



## **The Impact of Economic Policy Uncertainty on Investment - Cash Flow Sensitivity: Does ESG Make Any Difference?**

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### **Abstract**

This paper investigates the impact of Economic Policy Uncertainty (EPU) on Investment-Cash Flow Sensitivity (ICFS). Further, this study examines whether ESG moderates the impact of such uncertainty on the ICFS of the manufacturing firms in India. The study has applied system-GMM regression with a sample of 222 firms from 2012 to 2022. It reveals that EPU dampens corporate investment and magnifies the role of cash flow in corporate investment. Further, firms' Environmental, Social and Governance (ESG) performance decelerates the adverse impact of EPU on ICFS and makes the investment-cash flow less sensitive. Furthermore, the study highlights that ESG helps to access external funds easily. Overall, this paper contributes new insights to the present literature, and the outcomes of this study are of greater interest to economists, firms, managers, and investors.

**JEL:** D80; E22; G18; G31;G38

**SDG:** SDG 9;SDG 12; SDG 13; SDG 17

**Keywords:** Macroeconomic Risk; EPU; Investment-Cash Flow Sensitivity; Manufacturing Firms; ESG

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## Introduction

Investment is one of the crucial elements of a firm's growth and sustainability as it gives long-term cash flow to the business, widens business operations, improves production capacity, and strengthens the firm's solvency position (Dash & Swain, 2020). At the same time, investment decisions need utmost care as they involve a large amount of cash outlay, irreversible decisions that significantly influence a firm's earnings and growth potential (Dash et al., 2023; Sun et al., 2022). While making such investment decisions, funds can be raised either from external or internal sources, i.e., cash flow from the business operation. In an imperfect capital market, there is a difference in cost associated with both external and internal sources of funds due to the presence of various frictions in the market. Such frictions may be due to information asymmetries, as argued in the pecking order theory (Myers & Majluf, 1984), agency problems, as highlighted in the agency theory (Jensen, 1986), taxes, and various transaction costs, as underlined in the static trade-off theory (Myers, 1977). The difference in cost of internal and external funds motivates a manager to choose wisely between these two alternatives, and imperfectness in the capital market makes the external sources of funds even more costlier than internal sources (Gupta, 2022). Consequently, realizing the importance of cash flow in the investment decision, substantial attention has been paid by researchers across the globe to investigate the dependency of investment on the cash flow of firms, which is known as investment-cash flow sensitivity (Sun, et.al., 2022). However, despite the growing interest in ICFS topics in the corporate finance literature, there is a scarcity of literature emphasising the impact of economic policy uncertainty (EPU) on ICFS.

Since the financial crisis of 2008, the world economy has been challenged by a wide range of policy shocks, including the 2011 Greek debt crisis, the 2011 US debt ceiling dispute, the 2011 Brexit referendum, and more recently, the China-US trade war, the COVID-19 pandemic, and the Russia-Ukraine war, etc. (Chen et al., 2020). According to the "Global Economy Watch" report (PWC, 2019), one of the most considerable degrees of uncertainty in recent times has been produced by the present condition of the world's economy and politics. The growing worry over how policymakers' choices may affect firm profitability and investment is also apparent (Díez-esteban & García-g, 2020). In this context, examining the impact of economic policy uncertainty on firm decisions is highly relevant. Earlier studies have evidence about the effects of EPU on different decisions such as working capital management decisions (Dbouk et al., 2020), capital structure decisions (Im et al., 2020; Li & Qiu, 2021), dividend decisions (Attig et al., 2021; Sarwar & Hassan, 2021), profitability (Iqbal et al., 2020; Ozili & Arun, 2023), firm's growth (Ahsan et al., 2021), financial markets (Luo & Zhang, 2020), etc. However, only a few studies have heeded on the long-term investment decisions (Wang et al., 2014; Chen et al., 2020; Díez-esteban & García-g, 2020).

Further, these studies have mostly been limited to developed economies, and limited attention has been given to emerging economies like India. Only two studies by Gupta (2022) and Gupta et al. (2022) have examined the impact of EPU on ICFS in the Indian context. The study by Gupta (2022) studied the moderating role of CEO education on the EPU-ICFS nexus. Hence, this scenario clearly depicts that the impact of EPU on ICFS has not been explored much in emerging countries like India. Against this backdrop, this paper proposes to study the importance of EPU in driving ICFS of Indian manufacturing firms for the following reasons. First, the paper assumes that all investments, whether in stocks or real estate, include some risk (Gupta et al., 2022). This risk may be macroeconomic, market-specific, or firm-specific.

As a result, a project manager needs to recognise and control the risks related to the investment. Studying the impact of EPU is therefore crucial for every manager. Second, EPU imposes a negative shock on banks, lending organizations, and financial institutions (Wang et al., 2014;

Gupta et al., 2022), eventually raising the cost of external financing for businesses. Consequently, a firm's investment depends only on internal financing (Gupta, 2022). As investment is irreversible, a higher degree of EPU enhances ICFS, necessitates more cash flow for investment, and decreases investment. In other words, the paper posits that EPU creates a wedge between external and internal funds, which ultimately necessitates the role of internal funds in investment decisions.

Further, the fundamental motivation of the paper is to identify the moderating role of environmental, social, and governance (ESG) measures on the relationship between EPU and ICFS. The logic behind correlating ESG with the EPU-ICFS nexus is that ESG may reduce or nullify the cost created due to EPU. According to Attig et al. (2014), socially responsible practices enhance businesses' financial and non-financial success by strengthening connections with important stakeholder groups (customers, workers, suppliers, and regulators). It ensures a firm's long-term orientation towards better transparency, reduces information asymmetry, and builds competitive advantage. It enables access to capital at a lesser cost and may shrink the investment dependency on internal funds. However, evidence of the interaction among ESG, EPU & ICFS is missing. This research gap prompted us to make a novel attempt to bridge the gap and enrich the literature.

This study also addresses the above issue for emerging countries like India. India is unique from developed and other emerging economies and occupies special attention in the ICFS research domain. There are swings in investment because of shifting governments in this politically active country. (Gupta, 2022). Many facts justify that India is an investment-vibrant country, and investment-cash flow sensitivity is a burning issue in the Indian context. Firstly, India emerged as the world's second-largest manufacturer<sup>3</sup> as per the Global Manufacturing Risk Index 2021 (GMR Index 2021). India has surpassed the U.S. to become the second-most preferred global manufacturing destination, supported mainly by cost competitiveness in the GMR Index-2021. Besides this, the Indian manufacturing sector aims to reach \$1 trillion US dollars by 2025 (Gupta, 2022).

Secondly, the implementation of the Goods and Services Tax will contribute \$2.5 trillion US Dollars to India's GDP, which is a significant fascination for financial backers like retail and institutional investors. Thirdly, the Government of India (GOI) has put in place a program like Make in India, hosting the G20 Summit, which helps the Indian manufacturing sector to gain more momentum worldwide. Fourthly, the GOI intends to provide a hundred million jobs shortly, for which the GOI may liberalize investment policy and encourage firms to invest more (Gupta, 2022). In addition to this, there are some elements, such as the growth of the middle class and youthful population; solid domestic demand has the potential to turn India into a reliable investment destination. Fifthly, as a planned economy, India's growth trajectory in all fields makes it lucrative and safe for foreign investment.

Furthermore, as per the IBEF (India Brand Equity Foundation) report<sup>4</sup>, the GOI has kicked off many programs, such as the devising of NIP (New Industrial Policy), the permission of 100% FDI in outsourced manufacturing through automated routes, etc. to promote the Indian economy as a better investment avenue. India also has competitive advantages in many parameters like demographic dividends, availability of an outstanding workforce relatively at lower costs than other nations, robust engineering know-how guided by scientific and technical

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<sup>3</sup><https://economictimes.indiatimes.com/news/economy/indicators/india-emerges-as-second-most-attractive-manufacturing-hub-globally-says-report/articleshow/85557426.cms>

<sup>4</sup><https://www.ibef.org/industry/manufacturing-sector-india.aspx>

institutions, etc. Moreover, the Indian capital market has witnessed numerous changes rolled out by SEBI (Securities and Exchange Board of India), which boosts investors' confidence in the Indian capital market. Finally, India aims to achieve the status of the world's third-largest economy by 2030, and accordingly, it has taken various reform measures<sup>5</sup>. Hence, from the above discussion, it is clear that investment-cash flow sensitivity is highly relevant for emerging economies like India.

So, this paper has a unique contribution to the body of knowledge by adding new insights by synchronizing the theoretical settings with empirical evidence in many ways, such as contributing to the limited literature on “corporate investment, EPU, & ESG” in emerging economies, particularly in India. Further, to the authors' knowledge, this paper examining the impact of EPU on ICFS amidst ESG performance is first-of-its-kind. This paper's remaining sections comprise a literature review followed by research methodology, empirical results & discussion, and conclusion.

### **Literature Review and Hypothesis Development**

The significance of cash flow in investment decisions, known as investment-cash flow sensitivity, as documented by the pioneering study of Fazzari et al. (1988), has triggered a substantial interest among researchers to explore the factors underlying such phenomenon. Investment is considered a growth indicator for firms (Dash & Swain, 2020), but the present VUCA (volatile, uncertain, complex, and ambiguous) environment raises a greater hurdle for a smooth investment agenda. Hence, it is indispensable to analyze each determinant meticulously to take the right investment decision. At this juncture, the business world is at a crossroad, balancing social and environmental responsibilities with economic growth. Policy shocks and economic uncertainties create significant challenges for a firm's growth while discharging social and environmental responsibilities that involve substantial costs. Therefore, the manager needs to identify the impact of such uncertainties on investment and assess ESG's ability to mitigate such uncertainties. The following sub-sections highlight the evidence on such issues.

#### **EPU and Investment-Cash flow Sensitivity**

The effectiveness of an investment decision depends on how efficiently the manager predicts the future cash flow from its investment project (Pandey, 2015). In the past two decades, there has been a remarkable shift in corporate investment policy decisions due to unpredictable changes in cash flow around the globe (Khaib et al., 2021). One of the prominent factors which persuade to change the investment policy is EPU (Díez-esteban & García-g, 2020). However, there is little evidence on how EPU affects investment (Comerio & Strozzi, 2019). Wang et al. (2014) discovered that when Chinese firms confront increased uncertainty, they tend to limit their investment, and public firms rely more on internal financing than state-owned firms during such uncertain periods as internal financing is less costly and provides greater profitability on invested capital. These findings corroborate the findings of Kang et al. (2014) and Baker et al. (2016) in the U.S. context, which advocates that EPU discourages firm-level investment. Taking this argument further, Jackson & Orr, (2019) opine that investors and business groups are concerned about the shifting economic landscape, especially if some policy changes are viewed as unstable or temporary. This situation inherently encourages a firm to postpone the investment and expansion plan and resume such a decision when the probability of uncertainty becomes low. The study of Dejuán & Ghirelli (2019) also agrees with the similar

<sup>5</sup><https://www.makeinindia.com/article/-/v/direct-foreign-investment-towards-india-s-growth>

statement in the context of Spain. They suggest that EPU decreases business investment by increasing precautionary reserves or deteriorating lending conditions. Rodrik (1991) documents that EPU affects not only firm-level investment behaviour but also the country's macro-economic fundamentals such as foreign trade, exchange rate, national savings and socio-political stability, which in turn create a more chaotic situation. According to Julio & Yook (2012), business investment appears to decline in election years. Additionally, they claim that one key mechanism by which the political process influences actual economic results is political uncertainty. For Indian businesses with limited financial resources (financially constrained firms), Gupta & Mahakud (2020) exhibit that the macroeconomic environment is very important. From the above discussion, it is observed that EPU has a significant impact on a firm's investment behaviour. Hence, it will be more beneficial for Indian manufacturing enterprises to comprehend the influence of EPU on ICFS.

The EPU index measures newspaper stories' relative frequency, including phrases linked to the economy, policy, and uncertainty (Díez-esteban & García-g, 2020). This index assesses the degree of uncertainty regarding who will be the future policymakers, what policies will be enacted and when, and the economic repercussions of such policy decisions. In this way, it departs from economic slowdowns. A well-performing economy may witness an increased EPU due to the government's dubious economic policies. It illustrates the process through which regulatory bodies and governments make judgments. Uncertainty rises, and a more unfavourable investment climate results from opaque decision-making procedures and unclear economic policies. If decision-making is opaque or future economic policies cannot be predicted, businesses will not be able to predict the future. As a result, the firm withdraws itself from long-term investment decisions. This fluctuation in policy measures may add more friction in the market, making external funds costly and forcing the financially constrained firm to choose internal funds over external (Gupta, 2022). Complimentary to such reasoning, Kaviani et al. (2020) report that the cost of financing the businesses is significantly impacted by policy uncertainty. Hence, two complementary viewpoints describe how EPU may result in lower investments. First, EPU may push businesses to put off non-reversible investment initiatives since they need more information about their profitability before moving forward (Rodrik, 1991). Second, EPU results in lower investment due to increased external financing costs caused by growing default risk (Gilchrist et al., 2014) or the equity risk premium (Pastor & Veronesi, 2011).

Based upon the above evidence, it can be claimed that as manufacturing businesses are often more capital-intensive, rising uncertainty, i.e., EPU is likely to delay such expenditures. Reduced investment makes it harder for manufacturing companies to satisfy demand and secure revenue or profit. This results in unsatisfied consumers. Hence, the manufacturing industry's growth is hampered by these circumstances. As a result, the investment decision relies heavily on internal funds (i.e., cash flow) to survive in the long run. Given this, the paper proposes the following hypothesis:

**H<sub>1</sub>:** EPU increases investment-cash flow sensitivity.

### **Moderating Role of ESG on EPU and Investment-Cash Flow Sensitivity Relationship**

Next, this paper debates how ESG ameliorates the impact of EPU on ICFS in manufacturing concerns. Waddock & Graves (1997) assert that environmental & social initiatives of a firm strengthen linkages with important stakeholder groups and lower a firm's perceived risk. Their argument is based on 'good management theory'. According to Turban & Greening (1997), environmental and social initiatives aid businesses in retaining qualified personnel and

attracting consumers, which can produce valuable intangible assets (e.g., improved customer and employee loyalty, enhanced capacity to recruit and retain better quality staff). These intangible assets improve a company's competitive position, and financial performance (Legnick-Hall & A., 1996; Attig et al., 2014).

Further, El et al., (2011) suggest that socially responsible activity or ESG performance expands a company's investor pool and lowers perceived risk by reducing the likelihood of future legal action. Therefore, this evidence gives a consensus that ESG boosts corporate value, increase competitiveness and aids in risk management. This paper proposes that ESG can abate market imperfection in such a context, influencing the "wedge" between internal and external funds through two primary channels. First, as expenditure on environmental, social, and governance systems is long-term (Johnson & Greening, 1999), we anticipate that such a long-term approach will build strong connections with stakeholders, reduce information asymmetry, ensure effective use of firm resources, and reduce uncertainty for the firm. Second, we anticipate that ESG will reduce the "wedge" between the costs of internal and external funds by lowering the borrowing cost (Attig et al., 2014) and reducing uncertainty about potential future claims (Waddock & Graves, 1997) as better ESG performance ensures sound governance system complied by robust grievances redress mechanism, transparent disclosure, environmental consciousness and socially responsible behaviour of the firm. Attig et al. (2014) suggest that ESG not only builds goodwill for the firm but also reduces agency costs by which a firm can avoid unnecessary investment and minimize borrowing costs that arise due to failure of investment in the past. Further, when Wall Street provides more extensive coverage of firms prioritising corporate social responsibility, it attracts more media attention and investors' interest. It also drives up demand for information disclosure (Hong & Kacperczyk, 2009). Particularly, environmentally and socially concerned investors may overlook information about poor ESG businesses and focus more on data about high ESG enterprise (Attig et al., 2014). As a result, high ESG businesses are anticipated to provide more information (Attig et al., 2014; Dhaliwal et al., 2011). The study by Kim et al. (2012) shows that socially conscious companies are more likely to encourage managers to provide excellent financial reports and minimize earnings management. This result is consistent with the role of ESG in raising the standard of corporate information.

Similarly, Attig et al. (2013) demonstrate that credit rating agencies frequently give high ratings to top socially responsible firms. In a nutshell, the enhanced information quality brought by ESG would probably mitigate the risk arising due to asymmetric information, improve monitoring quality, and may nullify the shock created by EPU on investment. In this light, the paper proposes the following hypothesis:

**H<sub>2</sub>:** ESG diminishes the impact of EPU on investment-cash flow sensitivity.

Pursuant to the stated hypothesis, the following linkage can be made among EPU, ICFS, and ESG.

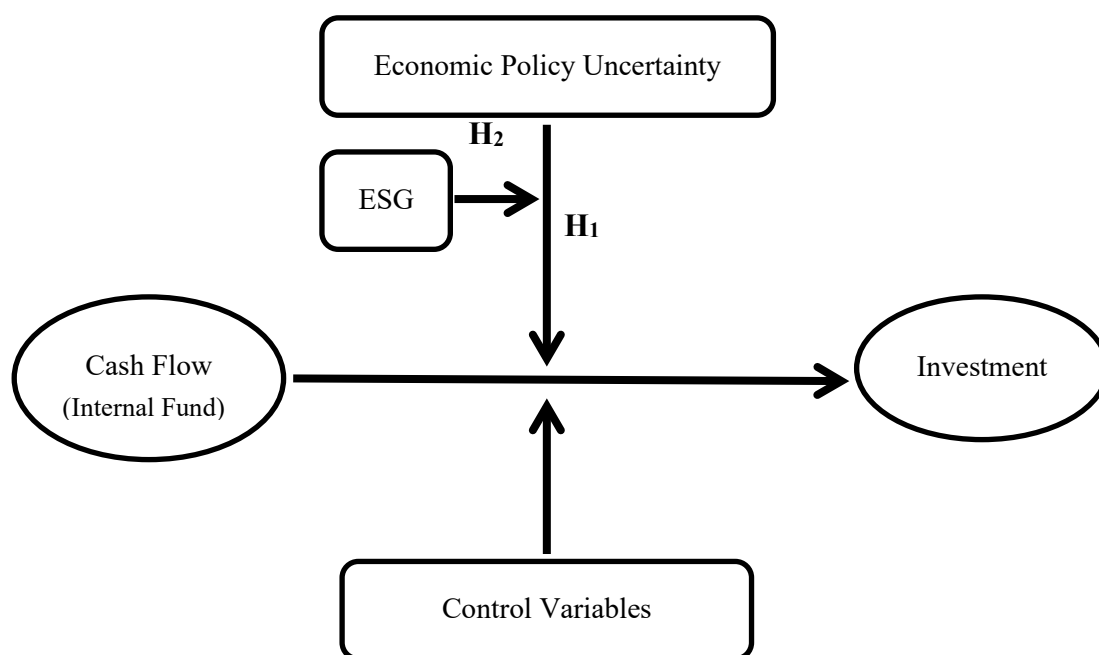


Fig. 1: Conceptual Model

## Research Methodology

### Data and Sample

The data for the study are collected from the “prowess” database of the Centre for Monitoring Indian Economy (CMIE), Bloomberg database, and <https://www.policyuncertainty.com/> for 11 years from 2012-2022. This study is confined to listed manufacturing firms as such firms remain under obligation to pursue the regulatory prescriptions of the SEBI for recording and reporting of financial information. Firms involved in banking and financial services are excluded from the sample as they follow a different set of regulatory and financial reporting practices. Besides, firms having missing data are also not considered. So, a sample data set of 2,442 firm-year observations is assembled for 222 manufacturing firms. Following the methodology of Díez-esteban & García-g (2020), the paper collected monthly EPU index data formulated by Baker et al. (2016). After that, the monthly EPU index is converted into an annual average to align that frequency with the sample’s firm-level yearly data. Besides this, the annual average EPU has been transformed to its natural logarithm to smoothen the data. All data has been winsorized at 99<sup>th</sup> and 1<sup>st</sup> percentile levels to remove outliers.

### Variables

Consistent with the literature, investment has been taken as the dependent variable, and cash flow has been taken as the independent variable representing internal funds. Here, investment is the function of cash flow, which measures investment-cash flow sensitivity. Further, investment is calculated as the change in fixed assets from the previous year to the current year. After that, investment is scaled by the previous year's total asset, so the beginning year of the sample period is not considered for estimation. This study uses EPU as a first-level moderating variable and ESG as the second-level moderating variable. Further, Tobin’s Q, sales growth, firm size, firm age, liquidity, and ROA have been used as control variables to address the influence of possible omitted variables. The description of variables is provided in Table 1.

**Table 1: Variables used in the study**

Variable	Abbreviation	Description	Data Source	Reference
Investment	$I/K$	Net investment in fixed asset (I) (It - It-1), divided by total assets at the beginning of the period (K)	Prowess Database	(Arslan et al., 2006; Brown & Petersen, 2009)
Cash Flow	$CF/K$	Profit after tax (PAT) adjusted for the effect of non-cash items divided by total assets at the beginning of the period (K)	Prowess Database	(Arslan et al., 2006; Brown & Petersen, 2009)
Economic Policy Uncertainty	EPU	Natural logarithm of average EPU value	<a href="http://www.policyuncertainty.com">http://www.policyuncertainty.com</a>	(Wang et al., 2014; Luo & Zhang, 2020; Gupta, 2022)
Environmental, Social and Governance Performance	ESG	Natural logarithm of ESG index score	Bloomberg Database	(Kocmanová & Šimberová, 2014)
Tobin's Q	Q	Market capitalisation plus total assets minus book value of equity whole divided by total assets	Prowess Database	(Attig et al., 2014)
Sales Growth	SG	(Current Year Sales / Previous Sales) - 1	Prowess Database	(Dash & Swain, 2020; Dash et al., 2023)
Liquidity	LIQ	Liquid asset/ Total asset	Prowess Database	(Gupta, 2022; Dash & Swain, 2020)
Leverage	LEV	Total debt/Total asset	Prowess Database	(Dash et al., 2023; Gupta, 2022; Sethi & Swain, 2019)
Firm Size	FS	Natural logarithm of Total assets	Prowess Database	(Dash et al., 2023; Gupta, 2022; Sethi & Swain, 2019)
Firm Age	FA	Number of years since incorporation	Prowess Database	(Dash et al., 2023; Gupta, 2022; Sethi & Swain, 2019)
Profitability	ROA	(Profit after Tax/ Total asset) ×100	Prowess Database	(Dash et al., 2023; Sethi & Swain, 2019)

Source: Authors' collection.



### Estimation Approach

The study uses a panel data set due to its distinct benefits, like controlling unobservable heterogeneity (Hsiao, 2003; Moulton, 1986), gathering extensive observations, minimizing collinearity, and providing technical efficiency (Koop & Steel, 2001). Further, the study applies Generalized Methods of Moments (GMM) regression to generate robust results. GMM corrects heterogeneity arising from unobserved firms, time-invariant effects, measurement error, omitted variable bias, persistence, and endogeneity problem (Caselli, et.al., 1996). Mainly, system GMM is appropriate for studies covering moderate periods where some variables are endogenous, and there is a dynamic relationship between variables (Sheikh et al., 2018). Having 222 firms spanning over 11 years (i.e., N>T), the data set is fit to model through GMM. Investment ( $I/K$ ) is considered dynamic as it shows persistence and is influenced by past observations. Hence, the study tries to model persistence through GMM. Going by the supposition of Arellano & Bond (1991), Arellano & Bover (1995), and Blundell & Bond (1998) where current observation is supposed to get influenced by its past realizations resulting in correlation of explanatory variables with error terms and estimation bias, all explanatory variables like Cash flow ( $CF/K$ ), EPU, ESG, Tobin’s Q, sales growth, firm size, firm age, liquidity, ROA have been considered as endogenous and their lags have been used as instrument to alleviate the possible endogeneity issue. The lag length criteria of lag (0-5) has been used for all the variables. Dynamic panel data estimation has been conducted through Two-Step System GMM. This study has estimated two autoregressive models where Model-I measures the impact of EPU on ICFS and Model-II measures the combined moderating impact of EPU and ESG on ICFS. These two models are as follows:

$$(I/K)_{it} = \beta_0 + \beta_1(I/K)_{it-1} + \beta_2(I/K)_{it-2} + \beta_3(CF/K)_{it} + \beta_4EPU_t + \beta_5(CF/K)_{it} * EPU_t + \beta_6Q_{it} + \beta_7SG_{it} + \beta_8LIQ_{it} + \beta_9LEV_{it} + \beta_{10}FA_{it} + \beta_{11}FS_{it} + \beta_{10}ROA_{it} + \Theta_i + \gamma_t + \varphi_j + \epsilon_{it} \dots\dots\dots(I)$$

The descriptions of the variables taken in the models are depicted in Table 1. Additionally, a firm-specific effect  $\Theta_i$ , time dummy  $\gamma_t$ , and industry-specific effect  $\varphi_j$  have been considered in the models. The subscript “i” represents firms, “t” represents years, “j” represents industry groups, and  $\epsilon_{it}$  represents the error term.

$$(I/K)_{it} = \beta_0 + \beta_1(I/K)_{it-1} + \beta_2(I/K)_{it-2} + \beta_3(CF/K)_{it} + \beta_4EPU_t + \beta_5(CF/K)_{it} * EPU_t + \beta_6(CF/K)_{it} * EPU_t * ESG_{it} + \beta_7Q_{it} + \beta_8SG_{it} + \beta_9LIQ_{it} + \beta_{10}LEV_{it} + \beta_{11}FA_{it} + \beta_{12}FS_{it} + \beta_{13}ROA_{it} + \Theta_i + \gamma_t + \varphi_j + \epsilon_{it} \dots\dots\dots(II)$$

All the variables in Model-II are the same as those in Model-I above.

### Results and Discussion

Before applying statistical and econometric tools to the data, plotting the data in graphs and charts is always an insightful practice. It helps us to identify the nature and direction of data. In this regard, we plotted both EPU and ESG data averages in Figure 2. This graph highlights that in 2011-12, the period of policy paralysis (Economic Survey 2018-19, Government of India), the EPU index reached its highest level. After that, India's EPU has dramatically decreased over the past ten years. It was also affected by a “taper tantrum” in 2013 but comparatively less than in 2011-12. Later, an election also happened, and the Govt. was elected with the majority responsible for pulling down EPU. Further, there was an upsurge in the EPU in 2016 due to a discussion regarding implementing GST in India, which continued till 2018.

Correspondingly, again, it elevated due to the COVID-19 pandemic, which raised unprecedented challenges and made the whole world's economy stand still (Sethi et al., 2021).

On the other hand, how business organizations deal with environmental, social, and governance (ESG) factors is experiencing a paradigm shift in India and throughout the globe. ESG has moved into the spotlight in boardrooms and is now seen as a crucial element of long-term strategy<sup>6</sup>, as opposed to the prior perception that it was primarily an issue of compliance and legislation. This transition has been accelerated by introducing the Business Responsibility Report by SEBI, implementing the Companies Act 2013, launching the United Nations Sustainable Development Goals (SDGs) - 2016, the pandemic, and growing consumer awareness of social responsibility and environmental effects. The implications of climate change, water shortages, air pollution, biodiversity loss, and waste production are now alarming the business firms regarding future uncertainties both from an economic & resources perspective. As a result, firms are sincerely working to improve their ESG footprint. Over the years, we have witnessed an increasing trend in ESG performance.

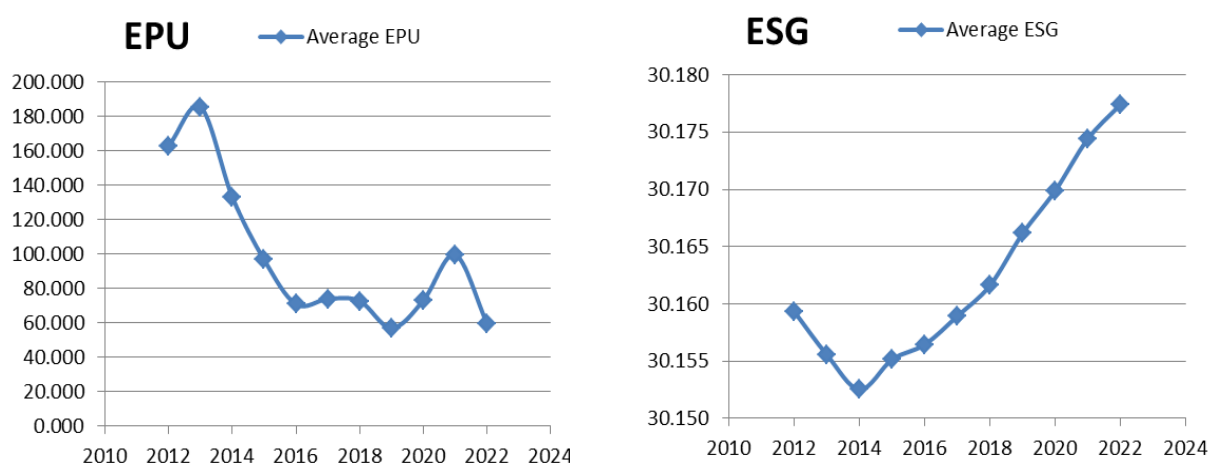


Fig. 2: Average annual trend of EPU and ESG.  
Source: Author’s calculation

### Summary Statistics

Table 2 below illustrates the summary statistics of the variables. The mean  $I/K$  is 0.026, indicating that per year, an average Indian manufacturing firm spends around 3% of its total assets towards capital expenditure. The mean of  $CF/K$  is 0.110, which suggest that on an average Indian firm has cash flow of around 11% of their total asset. The mean of EPU, ESG, Tobin’s Q, sales growth, liquidity, leverage, firm size, firm age, and ROA are 98.700, 30.201, 3.101, 0.110, 0.370, 0.420, 10.601, 50.801, and 6.550 correspondingly. The values are consistent with the prior work of Jarboui (2017).

<sup>6</sup> <https://planet.outlookindia.com>

**Table 2: Summary Statistics**

Variable	Mean	Median	S.D.	Min.	Max.
$I/K$	0.026	0.010	0.110	-0.540	2.380
$CF/K$	0.110	0.101	0.101	-0.400	1.680
EPU	98.700	74.001	41.301	57.000	185.000
ESG	30.201	29.110	12.801	0.000	65.500
Tobin's Q	3.101	2.160	2.821	0.810	31.400
Sales Growth	0.110	0.080	0.480	-0.960	12.301
Liquidity	0.370	0.350	0.181	0.020	0.940
Leverage	0.420	0.390	0.271	0.020	3.430
Firm Size	10.601	10.510	1.401	6.820	16.101
Firm Age	50.801	47.001	22.80	11.000	158.000
ROA	6.550	6.140	8.722	-62.200	78.900

Source: Author's calculation

### Correlation Matrix and Multi-collinearity Test

Before applying the multiple regression, it is necessary to check whether there is any strong association among independent variables. If so, it leads to a multi-collinearity issue; hence, we have tested the multi-collinearity highlighted in Table 3 through the correlation matrix and variance inflation factor. The correlation coefficient values between 0.001 to 0.734 (<0.80) indicate no collinearity, as recommended by Gujarati, (2004). Further, the highest VIF is 2.839 (<10), indicating the absence of a multi-collinearity problem as suggested by Chatterjee & Hadi (1977) and O'Brien (2007).

### Regression Results

Table 4 highlights the GMM regression results of Model-I and Model-II that examine the impact of EPU on ICFS and check the moderating effect of ESG on EPU-ICFS relationship respectively. The Hansen test, which indicates the overall validity of the instruments with the null hypothesis that "instruments as a group is exogenous," has been used for the diagnostic test of GMM. As the p-value of the Hansen Test is greater than 0.10, an inference can be drawn that the instruments used are robust. Further, to prevent over-identification, the number of instruments must be less than or equal to the number of groups. The model also meets this criterion, which indicates that the model is free from over-identification issues. Next, the AR(1), AR(2), and AR(3) statistics are used to check for autocorrelation or serial correlation issues. The AR(1) depicts the first-order serial auto-correlation i.e., the differenced error term is serially correlated at AR(1), and AR(2) detects autocorrelation at levels. The null hypothesis of AR(2) statistics indicates no autocorrelation exists in the error term, which is accepted in all the cases demonstrating the absence of autocorrelation in the model. AR(3) test has been performed to test the prevalence of auto-correlation at succeeding lag. The AR(3) statistics also demonstrate the absence of autocorrelation in the model.

Model I & II results confirm that the cash flow positively and significantly impacts investment. This finding reveals that Indian manufacturing firms depend mainly on their cash flows for investment decisions. It also supports the argument of Dash et al. (2023); Gupta (2022); Gupta & Mahakud (2020) that Indian manufacturing firms are financially constrained, and there is a difference in cost associated with internal and external sources of funds. Further, the impact of EPU on ICFS has been captured in Model-I, and the result reveals that EPU discourages

corporate investment in India. It also discloses the fact that EPU increases the ICFS. The need for cash flow in investment decisions is more pronounced in the EPU situation than in the ordinary situation. This result specifies that EPU has a negative impression on lending institutions and the financial market; consequently, internal funds appear cheaper than external funds, and firms are encouraged to choose internal funds over external funds (Gupta, 2022).

Furthermore, this finding generates some curiosity about investigating the moderating role of ESG on the EPU-ICFS nexus. Attig et al. (2013) highlighted that credit rating agencies frequently give high ratings to top socially responsible firms, and ESG also helps the firm in mitigating risk & uncertainties. In this regard, Model-II measures the moderating impact of ESG and finds that ESG nullifies the impact of EPU on ICFS by reducing the sensitivity of investment-cash flow. Hence, we can infer that ESG firms are less dependent on their internal fund while taking investment decision. It also improves firm's ability to raise external funds during economic policy uncertainty.

Additionally, the result highlights that lagged investment has a negative and significant impact on current-year investment, which advocates that in the case of Indian manufacturing firm, preceding year investment restricts the firm from going for further investment. Similarly, investment opportunities (Tobin's Q) and sales growth are found to have a positive and significant impact on investment, which indicates that these are encouraging factors and aid a firm's investment agenda. On the other hand, liquidity discourages firms from investing further.

**Table 4: Impact of EPU on ICFS and Moderating Role of ESG: GMM Approach**

Variables	Model-I		Model-II	
	Coefficient	p-value	Coefficient	p-value
$(I/K)_{it-1}$	-0.028***	0.000	-0.030***	0.000
$(I/K)_{it-2}$	-0.020***	0.000	-0.014***	0.000
$(CF/K)_{it}$	0.035*	0.066	0.191*	0.076
EPU <sub>it</sub>	-0.117***	0.000	-0.090***	0.001
$(CF/K)_{it} \times EPU_t$	0.041**	0.026	0.007*	0.074
$(CF/K)_{it} \times EPU_t \times ESG_{it}$			-0.003**	0.013
Tobin's Q <sub>it</sub>	0.003***	0.000	0.003***	0.008
Sales Growth <sub>it</sub>	0.050 ***	0.000	0.043***	0.000
Liquidity <sub>it</sub>	-0.301 ***	0.000	-0.347***	0.000
Leverage <sub>it</sub>	0.014 **	0.013	-0.012	0.172
Firm Size <sub>it</sub>	0.003**	0.019	-0.001	0.517
Firm Age <sub>it</sub>	-0.001***	0.000	-0.001***	0.003
ROA <sub>it</sub>	-0.001***	0.000	-0.001***	0.000
Intercept	0.617***	0.000	0.617***	0.000
Time Effect	Yes		Yes	
Industry Effect	Yes		Yes	
AR (1) test [p-value]		0.004		0.004
AR (2) test [p-value]		0.286		0.190
Sargan-Hansen test [p-value]		0.196		0.258

Source: Author's calculation

**Table 3: Correlation Matrix and Variation Inflation Factor**

	$I/K$	$CF/K$	EPU	ESG	Tobin's Q	Sales Growth	Liquidity	Leverage	Firm Size	Firm Age	ROA	VIFs
$I/K$	1	0.087	0.047	0.012	0.007	0.186	-0.120	-0.064	0.060	-0.004	0.048	
$CF/K$		1	-0.0081	0.069	0.481	0.091	0.155	-0.397	-0.091	0.039	0.734	2.226
EPU			1	-0.400	-0.144	0.003	0.053	0.078	-0.121	-0.109	-0.027	1.226
ESG				1	0.193	-0.001	-0.133	-0.138	0.503	0.100	0.099	1.695
Tobin's Q					1	0.011	0.141	-0.287	-0.017	0.106	0.577	1.603
Sales Growth						1	-0.018	0.000	0.025	-0.024	0.101	1.034
Liquidity							1	-0.086	-0.311	-0.062	0.212	1.164
Leverage								1	0.111	-0.097	-0.484	1.386
Firm Size									1	0.083	-0.065	1.545
Firm Age										1	0.042	1.037
ROA											1	2.839

Source: Author's calculation

## Conclusion and Implications

This study aims to examine how the ICFS of Indian manufacturing companies is affected by EPU. This study also investigates whether the ESG performance of a firm mitigates the effect of such risks on the ICFS. The result of the study aligns with our anticipation and shows that EPU dampens corporate investment and accentuates the influence of cash flow on corporate investment. Further, a firm's ESG performance reduces the adverse effects of EPU on ICFS and lessens the sensitivity of the investment-cash flow.

The research findings are relevant to project managers, investors, regulators, lenders, financial institutions, and academics in several ways. First, this study can help project managers to make strategic business decisions. EPU considerations into the strategic decision-making processes can add more value to the business and enable the firm to mitigate potential risks. Further, identifying the impact of ESG performance on mitigating EPU effects, companies should prioritize and enhance their sustainability initiatives. Second, investors can use the study's findings to refine their investment strategies by factoring the influence of EPU on ICFS. An emphasis on firms with robust ESG performance can be considered as a risk mitigation strategy. Third, regulators can take note of the study's insights to inform policy adjustments aimed at reducing the adverse effects of EPU on corporate investment. The regulator needs to implement the right policy changes, such as low-interest rates, hassle-free investment, easy access to external funds, etc., to develop the country's economy & contribute to a more sustainable financial ecosystem. Fourth, financial institutions and lenders can use ESG performance to assess the firm's creditworthiness. Fifth, academic institutions can incorporate the findings into their curriculum to educate future business leaders on navigating economic uncertainties. The paper could greatly aid students in understanding the practical implications of economic policy uncertainty. Sixth, the board members demonstrate their commitment to ESG principles, fostering trust and confidence among investors, customers, and other stakeholders. Lastly, consistent EPU and ESG performance monitoring can enable proactive adjustments to mitigate potential risks and capitalise the opportunities.

## Limitations of the Study and Scope for Future Research

The study solely considers manufacturing companies, but future research can be expanded to include service companies. Cross-country analysis can be done in future work to get further insights into the subject. Next, the study's data consisted of quantitative financial data from financial statements. However, some qualitative aspects, such as the personal attributes of the project manager & CEO of the organization, and the type of project (investment), etc., may have a substantial influence on the firm's investment decisions and can be taken into account in future work. Although the study considers the overall ESG performance, future work can consider each ESG components i.e. environmental, social and governance separately to enrich the literature.

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## Appendix

Table A1 : Industry-wise distribution of sample firms

Industry Group	Two-Digit National Industrial Classification Code	Number of Firms	Observations
Chemicals and Chemical Products	20	52	572
Basic Metals	24	25	275
Pharmaceuticals, Medicinal Chemical and Botanical Products	21	23	253
Non-Metallic Mineral Products	23	20	220
Machinery and Equipment	28	18	198
Rubber and Plastics Products	22	14	154
Other Manufacturing	32	13	143
Motor Vehicles, Trailers and Semi- Trailers	29	13	143
Food Products	10	12	132
Electrical Equipment	27	11	121
Paper & Newsprint	17 & 18	9	99
Textiles	13	6	66
Alcoholic Beverages	11	5	55
Furniture	31	1	11
<b>Total</b>		<b>222</b>	<b>2,442</b>