE-2(0.83), OE-3(0.69), OE-4(0.80), and OE-7(0.79). Only the variable OE-3 value is 0.69 which is close to threshold value of 0.7and all other values are above the threshold value. The values show that variables for this construct are significant under this construct.

Construct-2: Organizational learning

In OL, the total variables under this construct are five. The SRW of variables OL-1(0.81), OL-2(0.86), OL-3(0.84), OL-4(0.71) and OL-5(0.79) are above the threshold value of 0.7. The values indicate that the variables are significant under this construct.

Construct-3: Innovation

In INO, there are four variables. The SRW of variables INO-1(0.81), INO-2(0.75), INO-3(0.78) and INO-4(0.79) are above the threshold value. Hence, the variables are retained for further analysis.

Construct-4: Competitive advantage

In CA, the total numbers of variables are four. The SRW of variables are CA-1(0.69), CA-2(0.78), CA-3(0.72), and CA-4(0.77). Only the variable CA-1 value is 0.69 as it is very close to 0.7, hence retained for further analysis.

Table 2: Regression Weights (Default Model)

			Estimate	*S.E.*	*C.R.*	*P*	*Label*
OE1	<—-	OE	1.000				
OE2	<—-	OE	0.964	0.062	15.635	***	
OE3	<—-	OE	0.836	0.066	12.618	***	
OE4	<—-	OE	0.902	0.060	15.102	***	
OE7	<—-	OE	0.774	0.052	14.765	***	
OL1	<—-	OL	1.000				
OL2	<—-	OL	1.238	0.067	18.403	***	
OL3	<—-	OL	1.164	0.065	17.882	***	
OL4	<—-	OL	1.031	0.072	14.262	***	
OL5	<—-	OL	1.072	0.065	16.422	***	
INO1	<—-	INO	1.000				
INO2	<—-	INO	0.796	0.053	15.110	***	
INO3	<—-	INO	0.895	0.056	16.021	***	
INO4	<—-	INO	0.921	0.057	16.163	***	
CA1	<—-	CA	1.000				
CA2	<—-	CA	0.972	0.072	13.571	***	
CA3	<—-	CA	1.025	0.081	12.609	***	
CA4	<—-	CA	1.005	0.075	13.446	***	

Source: Authors' Own Compilation

In table 2, the estimated values between observed variables with their respective constructs are positive. All the CR values are above 1.96, which indicates that the items have a significant relationship with their respective constructs. The p-values show that the significance levels of all the items are below .001. In OE and OL, all the indicator values i.e. estimates-positive, CR ≥ 1.96, and $P<0.001$ for 5 items are significantly and positively associated with their respective constructs OE and OL. In the case of INO and CA, all the indicator values such as estimates-positive, CR ≥ 1.96, and $p<0.001$ shows that items under each construct are significantly and positively associated with their respective construct. All the remaining 18 items are significantly and positively associated with their respective constructs.

5.3. Model Fit Measures

The table-3 depicts the value of different indices to explain the overall fitness of the model. The overall model fit relies on at least one absolute, one incremental, one parsimonious fit indices (Hair *et al*., 2019).

Table 3: The Measurement Model Fit Values for the KMO

Statistical measures	*Test indices*	*Test standard*	*Result*	*Interpretation*
Absolute fit measures	CMIN/DF	≤3**, ≤5*	1.158	Good fit
	RMSEA	≤0.08	0.022	Good fit
	RMR	≤.05	0.013	Good fit
	GFI	≥0.9**, ≥0.80*	0.862	Marginal fit
Incremental fit measures	NFI	≥0.9**, ≥0.80*	0.912	Good fit
	RFI	≥0.9**, ≥0.80*	0.906	Good fit
	IFI	≥0.9**, ≥0.80*	0.987	Good fit
	TLI	≥0.9**, ≥0.80*	0.986	Good fit
	CFI	≥0.9**, ≥0.80*	0.987	Good fit
Parsimonious fit measures	PNFI	≥0.5, the higher the better	0.852	Good fit
	PCFI	≥0.5, the higher the better	0.922	Good fit
	PGFI	≥0.5, the higher the better	0.773	Good fit
	AGFI	≥0.9**, ≥0.80*	0.846	Marginal fit

Source: Authors' Own Compilation

Note: Acceptability: **Good fit, * marginal fit

In the above table, CMIN/DF represents Chi-square degree of freedom, RMSEA stands for root mean square error of approximation, RMR is root mean square residual, GFI stands for goodness of fit index, NFI represents normed fit index, RFI is the abbreviation of relative fit index, IFI means incremental fit index, TLI stands for Tucker-Lewis index, CFI denotes comparative fit index, PNFI is parsimony normed fit index, PCFI is parsimony comparative fit index, PGFI stands for parsimony goodness of fit index and AGFI denotes average goodness of fit index.

By analysing our data in table 3, we obtained the following.

5.3.1. Absolute Fit Measures

Under this fit measure, in the case of RMSEA (0.022), RMR (0.013), GFI (0.862), and CMIN/DF (1.158). From the analysis it is found that the indice GFI is marginally fit and other indices appear to be a good model fit.

5.3.2. Incremental Fit Measures

Under this fit measure, the values observed for all indices are NFI (0.912), RFI (0.906), IFI (0.987), TLI (0.986) and CFI (0.987) shows that the indices values are above their threshold value. Hence, it indicates that the model appears to be a good fit.

5.3.3. Parsimonious Fit Measures

Under this measurement,the values of indices are PNFI (0.852), PCFI (0.922), PGFI (.773), and AGFI (0.846). The indice AGFI is marginally fit and other indices are good fit and indicate that the model appears to be a good fit.

From the above three measures and their respective indices values, it can be safely concluded that the model fit is good for this research.

Table 4: Reliability and Validity of Four Outcomes of KM

	AVE	*CR*	*MSV*	*ASV*	*OE*	*OL*	*INO*	*CA*
OE	0.598	0.881	0.220	0.170	**0.773**			
OL	0.647	0.901	0.168	0.129	0.32***	**0.804**		
INO	0.612	0.863	0.202	0.113	0.45***	0.35***	**0.782**	
CA	0.552	0.831	0.220	0.152	0.47***	0.41***	0.29***	**0.742**

Source: Authors' Own Compilation

Note: Significance level is ***=0.001.

The diagonal values with bold numbers are the square root of the AVE and others are the correlation coefficients of various dimensions. In this table, AVE means average variance extracted, CR is construct reliability, MSV stands for mean square variance and ASV is average square variance.

5.4. Reliability and Validity of the Model

5.4.1. Composite Reliability

All the CR values under this model are above the threshold value of 0.7 (table 4). This indicates that there is a high degree of structural relationship between indicators and the constructs.

5.4.2. Convergent Validity

The CR values of all the constructs are above the bold value 0.7 and AVE values above 0.5 (table 4). The CR values are greater than AVE values. The variables under different constructs are strongly associated with their respective constructs. The value of AVE and CR indicates that no convergent validity issue exists in the model.

5.4.3. Discriminant Validity

Under this analysis, the inter-construct covariance values are examined. The values of AVE for all the constructs are greater than both MSV and ASV. Square roots of AVE for all constructs are greater than the horizontal and vertical values (table 4). It shows that no discriminant validity issue exists in the model.

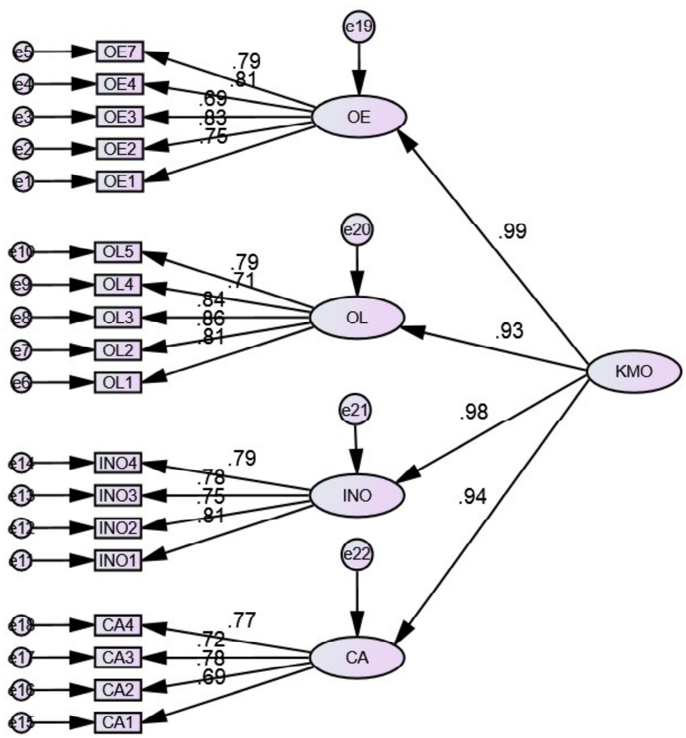

Figure 4: Hypotheses Testing Model of Four Outcomes of KM (The SEM)

Source: Authors' Own Compilation

Figure 4 describes the relationship between four (4) observed variables such as OE, OL, INO, and CA with one (1) latent construct i.e. knowledge management output (KMO). In figure 3 we identified the relationship between 18 observed variables and 4 unobserved variables, which appear in figure 4 as well. The difference between figure-3 and figure-4 is that the latent variables in figure 3 are observed variables where as KMO is the latent variables in figure-4. In the latter figure we have identified the standardised regression values between KMO and OE, OL, INO, and CA. The detailed explanation of this model has been carried out in table 5 and table 6.

Table 5: Model Fit Indices of the SEM

Indices	*Score*	*Impression*
CMIN/DF	1.722	Good fit
RMSEA	0.48	Good fit
RMR	0.021	Good fit
GFI	0.930	Good fit
NFI	0.950	Good fit
RFI	0.942	Good fit
IFI	0.978	Good fit
TLI	0.975	Good fit
CFI	0.978	Good fit
PNFI	0.813	Good fit
PCFI	0.838	Good fit
PGFI	0.731	Good fit
AGFI	0.909	Good fit

Source: Authors' Own Compilation

The table 5 represents different indices values for incremental, absolute, and parsimonious measures under the study. The result shows that all the values are above their respective threshold value. Hence, a good model fit exists in this study.

Table 6: The Result of Testing of Hypothesis

Hypotheses	*Direction*	*(β)*	*CR*	*Estimates*	*SE*	*P*	*Impression*
KMO→OE	+	0.99	15.406	0.775	0.049	***	supported
KMO→OL	+	0.93	17.279	0.637	0.037	***	supported
KMO→INO	+	0.98	16.979	0.720	0.042	***	supported
KMO→CA	+	0.94	14.329	0.660	0.046	***	supported

Source: Authors' Own Compilation

(See below for discussions on Table 6)

5.5. Hypothesis Testing

In table 6, the hypotheses are tested by using SEM. The following measures such as the standardized path coefficient (β-value), critical ratio value (t-value), degree of estimated coefficient (E) standard error (SE), and significance value (P) are considered for analysis. Indicator values of hypotheses show that KMO is significantly and positively associated with OE, OL, INO, and CA. Hence, all the null hypotheses are rejected and alternative hypotheses are accepted in this study.

6. Results and Discussion

The study was conducted with the objective of identifying the outcomes of KM practices in the steel manufacturing organization. From the literature, four (4) such KM outcomes i.e. OE, OL,INO, and CA were identified and empirically tested in the said industry. By using CFA, the outcomes of the KM i.e. OE, OL, INO, CA are found to be strongly and positively associated. The factor loadings of each observed variable with their respective constructs indicates that there is a strong correlation between them. The factor loadings of items OE-5, OE-6, and INO-5 are found to be below the threshold value of 0.7 (figure 2) and indicates a weak relation with their respective constructs. Hence, these items were removed and the model was subjected to further analysis as mentioned in figure 3. The reliability and validity test between items and constructs were found to be valid. Hence, the items under each construct are strongly associated with each other. Individual items and the aggregation of the items with their constructs are strongly associated with each other. The validity test suggests the existence of strong variations among the four outcomes of KM.

Therefore, we see that the outcomes of KM have a strong association in the steel industry. The result of the SEM model also indicates a strong and positive association between the independent and dependent variables.

This study is evaluating KMO in the steel industry in Odisha. The result of this study confirms that OE, OL, INO, and CA are the outcomes of KM in the steel industry. The study will help the managers by pointing out the major outcomes of KM and focus that needs to be given on items under each outcome. This study will support as first-hand information for the managers when applying or redesigning KM and searching for the output of KM. Construct wise application is discussed at the following glance.

First, KM establishing OE an outcome of KM in the steel industry. Through KM practice,OE has been ensured by realizing higher levels of person-job-fit, improvised service and goods quality, coordination, enhanced adoptable capacity for unprecedented change, and management commitment to empower employees. OE is an outcome of KM that is confirmed by some previous researchers such as (Alavi and Lendner, 2001; Chiu and Chen, 2016).

Second, OL is an outcome of KM in the steel industry. The KM practice enhances the learning capability in the organization by identifying and removing prejudices, enriching people's creativity, broadening people's insight, improving and enhancing techniques to execute business. This is consistent with (Handzic, 2011; Lee *et al.*, 2012; Bahrami et al., 2013, Nafi, 2014; Attia and Eldin, 2018).

Third, KM practice leads to innovation in the steel industry. By practicing KM, the organization enhances its existing methods and procedures, adopts new methods, easily finds various alternative work methods, improves individual efficiency and saves time by eradicating unnecessary actions. Some researchers such as (Darroch and Naughton, 2002; Xinli, 2015; Elmorshidy, 2018) have favored this notion.

Fourth, CA can be achieved by adopting KM in the steel industry. This is felt when the organization achieves better return on investment, higher growth, acquires a new segment of customer and fulfils the demand in a quickest manner. This statement 'CA is an important outcome of KM' is also supported by (Carneiro, 2000; Chuang,2004; Aydin and Dube, 2018).

Overall, this study will bring rational ideas about understanding the KM outcomes in the steel industry.

7. Conclusion

The study based on the intent of identifying and defining the outcomes of KM in the steel industry with four outcomes i.e. organizational effectiveness, organizational learning, innovation, and competitive advantage are found to be strongly significant. The consistency between items and constructs are found to be strongly significant. In addition, the aggregation of items with its constructs are strongly associated. Moreover, the SEM model also indicates a strong association between independent and dependent variables. Hence, we conclude that the outcomes of KM foster a deep impact on the steel industry for its all-round development in the competitive world thriving towards the destination of success.

The data used in the study was collected from two steel manufacturing industries. In future studies, it would be interesting to incorporate other steel industries from different provinces of India to broaden the scope of analysis and compare the conclusions with this paper. One may include more respondents to study the correlations. The model may be modified suitably and examined in other manufacturing industries with possibly new variates, which will be an interesting aspect of the analysis.

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Annexure- 1
The Instrument / Questionnaire

Sl. No.	*Outcomes*		*Items/questions*
1	OE		After KM system is introduced
		OE-1	person-job fit has been ensured
		OE-2	innovation in production, product and service has been improved
		OE-3	coordination among different units has been improved
		OE-4	adaptable capacity to unanticipated changes is enhanced
		OE-5	market response time has been decreased
		OE-6	overlapping development of corporate initiatives has been reduced
		OE-7	commitment to empowering employees has been increased
2	OL		The knowledge acquired from KMS
		OL-1	enables to rectify prejudices
		OL-2	enables the development of creativeness
		OL-3	enables creative views in new direction
		OL-4	broadens views on business practices
		OL-5	improves perspectives on the execution of business processes
3	INO		KMS in organization helps in
		INO-1	developing new production methods and procedures
		INO-2	developing existing methods and procedures
		INO-3	identifying alternative ways to carry out work
		INO-4	improving individual ability to carry out work
		INO-5	accomplishing the task in less time
4	CA		Compared to our key competitors, our organization
		CA-1	ensuring higher ROI (Return on Investment)
		CA-2	ensuring higher growth
		CA-3	is attracting more new customers
		CA-4	is quickly meeting the deadlines set by clients

LIFETIME ACHIEVEMENT AWARDEES
OF
ORISSA COMMERCE ASSOCIATION

Year	Venue of the Conferences	Awardees
2017	Fakir Mohan University, Balasore	Prof. Girija Prasad Acharya Prof. Pramod Kumar Sahu
2018	Ravenshaw University, Cuttack	Prof. Ramakanta Jena Prof. Gunanidhi Sahoo
2019	Utkal University, Bhubaneswar	Prof. Umesh Charan Patnaik Mr. Tahalu Sahu
2020	KIIT University, Bhubaneswar	Prof. Pradipta Chandra Tripathy Prof. Malay Kumar Mohanty
2021	L. N. College, Jharsuguda	Prof. Sambhu Prasad Mishra Prof. Damodar Biswal
2022	Odisha State Open University (OSOU), Sambalpur	Mr. Ajodhya Prasad Nayak Prof. Jagannath Panda

[#] This award is given on the overall achievements/contribution in the field of business education in Odisha and involvement for the upliftment of the Orissa Commerce Association.

- A senior faculty above 65 years of age is eligible.

PROFESSOR MALAY MOHANTY ACADEMIC LEADERSHIP AWARD

Year	Venue of the Conference	Name of the Awardee
2022	Odisha State Open University (OSOU), Sambalpur	Prof. Arka Kumar Das Mohapatra Vice-Chancellor Odisha State Open University (OSOU), Sambalpur

Criteria(s) for consideration of the award on the contribution in the fields of:

1. Academic Excellence in Teaching and Teaching Pedagogy
2. Research, Publications of Research Articles and Books
3. Academic and Institutional Leadership
4. Ethical Administration in Academic Institutions
5. Institution Building and Innovations

- A faculty must be above 40 years of age but must not be above 60 years of age.

AWARDS
GIVEN BY ORISSA COMMERCE ASSOCIATION

1. OCA Lifetime Achievement Award
2. Professor Malay Mohanty Academic Leadership Award
3. Professor UC Pattnaik Promising Faculty Award (to a faculty in mid career, popular teacher and with good research work)
4. Professor Malay Kumar Mohanty Best Research Paper Award of the Conference of the Year (including the seminar and all technical sessions taken together).
5. Baldev Kar Award to the Best Research Paper of each Theme presented in the Conference.
6. Major (Dr.) S. A. Taher Best Organiser Award for Outstanding Organising Ability.

FELLOW MEMBERS
OF
ORISSA COMMERCE ASSOCIATION

Sl. No.	Name	Certificate No.
1.	Prof. Malay Kumar Mohanty	2019-F01
2.	Prof. Umesh Charan Patnaik	2019-F02
3.	Prof. Ranjan Kumar Bal	2019-F03
4.	Mr. Tahalu Sahoo	2019-F04
5.	Mr. Baldev Kar	2019-F05
6.	Prof. Sanjay Kumar Satapathy	2019-F06
7.	Prof. Prabodh Kumar Hota	2019-F07
8.	Major S A Taher	2019-F08
9.	Prof. Sarbesh Kumar Mishra	2019-F09
10.	Prof. Srinivas Subbarao Pasumarti	2019-F10
11.	Prof. Sukanta Kumar Baral	2019-F11
12.	Dr. Pradeepta Kumar Samanta	2019-F12
13.	Prof. Santosh Kumar Mohapatra	2019-F13
14.	Prof. Arka Kumar Das Mohapatra	2021-F14
15.	Prof. Sasmita Rani Samanta	2021-F15
16.	Prof. Santosh Kumar Tripathy	2021-F16
17.	Prof. Abhijit Dutta	2021-F17
18.	Prof. Jayanta Kumar Parida	2021-F18
19.	Prof. Damodar Biswal	2021-F19
20.	Prof. Sudhansu Sekhar Mahapatra	2021-F20
21.	Prof. Ambika Prasad Pati	2021-F21
22.	Dr. Abhay Kumar Panda	2021-F22
23.	Dr. Amiya Kumar Mohapatra	2021-F23

INCUMBENCY CHART OF OFFICE BEARERS

Orissa Commerce Association (OCA) started in 1970 in G. M. College Sambalpur, which was the first College to have B. Com. as an under Graduate Course in Orissa. The pioneering founding members of OCA are:

1. Prof. Paresh Chandra Ray
2. Prof. Suryakanta Das
3. Prof. Batakrushna Mohanty
4. Prof. Durga Prasad Nayak

Sl. No	Year	Venue	President	Secretary	Managing Editor of Orissa Journal of Commerce	Number of Issues Published
1.	1970	G.M. College, Sambalpur	Sri Harihar Patel, Ministry of Industires, Govt. of Orissa	*	*	*
2.	1971	Khalikote College, Berhampur	Prof. P.C.Ray, Secretary, Board of Secondary Education, Orissa	*	*	*
3.	1973	Ravenshaw College, Cuttack	Prof. P.C.Ray, Secretary, Board of Secondary Education, Orissa	*	*	*
4.	1974	G.M. College, Sambalpur	Prof. (Dr) Surya Kant Das, Professor of Commerce, Utkal University, Bhubaneswar	Prof. Batakrushna Mohanty, Prof. of Commere, G. M. College, Sambalpur	Dr. Abhaya Kumar, Reader, Department of Commerce, Utkal University	One Issue
5.	1976	Utkal University, Bhubaneswar	Mr. M.P. Modi, I.A.S. Managing Director, IDC	*	*	*
6.	1977	Bhadrak College, Bhadrak	Prof. (Dr) Surya Kant Das, Professor of Commerce, Utkal University, Bhubaneswar	*	*	*
7.	1978	S.C.S. College, Puri	Prof. Batakrushna Mohanty, Principal, G.M. College, Sambalpur	*	*	*
8.	1980	Berhampur University, Bhanja Vihar, Berhampur	Prof. Batakrushna Mohanty, Principal, G.M. College, Sambalpur	*	*	*
9.	1981	K.S.U.B. College, Bhanjanagar	Prof. Ganga Prasad Panda, Principal Lingaraj Law College, Berhampur	*	*	*
10.	1982	Dhenkanal College, Dhenkanal	Shri Durga Prasad Nayak, Principal, Sonepur College, Sonepur.	Dr. Girija Prasad Acharya	Dr. Pramod Ku. Sahu, Berhampur University	One Issue
11.	1983	Ispast College, Rourkela	Prof. Bijay Narayan Pattnaik, Utkal University, Bhubaneswar	Dr. Girija Prasad Acharya	*	*
12.	1985	F.M. College, Balasore	Prof. (Dr.) J.J. Rao, Ravenshaw College, Cuttack	Dr. Girija Prasad Acharya	*	*
13.	1986	Ganjam College, Ganjam	Prof. (Dr) Ramakanta Jena, Dean, Faculty of Commerce, Utkal University, Bhubaneswar	Dr. Girija Prasad Acharya	Dr. Ghanashyam Panda, Berhampur University	One Issue

Sl. No	Year	Venue	President	Secretary	Managing Editor of Orissa Journal of Commerce	Number of Issues Published
14.	1987	L.N.College, Jharsuguda	Prof. (Dr) Pramod Ku. Sahu, Professor , Berhampur University, Berhampur	*	Dr. Ghanashyam Panda, Berhampur University	One Issue
15.	1988	Dhenkanal College, Dhenkanal	Prof. Sambhu Prasad Mishra, Professor of Commerce, G.M. College, Sambalpur	*	Dr. Ghanashyam Panda, Berhampur University	One Issue
16.	1990	Dept. of Commerce, Berhampur University	Sri C. S. Patro, Head, P.G. Department of Commerce, Khalikote College	Dr. Swaroop Ch. Sahoo	Dr. Gunanidhi Sahoo, Principal, Khalikote, Berhampur	One Issue
17.	1994	Bhadrak College, Bhadrak	Prof. (Dr) Gunanidhi Sahu, Principal, Khalikote College, Berhampur	Dr. Jagannath Panda	Dr. Swaroop Ch. Sahoo	One Issue
18.	1995	S.C.S. College, Puri	Prof. (Dr) Girija Prasad Acharya, Professor of Commerce, Ravenshaw College, Cuttack	Dr. Bidhu Bhusan Panigrahi,	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
19.	1997	Womens' College, Jharsuguda	Shri Ayodhya P. Nayak, BJB College, Bhubaneswar	Dr. Damodar Biswal, S.C.S. College, Puri	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
20.	1998	Prananath College, Khurda	Prof. (Dr.) Pradeep Chandra Tripathy, Professor , Utkal University, Bhubaneswar	Prof. Tahalu Sahoo, Principal Womens College, Jharsugara	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
21.	1999	Khalikote (Auto) College, Berhampur	Prof. (Dr) R.P. Choudhury, Principal, Khalikote College (Auto), Berhampur	Malay Kumar Mohanty, Ravenshaw College (Auto)	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
22.	2000	Ispat College, Rourkela	Sri Minaketan Mohapatra Principal, Dehenkanal College	Malay Kumar Mohanty, Ravenshaw College (Auto)	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
23.	2001	Maharshi College of Natural Law, Bhubaneswar	Prof. (Dr) Damodar. Biswal, Professor, Ravenshaw College (Auto), Cuttack	Malay Kumar Mohanty, Ravenshaw College (Auto), Cuttack	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
24.	2004	Kendrapara College, Kendrapara	Prof. (Dr) Jagannath Panda, Professor Berhampur University, Berhampur	Prof. Ranjan Kumar Bal, Utkal University	Prof. Pramod Ku. Sahu, Berhampur University	One Issue
25.	2005	V.N.College, Jajpur Road	Prof. (Dr) Umesh Ch. Pattnaik, Professor Berhampur University, Berhampur	Prof. Ranjan Kumar Bal, Utkal University	Prof. Jagannath Panda, Berhampur University	One Issue
26.	2006	Rayagada College, Raygada	Sri Tahalu Sahu Principal Belpahar College, Belpahar	Prof. Ranjan Kumar Bal, Utkal University	Prof. Jagannath Panda, Berhampur University	One Issue
27.	2007	P.G. Department of Commerce Utkal University, Bhubaneswar	Prof (Dr) Samson Moharana, Professor Utkal University, Bhubaneswar	Prof. Kishore Ch. Rout, Berhampur University	Prof. Jagannath Panda, Berhampur University	One Issue
28.	2008	Fakir Mohan Autonomous College, Balasore	Dr. Arun Kumar Barik, Head, Department of Commerce, Vyasanagar College, Jajpur Road	Prof. Kishore Ch. Rout, Berhampur University	Prof. Ranjan Kumar Bal, Utkal University	One Issue
29.	2009	Govt. Autonomous College, Angul	Maj (Dr.) Abhay Kumar Panda, Principal, Fakir Mohan Autonomous College, Balasore.	Prof. Kishore Ch. Rout, Berhampur University	Prof. Ranjan Kumar Bal, Utkal University	One Issue

Sl. No	Year	Venue	President	Secretary	Managing Editor of Orissa Journal of Commerce	Number of Issues Published
30.	2010	Department of Commerce, Ravenshaw University	Shri Baladev Kar, Principal, Govt. College (Auto), Angul	Dr. Kshiti Bhusan Das, Utkal University	Prof. Ranjan Kumar Bal, Utkal University	One Issue
31.	2011	P. G. Department of Commerce, Berhampur University	Prof. Malay Kumar Mohanty, Former Registrar, Ravenshaw University, Professor G. M. College, Dean Sambalpur University	Dr. Kshiti Bhusan Das, Utkal University	Prof. Ranjan Kumar Bal, Utkal University	Two Issues
32.	2012	P. G. Department of Commerce, Utkal University	Prof. P. K. Biswasray, Professor , Berhampur University	Dr. Kshiti Bhusan Das, Utkal University	Prof. Ranjan Kumar Bal, Utkal University	One Issue
33.	2013	Choudwar College, Choudwar	Prof. Prasant Kumar Sahu, Vice- Chancellor, Utkal University	Prof. Kshiti Bhusan Das, Utkal University	Prof. Malay Kumar Mohanty	One Issue
34.	2014	P. N. (Auto) College, Khurda	Prof. Ranjan Kumar Bal, Professor, Utkal University	Prof. Kshiti Bhusan Das, Utkal University	Prof. Malay Kumar Mohanty	Two Issue
35.	2014-15	Kendrapada (Auto) College	Prof. Kshiti Bhusan Das, Professor, Utkal University	Dr. G. K. Panigrahi	Prof. Malay Kumar Mohanty	Two Issues
36.	2016	Belpahar College, Belpahar	Prof. Girish Kumar Patra, Kendrapada (Auto) College	Dr. G. K. Panigrahi	Prof. Malay Kumar Mohanty	Two Issues
37.	2017	F. M. University, Balasore	Prof. Jayanta Kumar Parida, Professor, Utkal University	Dr. G. K. Panigrahi	Prof. Malay Kumar Mohanty	Three Issues
38.	2018	Ravenshaw University, Cuttack	Prof. Bhagaban Das, Professor, F. M. University	Major (Dr) S. A. Taher	Prof. Malay Kumar Mohanty	Four Issues
39.	2019	P. G. Department of Commerce, Utkal University	Prof. Sanjay Kumar Satapathy, Professor, Ravenshaw University	Major (Dr) S. A. Taher	Prof. Malay Kumar Mohanty	Four Issues+One Special Issue
40.	2020	KIIT, Deemed to be University,	Prof. P. K. Hota Head P.G. Dept. of Commerce, Utkal University	Major (Dr) S. A.Taher	Prof. Malay Kumar Mohanty	Four Issues+One Special Issue
41.	2021	L.N.College, Jharsuguda	Prof. Sasmita Samanta, Pro-Vice Chancellor, KIIT University, Bhubaneswar	Major (Dr) S. A.Taher	Prof. Malay Kumar Mohanty	Four Issues
42.	2022	OSOU Sambalpur	Sri Narendra Kumar Panda	Major (Dr) S. A.Taher	Prof. Malay Kumar Mohanty	Four Issues

* **Information not available:** People concerned are requested to provide the above missing information with proper references. If any error has crept in the above incumbency chart inadvertently, persons are requested to intimate the correction with the required documentation.

ORISSA COMMERCE ASSOCIATION

EXECUTIVE COMMITTEE 2023

LIFETIME ACHIEVEMENT AWARDEES OF ORISSA COMMERCE ASSOCIATION (OCA)

Earlier		Later
	**Prof. Girija Prasad Acharya** **Year of Award** **(2017)**	

Earlier		Later
	**Late. Prof. Pramod Kumar Sahu** **Year of Award** **(2017)**	

Earlier		Later
	**Prof. Ramakanta Jena** **Year of Award** **(2018)**	

LIFETIME ACHIEVEMENT AWARDEES OF ORISSA COMMERCE ASSOCIATION (OCA)

Earlier | **Later**

Prof. Gunanidhi Sahoo
Year of Award
(2018)

Earlier | **Later**

Prof. Umesh Charan Patnaik
Year of Award
(2019)

Earlier | **Later**

Shri Tahalu Sahu
Year of Award
(2019)

LIFETIME ACHIEVEMENT AWARDEES OF ORISSA COMMERCE ASSOCIATION (OCA)

Now

Prof. Pradipta Chandra Tripathy
Year of Award
(2020)

Earlier | **Later**

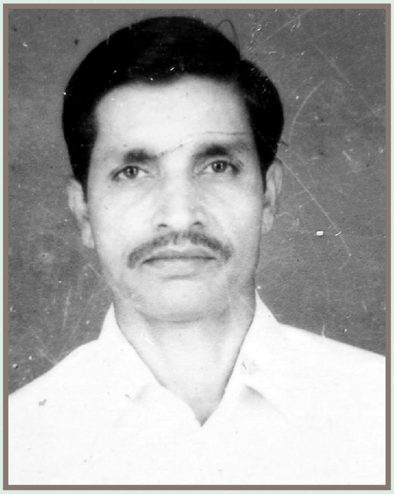
Prof. Malay Kumar Mohanty
Year of Award
(2020)

Earlier | **Later**

Prof. Sambhu Prasad Mishra
Year of Award
(2021)

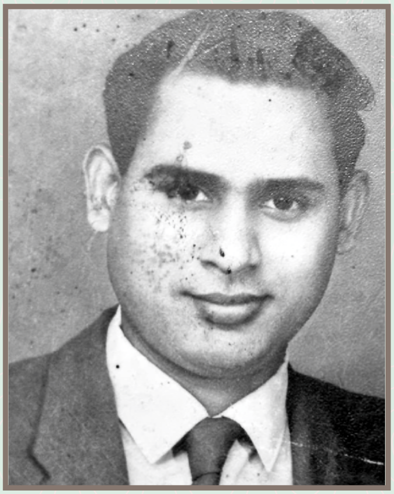
LIFETIME ACHIEVEMENT AWARDEES OF ORISSA COMMERCE ASSOCIATION (OCA)

Earlier | Later



Prof. Damodar Biswal
Year of Award
(2021)

Earlier | Later



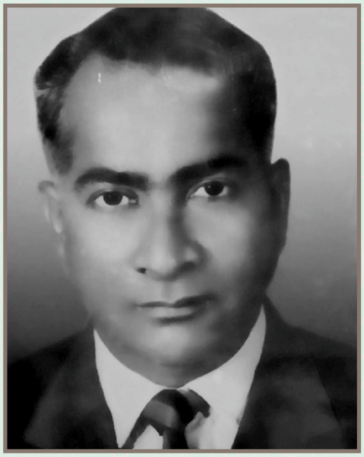
Shri Ajodhya Prasad Nayak
Year of Award
(2022)

Earlier | Later

Prof. Jagannath Panda
Year of Award
(2022)

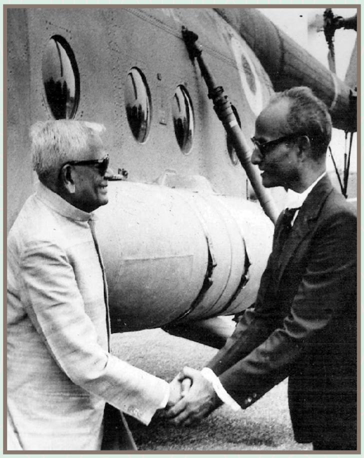
Homage to our Founder Teacher of Commerce Education in Odisha

Late. Mr. Paresh Chandra Ray
Past President OCA (1971, 1973)



Late. Prof. Surya Kanta Das
Past President OCA (1974, 1977)

Late. Prof. Ganga Prasad Panda
Past President OCA (1981)



Late. Prof. (Major) Bata Krushna Mohanty
Past President OCA (1978, 1980)

Late. Dr. Durga Prasad Nayak
Past President OCA (1982)

Late Prof. Bijaya Narayan Pattnaik
Past President OCA (1983)

Late. Prof. Promod Kumar Sahu
Past President OCA (1987)

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a) The manuscripts should be typed in MS Word and 1.5 spaces with margin of 1 inch on all side. An **Abstract of 150-160 words, 5-6 Keywords and 4-5 JEL Classification codes** should be provided in the first page of the paper. **The length of the paper should not exceed 5,000 words.**

b) The title of the paper should be followed by name, designation, affiliation, email and mobile number of the author(s). The surname of the author(s) should be marked in blue colour.

c) The main body of the paper should contain: **1. Introduction, 2. Review of Literature, 3. Objective and Hypothesis of the Study, 4. Research Methodology, 5. Data Analysis, 6. Results and Discussion, and 7. Conclusion.** The conclusion should include research outcomes, implications of research on industry, academia and policy making, Limitation of study if any, and future scope of research if any. The subheadings under each of the main headings should also be numbered accordingly.

d) The tables and figures with their sources should appear in the manuscript near/after where they are referred in the text. All figures and tables should be numbered **(Table 1, 2, 3… & Figure 1, 2, 3…)** and cited in the text with proper headings.

e) It is the author's obligation to provide complete references with the necessary information. **References should be according to APA latest edition arranged in alphabetical order.** The list of all references must be placed at the end of the manuscript.

f) Papers received in the prescribed journal format only will be processed for review. (**For paper template/format, please refer January-March 2021 Journal Issue)**

g) Every paper should accompany a similarity index report in Turnitin antiplagiarism software. **The plagiarism percentage should not exceed 10-12 per cent** (excluding 8 words). Further it should not be more than one per cent from one source.

h) The Editorial Board reserves the right to accept a manuscript for publication. Papers are processed and reviewed through a blind referral system by experts in the subject areas. To ensure anonymity, the author(s) name, designation and other details should appear only on the first page along with the title of the paper and should not be repeated anywhere else. Accepted manuscripts are subject to editorial changes. All the correspondences including acceptance/revision/rejection will be made to the corresponding author.

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