Accounting 12 (2026) 103–114

Contents lists available at GrowingScience

Accounting

homepage: www.GrowingScience.com/ac/ac.html

Agency cost effects of ESG risk on working capital and cash conversion cycle: Evidence from Japan, France and United Kingdom

Subrata Roy[a*] and Shubham Kumar[b]

[a]*Professor & Head, Department of Commerce, Mahatma Gandhi Central University, Motihari, Bihar, India – 845401*
[b]*Research Scholar, Department of Commerce, Mahatma Gandhi Central University, Motihari, Bihar, India- 845401*

C H R O N I C L E

Article history:
Received July 22, 2025
Accepted September 18 2025
Available online
September 19 2025

Keywords:
Corporate governance
ESG risk
Working capital
Agency costs
Cash conversion cycle

A B S T R A C T

The present study has considered securities data and Environmental, Social and Governance (ESG) measures of firms from France, Japan and the United Kingdom. Securities data and ESG measures are subjected to cross-sectional OLS regressions of working capital and cash conversion cycle on ESG risk ratings. Agency cost effects have been found, as ESG risk increased working capital, while reducing the cash conversion cycle. Results are consistent across all three countries. It has been concluded that failure to meet ESG goals increases firm risk. The increase in risk may be met by increasing short-term liquidity. The unnecessary increase in short-term liquidity limits the firm's ability to employ funds to exploit growth opportunities and maximize shareholder wealth.

© 2026 by the authors; licensee Growing Science, Canada.

1. Introduction

Corporate governance may be explained by stakeholder theory. The firm has multiple stakeholders such as employees, unions, regulators, vendors and environmental groups. Employees seek fair wages and working conditions, as do unions. Similarly, regulators impose restrictions on firm activity. Vendors seek contracts to supply the firm with production inputs. Finally, environmental groups require compliance with safety standards, the installation of pollution control equipment along with investment in energy conservation and preservation of natural beauty. Freeman (1984) introduced stakeholder theory to explain the firm's responsibility to all these stakeholder groups. Management's performance in meeting multiple stakeholder claims is assessed through the board's evaluation of management. To the extent that the board provides an objective assessment of top management's ability to satisfy stakeholder needs, corporate governance mechanisms improve firm performance. Mechanisms to hold management accountable include independent directors, large shareholders as board members, board compensation and investor legal protection. Independent directors are not employed by the firm that they are evaluating, suggesting impartiality in assessment. Large shareholders on the board have a personal investment in the firm, so rigorously evaluate management's ability to increase their wealth. Compensation of board members may incentivize the board to be more thorough in evaluating management. Countries with investor legal protection may be expected to support objective assessments of top management. El-Chaarani et al., (2022) review describes numerous studies in which these mechanisms held management accountable in multiple countries.

Corporate governance and the lack thereof are driven by ethical principles. Corporations are expected to uphold morality in the relationships with stakeholders. They must strive to be fair and just in providing safe working conditions and equitable hiring and promotion policies pertaining to employees. They must enact policies to protect and conserve the environment to satisfy regulators and environmental groups. They must increase confidence by paying vendors

* Corresponding author. Tel.: +919153627452
E-mail address: subrata1_roy@yahoo.com (S. Roy)

ISSN 2369-7407 (Online) - ISSN 2369-7393 (Print)
© 2026 by the authors; licensee Growing Science, Canada.
doi: 10.5267/j.ac.2025.9.005

promptly. As implementers of business decisions, management must adopt ethical principles in its interactions with stakeholders. It follows that the lack of corporate governance is the collapse of morality. The aforementioned hoarding of cash for perquisites, personal expenses and nepotism is immoral conduct that is detrimental to the goal of a business to be a good corporate citizen that values fairness, honesty and equity.

Conversely, the lack of corporate governance may be associated with agency costs. In a seminal paper, Jensen and Meckling (1976) observed that large cash balances incentivized managers to engage in behavior that yielded private benefit, while harming the financial performance of the firm. The cash was used to make acquisitions and expand internationally which created the illusion of active and engaged managers, even though the projects failed to contribute to shareholder wealth maximization. Excess cash could also be used for personal expenses, perquisites and nepotistic hiring of friends and family.

An agency cost that pertains to stakeholder theory is ESG risk. ESG risk has three components. The first component is environmental risk. It is the additional cost to the firm of failure to meet regulatory compliance requirements. Fines may be levied upon firms for pollution of rivers and lakes, refusal to install pollution control devices like scrubbers in factories and lawsuits from individuals injured from polluted work environments. Reputational damage results as the public becomes aware of the firm's record of failure to comply with environmental standards. The second component is societal risk or risk to communities and customers. Late payments and cancelled orders adversely affect relationships with vendors. Customers expect products to be safe and useful. Defective products, outdated merchandise and late deliveries increase societal risk pertaining to customers. Finally, governance requires that the firm be transparent in dealings with employees with appropriate policies and procedures. Hiring performance reviews and compensation must be administered with clearly defined processes. Environments with nepotism in hiring, unjust performance reviews and inequity in compensation breed employee mistrust or increase governance risk. Simply put, ESG risk is the agency cost of neglecting environmental, social and governance goals.

We maintain that ESG risk is costly in all three components. Regulatory compliance with environmental standards, compensation to customers for defective products, loss of vendors and law suits from lack of governance in the treatment of employees impose a financial burden on the firm. This financial burden may be mitigated by holding large working capital balances and freeing up cash to pay for failure to meet ESG requirements. Working capital is the difference between current assets and current liabilities. Current assets consist of cash, accounts receivable and inventory. These assets are liquid because of their easy conversion in cash. Generally, it suffices if a firm has sufficient current assets to meet current debts, such as wages payable and taxes payable. Management may support a precautionary motive for holding cash that could be used for unexpected expenses. Management may maintain a large working capital balance to pay for the fines and lawsuits from high ESG risk. We posit that ESG risk will significantly increase working capital only in the situation with fines and lawsuits from high ESG risk. This is the central hypothesis of this study.

Another source of cash that may be misused as agency cost is the cash contained in the cash conversion cycle. The Cash Conversion Cycle = Accounts Receivable Period + Inventory Period–Accounts Payable Period. The Accounts Receivable Period is the time taken for a firm to collect cash on credit sales. Cash is trapped in accounts receivable until it is converted to cash upon collections. Therefore, the longer the Accounts Receivable Period, the longer cash is unavailable for managerial use. Conversely, the shorter the Accounts Receivable Period, the faster the collection of cash from credit sales. Likewise, inventory traps cash, as unsold goods do not generate cash. A short inventory period suggests that goods will be sold quickly to produce cash. A long accounts payable period means that the firm is conserving cash by delaying cash payments to vendors. In essence, firms with short cash conversion cycles, i.e. with fast collections, fast sales of inventory and longer time to pay suppliers, will be able to free up cash contained in the cash conversion cycle. This cash may be used to meet the fines, lawsuits and charges from non-compliance due to ESG risk. Therefore, empirically ESG risk may be expected to reduce the cash conversion cycle is the secondary hypothesis of this study.

Does the literature address the effect of ESG risk on working capital and the cash conversion cycle? Dittmar et al., (2003) has observed 25% higher cash holdings in countries with lower levels of shareholder protection, suggesting that countries with less shareholder protection held more cash to pay for disputes arising from infringement of shareholder rights. Yet, the study does not directly measure ESG risk. Many studies have measured ESG risk ratings but none of them have measured the impact of ESG risk ratings on working capital balances and cash balances. Cohen (2023a) has observed that a sample of S&P 500 U.S. stocks with high ESG risk ratings had reduced Altman Z-scores, suggesting their increased likelihood of bankruptcy. Ernst and Woithe (2024) have observed that higher levels of ESG risk are associated with higher cost of debt and higher cost of equity for a similar sample of S&P 500 stocks. Both creditors and stockholders viewed high ESG risk as increasing the risk of both debt capital and equity capital. Cohen (2023b) has found reduced excess returns from high ESG risk in a companion study of S&P 500 U.S stocks result with high ESG risk with reductions in firm value.

This study contributes to the advancement of knowledge in three ways. First, it measures the impact of ESG risk ratings on working capital balances and cash balances in three non-US countries. It adds to the knowledge of ESG risk effects found in prior US-based studies by employing samples of stocks traded in three major industrialized nations, including

France, Japan and the United Kingdom. France and Japan are trade economies with manufacturing firms that have accounts receivable, inventory and accounts payable, thereby increasing the opportunity for measuring both working capital and the cash conversion cycle. All three countries have ESG compliance requirements, so that ESG risk may be measured. Second, it advances the literature on the effects of corporate governance on working capital balances and cash holdings. Gill and Shah (2012) have cautioned against the holding of excess cash whose low returns run counter to the goal of shareholder wealth maximization. For Canadian firms, they found that CEO duality (CEO is Chairperson the Board) and board size increased cash balances. The lack of objectivity in evaluating management from CEO duality and large boards permitted management to hold large cash balances for private benefit. Fiador's (2016) has yielded mixed results, finding that board independence reduced working capital balances and reduced the cash conversion cycle.

Board independence is a form of good governance with external directors objectively assessing management's performance. Yet, board independence increases working capital efficiency, while reducing the efficiency of cash management. This study adds by using ESG risk as a novel measure of failed governance that influences working capital management and cash management. Third, the study adds to the literature on agency theory. This is the first study to measure ESG risk as imposing agency costs on the firm. Corporate governance studies (Azeem et al., 2022) have measured agency cost effects in terms of CEO duality, board size and board independence. Yet, none of these studies have used ESG risk ratings as a measure of agency costs.

The remainder of this paper has been organized as follows. Section 2 reviews extensive literature, Section 3 has developed hypotheses, Section 4 has dealt with methods and materials, Section 5 has explained results and section 6 is conclusions.

2. Literature review

2.1 Theories of Corporate Governance Pertaining to ESG Risk

Freeman (1984) has expounded upon the stakeholder theory of the firm. The firm is a network of relationships with multiple groups who have a stake in the firm's success. Managerial performance is based on the ability to optimize these relationships by resolving conflicts and creating enduring partnerships. The stakeholder approach upholds the notion that competitive advantage is achieved by satisfying stakeholders (European Commission, 2008). Some of the groups are vendors, regulators, government, unions, employees, shareholders, and environmental groups. Mitchell et al., (1997) has set forth power, legitimacy and urgency criterions that could be used to categorize the impact of various stakeholder groups. Shareholders, vendors, and unions have the power to alter managerial decisions. Employees can enforce the terms of their employment contracts, suggesting legitimacy. Regulators and environmental groups may restrict the firm's activities in an exercise of urgency.

Agency theory presents an alternative view of the firm. Managers are agents of the shareholders whose stock ownership makes them the owners of the firm. Managers must act in the best interest of the shareholders who have entrusted their funds to the firm. It is possible that managers may shirk their responsibility to the shareholders, preferring instead to take actions that yield private benefit. Jensen and Meckling (1976) have revealed agency costs in the use of excess cash. Firms that generate excess cash fail to use the cash balances wisely, as management either uses the funds to pay for perquisites or invests the funds in unprofitable projects that are sufficiently visible to impress their superiors.

2.2 ESG Risk and Financial Performance

ESG risk is an agency cost of failure to comply with standards for environmental protection, societal obligations and governance within the firm (Cohen, 2023a). The motivation for the failure to comply with ESG standards is the valuing of private benefit over obligation to the firm. This is the personal choice of the manager to forego the responsibilities of an effective agent in favor of personal pecuniary benefit. The literature has documented that the agency cost of ESG risk, manifested as ESG risk ratings, has a deleterious effect on firm performance. In successive studies, Cohen (2023a) has observed reductions in stock returns for firms with high ESG societal risk ratings. A subsequent study has found reductions in the Altman Z-score due to societal and governance risks. As the Altman Z is a measure of bankruptcy, Cohen (2023a) has concluded that increased societal and governance risk reduced firm survival rates.

Further, Chen et al., (2023) has revealed that the positive impact of ESG rating on corporate financial performance is more pronounced in the high-risk case than in the low-risk case. Bruna et al. (2022) has investigated 350 European listed companies and revealed a positive and significant impact of ESG performance on financial performance, when an extra-financial disclosure mandatory regime is in force. In addition, Tanjung (2023) has found that non-environmental, social and governance (ESG) companies' cost of capital is lower than that of ESG firms Ernst et al. (2024) have conjectured that the cost of capital would increase for firms with high ESG ratings. As lenders perceive these firms to have greater default risk, they increase the before-tax cost of debt. There is a spillover effect from debt to equity suggesting that as the risk of debt increased, the risk of equity capital increased, as well. Although useful, these studies do not fully capture the effect of ESG risk on firm performance. They do not measure ESG risk effects on short-term capital, i.e. debts and investment held for less than a year. Two sources of short-term capital are working capital and cash. Hence, this study examines ESG risk ratings on working capital and the cash conversion cycle.

2.3. Working Capital and the Cash Conversion Cycle

Working capital is a measure of short-term liquidity, or the ability of the firm to use cash and near-cash accounts such as accounts receivable and inventory to pay debts due within a year such as wages and taxes. The effective management of working capital requires having sufficient cash and near-cash accounts, i.e., to meet current debts, such as short-term loans, wages and taxes. Intuitively, excessive cash or working capital is detrimental to long-term growth as maintaining large cash balances prevents the funds from being invested in growth opportunities. Why would a firm maintain excessively high levels of cash and working capital? Dittmar et al. (2003) have conjectured that unusually high working capital balances are caused by the agency costs of poor corporate governance. Using a large international sample of 11,000 firms from 45 countries, observed that firms held higher working capital balances and cash balances in countries with limited investor protections. Firms held the excess cash to settle disputes arising from investor losses due to limited legal redress. Weak corporate governance increased the inefficiency of managing working capital. CEO duality is a form of poor corporate governance, as a single individual's occupancy of both roles confers considerable power resulting in agency costs of maintaining excessive working capital for private benefit. Drobetz et al. (2004) has used a Swiss sample to support an increase in working capital due to CEO duality. Lau and Block (2012) has found that weak governance in firms with controlling founders led to higher cash balances, indicating that founder-controlled firms kept more cash on hand to distribute to family members.

The cash conversion cycle is the time taken to convert accounts to cash. Accounts receivable consists of credit sales. Shortening the accounts receivable period indicates that accounts receivable is being converted to cash more rapidly. The inventory period consists of the time that finished goods are spent in inventory. Shortening this period means that goods are sold more rapidly generating cash. Finally, the accounts payable period is the time taken to pay suppliers. Lengthening the accounts payable period has the effect of delaying cash payments, leading to higher cash balances. In essence, efficient cash conversion cycles shorten the period taken to free cash trapped in credit sales (accounts receivable) and inventory (inventory period) and lengthen time taken to pay cash to vendors (accounts payable). The literature supports such increases in liquidity by shortening the cash conversion cycle. Abbas et al. (2019) has found that for firms listed on the Pakistan Stock Exchange, the corporate governance mechanism of ownership concentration significantly reduced the cash conversion cycle. Large shareholders demanded that management shorten the cash conversion cycle to free up cash, thereby increasing liquidity, or the ability to meet short-term expenses. Likewise, indebted firms shortened the cash conversion cycle to generate the cash to pay debt. Fiador (2016) has shown that independent directors with reduced cash conversion cycles, as these directors required greater liquidity from reduced collection periods and inventory holding periods among Ghanaian companies. Results may be sample-specific as Pangestuti et al. (2021) has failed to find any impact of corporate governance on the cash conversion cycle. Thus, high ESG ratings may lead to lawsuits, fines and sanctions that require significant expenditure of cash. Firms may respond by reducing the cash conversion cycle to release the cash needed to pay these amounts. This reason for reduction of the cash conversion cycle has not been advanced in the literature.

3. Hypotheses Formulation

3.1 ESG Risk in Japan as a Predictor of Working Capital and the Cash Conversion Cycle

ESG disclosures are the disclosure of the firm's performance with respect to ESG goals. High ESG disclosures suggest that firms are investing in ESG production, including pollution- control equipment and the training of employees in green production. Tolliver et al., (2021) has found that Japan surpassed its Asian neighbors in green patents from 1995-2015. As the government encouraged firms to engage in the production of innovative green products, Japanese firms eagerly accepted the challenge, producing a variety of green products. Therefore, Japanese firms may have embraced the E aspect of ESG by increasing their commitment to the protection of the environment. Mohamad et al., (2021) has supported this position with Japanese firms showing the second highest environmental scores in Asia. Further, Bao and Yoshihisa (2021) observed that Japanese firms have increased their ESG commitment upon observing that their commitment in the previous year was lagging.

In Japan, ESG disclosures are found to be lower for governance than either 'environment,' which is high, or 'social,' which is moderate (Mohamad et al., 2021). This finding may not be surprising given the long work hours and high expectations of Japanese firms. The pressure to produce green products with low green foreign direct investment may be one of the causes of stressful working conditions. The higher ESG risk from lesser scores on governance may lead to fines from the government seeking to enforce optimal working conditions and the need to pay for medical care brought on by overwork and work stress. These expenses will need to be paid in cash. Hence, Japanese firms may hold higher working capital balances to provide the cushion of capital needed. The firms may shorten the cash conversion cycle to release the cash needed to make these payments.

Japan is a trade economy, and has dominated the automobile industry for many years. In a trade economy, the firm has relationships with suppliers and business customers. In order to increase sales from business customers, the firm may increase its average collection period. This action encourages business customers to increase their volume of purchases. Increased sales increase cash balances, which are the components of working capital. It is unlikely that firms will stretch accounts payable to ensure the timely delivery of parts. This action further increases the working capital balance.

Japanese firms maintain large working capital balances, being the largest users of trade credit to total liabilities among G7 countries. Trade credit consisting of accounts receivable from customers and accounts payable to suppliers is the chief component of Japanese working capital (Cote and Graham, 2007). Accounts receivable from importers in multiple countries is a form of trade credit that increases working capital. Further, keeping an inventory of finished goods to be shipped to overseas locations increases current assets, or working capital. As a bank-oriented country, Japanese businesses rely on bank loans. Banks typically require large working capital balances to buffer their loans from non-payment. In this regard, Tsuruta's (2018) investigation of small businesses in Japan found that bankruptcy costs decreased with increased working capital suggesting that bank loans are less likely to experience default with large amounts of cash and marketable securities, albeit with increasing external financing costs

H$_1$: *Increased ESG risk ratings will increase working capital balances and reduce the cash conversion cycle in Japanese firms during the study period.*

3.2. ESG Risk in France as Predictor of Working Capital and the Cash Conversion Cycle

Information asymmetry lies at the heart of ESG risk. Managers have information about the firm's ESG ratings that is not available to other stakeholders, such as unions, vendors and customers. Managers know that the firm has not installed pollution control devices and released toxic gases into the air. Management may know about unsafe working conditions and failure to pay equitably. In essence, management has an informational advantage regarding failure to meet ESG standards over stakeholders. This information asymmetry about lack of ESG compliance may lead managers to maintain high working capital balances and reduce the cash conversion cycle to pay the fines and lawsuits that would result from stakeholder actions against the firm. ESG disclosures are required in France. Le Sourd et al., (2021) has found a strong desire in Europe for ESG-themed ETF funds. They have observed that firms that complied with ESG requirements, as shown in ESG disclosures, are solicited by European investors for their portfolios. It follows that compliance with ESG standards ensures an inflow of capital. Conversely, failure to comply with ESG standards means that investors will exclude such stocks from their portfolios. Firms that don't comply with ESG standards will fail to receive the inflow of capital from investors who seek ESG-compliant securities for their portfolios. The reduction in long-term capital may induce these firms to seek short-term capital by increasing working capital and reducing the cash conversion cycle to yield cash.

The French economy consists of 43.3% industrial goods (Witherall, 2023). France produces military equipment, luxury consumer goods, construction equipment and railway equipment, which are exported worldwide. Specifically, France benefits from trading partnerships with its former colonies in multiple developing countries. As these countries embark upon development, they need capital equipment for the construction of roads, schools and railways. As a former colonial power, France has cultivated social and cultural links with these countries, so that it becomes the source of capital goods. A manufacturing economy relies on trade credit, with large working capital balances being maintained to offer credit to business customers, while stretching accounts payable to reduce untimely outflows to suppliers. In one of the few studies of individual country samples, Nguyen (2019) has observed that firms in France with low working capital balances achieve target levels of working capital by increasing cash flow from operations and cash flow from financing and reducing cash flows from investment. This suggests that increases in accounts receivable and increases in inventory, which are part of operations, increase working capital balances. As cash flow from financing includes marketable securities, increases in marketable securities increase working capital balances.

H$_2$: *Increased ESG risk ratings will increase working capital balances and reduce the cash conversion cycle in French firms during the study period.*

3.3 ESG Risk in the U.K. as a Predictor of Working Capital and the Cash Conversion Cycle

The U.K. has a well-developed financial sector. With the City of London being the financial heart of Europe, there is a proliferation of banks, brokerages and private-equity firms that meet the financial needs of individuals, pension funds, insurance companies, small businesses, law firms, foreign investors, etc. It follows that there are a variety of short-term financial products that a firm seeks external financing may employ. With respect to working capital, firms may obtain cash funding easily, together with short-term debt in the form of marketable securities. Nguyen (2019) observed that British firms achieved target cash balances through acquisitions and short- term debt. In other words, their cash balances increased with acquisitions of cash-rich firms and proceeds from debt. Trade credit was not a source of working capital, as the U.K. economy is a service economy, whose dependence on accounts receivable, inventory, and accounts payable is minimal in contrast with the trade economies of France, and Japan.

Firms that have high levels of ESG risk may obtain working capital easily from short-term financial products. However, given the limited access to trade credit in a service economy, it is unlikely that firms will have access to cash from reducing the cash conversion cycle, which generates cash through use of trade credit.

H3: *Higher ESG risk ratings will result in insignificantly higher working capital balances. ESG risk ratings will have no impact on the cash conversion cycle.*

Fig. 1 summarizes the effect of ESG Risk for the three countries on working capital and the cash conversion cycle.

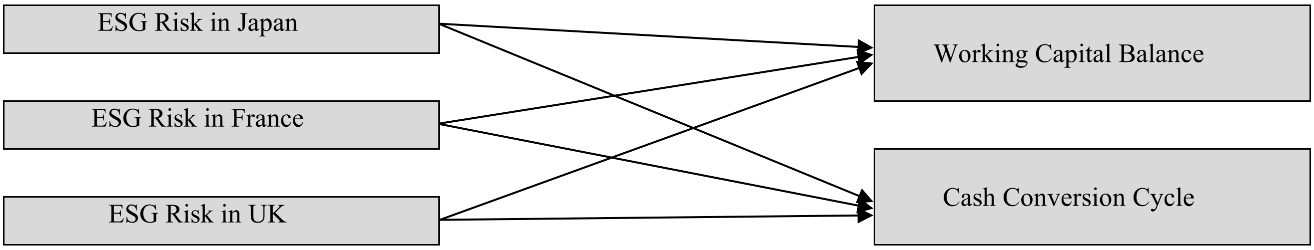

Fig. 1. A model of the effect of ESG risk on working capital & the cash conversion cycle

4. Method & Materials

4.1 Data Collection

The independent variable and ESG risk ratings have been extracted from the Sustain analytics database, for a total of 638 French stocks, 3204 Japanese stocks and 1693 U.K. stocks over a period from 2020 to 2022. The COMPUSTAT Global Data base is the source of working capital and cash conversion cycle components. The dependent variable of working capital has been measured as current assets – current liabilities. Similarly, the cash conversion cycle has been measured as day's sales outstanding + days in inventory - accounts payable period. Input variables to compute working capital including current assets of cash, marketable securities, prepaid assets, notes payable and accruals have been extracted from the COMPUSTAT Global database, which is also the source for input variables to compute cash conversion cycle including sales, accounts receivable, inventory and accounts payable. Control variables of leverage (debt to assets), size (total assets), current ratio (current assets/current liabilities), tangibility (fixed assets/total assets), a Covid dummy for 2020- 2021, have also been obtained from COMPUSTAT. Table 1 has provided a list of dependent variables, independent variables and control variables used in both regressions.

Table 1
Description of Variables and Measures

Variable	Measure
Working capital	Dependent variable: Current assets–Current liabilities
Cash conversion cycle	Dependent variable: Accounts receivable period + Inventory conversion period –Accounts payable period
ESG Risk	Independent variable: ESG Risk Rating
Leverage	Control variable: Total debt/Total assets
Firm Size	Control variable: Total assets
Current ratio	Control variable: Current assets/Current liabilities
Tangibility	Control variable: Fixed assets

4.2 Econometric Derivation

Cross-sectional OLS regressions of the predictors on the criteria have been performed for all three country samples for the years 2020-2022. The RATS 10 (Regression Analysis and Time Series) econometric software has been employed to generate regression results. The following model has been estimated when working capital as the dependent variable.

$$\text{Working capital}_i = \alpha_i + \beta_{i1} ESG \text{ risk} + \beta_{i2} \text{Leverage} + \beta_{i3} \text{Firm size} + \beta_{i4} \text{Current ratio} + \beta_{i5} \text{Tangibility} + \beta_{i6} \text{Covid Dummy} + e_i \quad (1)$$

Subsequently, the regression of the cash conversion cycle has been performed as under:

$$\text{Cash conversion cycle}_i = \alpha_i + \beta_{i1} ESG \text{ risk} + \beta_{i2} \text{Leverage} + \beta_{i3} \text{Firm size} + \beta_{i4} \text{Current ratio} + \beta_{i5} \text{Tangibility} + \beta_{i6} \text{Covid Dummy} + e_i \quad (2)$$

5. Result and Analysis

5.1 Descriptive Statistics and Correlations

Table 2 presents the descriptive statistics. Both French firms and U.K. firms have higher debt levels than the typical firm, resulting in large kurtosis values. As the kurtosis is the fourth moment about the mean, its values deviate from the mean to the fourth power resulting in high kurtosis values. Japanese firms have a few large firms, in terms of firm size. These large firm sizes may impose higher deviations of these firms from the norm in ESG risk ratings due to the inability to make larger investments in pollution control equipment and hiring the talent to promote workplace equity. Large deviations rose to the fourth power resulting in higher kurtosis.

Table 2
Descriptive Statistics

Country	Mean	Variance	Maximum	Minimum	Skewness	Kurtosis
			Japan			
Cash Conversion Cycle days	814.30	27.10	114.25	12.85	44.04	268.99
ESG Risk Ratings	125.55	29.49	4,480	0.00	63.35	4,992.48
Leverage	0.57	0.24	2.04	0.00	8.84	202.70
Firm size in millions	2849.89	34.51	31,794.87	0.00	35.33	1,383.02
Tangibility	0.20	0.03	0.79	0.00	1.07	0.82
Covid Dummy	n/a	n/a	n/a	n/a	n/a	n/a
Working Capital in millions	27.49	29.95	644.71	0.00	17.53	478.32
N	3,204					
			France			
Cash Conversion Cycle	346.0	11.98	5,66.93	71.55	29.16	664.86
ESG Risk Ratings	4.82	83.12	35.07	0.00	1.70	1.69
Leverage	0.75	145.30	2.02	0.00	59.75	3,587.92
Firm size	5.58	9.09	12.86	0.00	0.24	-0.24
Tangibility	0.14	0.02	0.73	0.00	1.58	2.54
Covid Dummy	n/a	n/a	n/a	n/a	n/a	n/a
Working Capital	184.09	21.73	6,274.99	-3,132.70	6.91	86.11
N	638					
			United Kingdom			
Cash Conversion Cycle	131.25	147.60	485.9	84.09	22.72	1,830.46
ESG Risk Ratings	7.04	125.67	38.07	0.00	1.31	0.54
Leverage	0.82	261.09	2.65	0.00	51.74	3,057.87
Firm size	4.84	7.47	12.51	-1.57	0.09	0.67
Tangibility	0.14	0.04	0.89	0.00	1.79	2.70
Covid Dummy	n/a	n/a	n/a	n/a	n/a	n/a
Working Capital	82.35	12.37	2404.44	-1214.60	22.04	73.76
N	1693					

Source: Authors' Own

Table 3, 4 and 5 have shown the correlation matrices among the variables of Japan, France and the U.K., respectively and found satisfactory in few cases.

Table 3
Correlation Matrix of Japan

CCC	CCC	ESG Risk Ratings	Leverage	Firm Size	Tangibility	Covid Dummy	Working Capital
Cash Conversion Cycle (CCC)	1						
ESG Risk Ratings	0.00007	1					
Leverage	-0.005	0.33	1				
Firm Size	0.001	0.21	0.03	1			
Tangibility	-0.001	0.35	0.60	0.04	1		
Covid Dummy	0.03	0.45	0.76	0.12	0.67	1	
Working Capital	-0.0006	0.19	0.08	0.09	0.13	0.20	1

Source: Authors' Own

Table 4
Correlation Matrix of France

CCC	CCC	ESG Risk Ratings	Leverage	Firm Size	Tangibility	Covid Dummy	Working Capital
CCC	1						
ESG Risk Ratings	0.0001	1					
Leverage	-0.0003	0.02	1				
Firm Size	0.01	0.59	0.04	1			
Tangibility	-0.001	0.36	0.03	0.65	1		
Covid Dummy	0.03	0.05	0.05	0.84	0.64	1	
Working Capital	-0.0005	0.18	0.004	0.19	0.12	0.11	1

Source: Authors' Own

Table 5

Correlation Matrix of United Kingdom

CCC	CCC	ESG Risk Ratings	Leverage	Firm Size	Tangibility	Covid Dummy	Working Capital
CCC	1						
ESG Risk Ratings	0.0001	1					
Leverage	-0.0003	0.02	1				
Firm Size	0.01	0.59	0.04	1			
Tangibility	-0.001	0.36	0.03	0.65	1		
Covid Dummy	0.03	0.44	0.05	0.84	0.64	1	
Working Capital	-0.0005	0.18	0.004	0.19	0.12	0.11	1

Source: Authors' Own

5.2 Results of Hypotheses Tests

Table 6 depicts the results of hypotheses tests. Hypothesis1stated that increased ESG risk ratings would increase working capital balances and reduce the cash conversion cycle in Japanese firms during the study period. Hypothesis 1 was fully supported with increased ESG Risk Ratings significantly increasing working capital balances (Coefficient = 21.54, p < .001), while significantly reducing the cash conversion cycle (Coefficient = -211.86, p < .01). Hypothesis 2 stated that increased ESG risk ratings would increase working capital balances and reduce the cash conversion cycle in French firms during the study period. Hypothesis 2 was fully supported with increased ESG Risk Ratings significantly increasing working capital balances (Coefficient = 13.31, p< 0.001), while significantly reducing the cash conversion cycle (Coefficient = -57.82, p<0.05). Hypothesis 3 stated that increased ESG risk ratings would increase working capital balances in U.K. firms during the study period. Hypothesis 2 was fully supported with increased ESG Risk Ratings significantly increasing working capital balances (Coefficient = 5.25, p < .001).

Table 6

OLS Regressions of the Cash Conversion Cycle and Working Capital on ESG Risk Ratings

Country &Variable	Cash Conversion Cycle	Working Capital
	Japan	
Constant	144.42**	27.92
ESG Risk Ratings	-211.86**	21.54***
Leverage	111.08**	-63.64***
Firm Size	-0.004*	0.0005**
Current Ratio	-114.91*	2.38**
Tangibility	-168.73*	5.04***
Covid-19 Dummy	0.00	0.00
N firm-year observations	4,809	4,809
R^2	0.004	0.04
	France	
Constant	903.34	-344.45***
ESG Risk Ratings	-57.82*	13.31***
Leverage	-27.56	0.21**
Firm Size	-830.20**	73.19***
Current Ratio	-102.78**	2.27***
Tangibility	-174.38**	173.12
Covid-19 Dummy	128.35	14.51
N firm-year observations	7,257	7,257
R^2	0.002	0.05
	United Kingdom	
Constant	-434.33	-139.64***
ESG Risk Ratings	-13.58	5.25***
Leverage	1.01	0.56
Firm Size	116.93*	35.02***
Current Ratio	-12.52*	1.98*
Tangibility	-122.50	100.30***
Covid-19Dummy	198.45	-18.4
N	17.838	17.844
R^2	0.0005	0.01

***p<.05, **p<.01, ***p<.001; Source: Authors; own**

Test of Endogeneity

The study has tested if ESG Risk Ratings are explained by other independent variables, as the results assume that ESG Risk Ratings explain a unique amount of the variance in working capital and the cash conversion cycle. Table 7 has shown that there is limited evidence that endogeneity exists. For the Japan and United Kingdom, tangibility exerts a significant effect on ESG risk ratings suggesting that some of the variance in working capital and the cash conversion cycle may be due to tangibility. We view this as an aberration of the sample, as the sizable equipment holdings of Japanese manufacturers and the large real estate holdings of U.K. firms may be increasing their tangibility. Increased tangibility from equipment investments increases the environmental risk of ESG risk. Increased tangibility from real estate holdings increases inequity or societal risk. Likewise, for the French sample, firm size significantly explains ESG Risk Ratings. This finding may also be specific to the sample which has numerous firms of the same size, thereby exerting a stronger influence on ESG Risk Ratings.

Table 7
Test of Endogeneity for ESG Risk in Japanese, French and U.K. firms (Dependent Variable = ESG Risk Ratings; Independent Variables = Leverage, Firm Size, Current Ratio, Tangibility and Covid Dummy)

Variable	Coefficient
Japan	
Constant	3.88***
Leverage	0.34
Firm Size	0.00
Current Ratio	-0.01
Tangibility	4.84***
Covid Dummy	0.00
N	4,806
R^2	0.24
France	
Constant	-1.83***
Leverage	-0.00
Firm Size	1.33***
Current Ratio	0.00
Tangibility	0.38
Covid Dummy	-0.43
N	7, 253
R^2	0.37
United Kingdom	
Constant	-1.88***
Leverage	0.02
Firm Size	1.75
Current Ratio	0.00
Tangibility	2.97***
Covid Dummy	-0.14
N	17,835
R^2	0.41

p<.05,p<.01,***p<.001, Source: Authors' own*

6. Conclusions

Barros et al., (2022) has first observed the relationship between ESG scores and working capital of U.S. firms. Their study differed in that they measured ESG scores, not ESG Risk Ratings which is reversed of our findings in that firms with high ESG scores (increased governance) have lower working capital balances and long cash conversion cycles. Firms with superior ESG performance need less cash and less working capital to pay for failure to comply with ESG standards. Conversely, this study has found that in all three countries, i.e. Japan, France and the U.K., firms with high ESG risk may maintain high working capital balances to act as a buffer of liquid assets and short cash conversion cycle store lease cash contained in inventory and accounts receivable. Such firms are perceived as riskier presumably due to prior inability to achieve ESG standards. Therefore, it enables them to maintain sufficiently high working capital balances to cope with regulatory uncertainties. However, the cash conversion cycle as a source of funds for high ESG risk firms doesn't exist in the U.K. The U. K. is a service economy, composed of a large banking and financial services sector, with limited amounts of the components of the cash conversion cycle, including accounts receivable, inventory, and accounts payable. Further, results show that, on average, firms in Japan and France need more than one year to finish the cash conversion cycle, whilst firms in the U.K. operate with a negative cycle.

In addition, in all three countries, control variables except the Covid-19 effect played a significant role in the relationship between the cash conversion cycle and ESG ratings. On average, examined countries show that firms use high levels of leverage, even as the leverage variable proved to be significant just in the case of Japan.

6.1 Theoretical Implications

This study advances the literature on corporate governance. It measures corporate governance as ESG risk ratings' effects on short-term cash and working capital. In essence, we set forth that once a firm has met its current debts (debts due within

1 year), it should not maintain a large amount of cash and working capital as idle cash earns low interest and may be more profitable for growth opportunities. However, this study has shown that firms with poor governance as measured by failure to comply with Environmental, Social and Governance standards maintain high levels of cash and working capital. Presumably, these funds will be used to pay the fines and lawsuits arising from non-compliance with ESG standards. Drobetz and Gruninger (2007) observed that CEO duality increases working capital in a sample of Swiss firms. Lau and Bloch (2012) have found high cash balances in founder-controlled firms. Therefore, ESG risk ratings may join CEO duality and founder-control as failed corporate governance mechanisms that necessitate the holding of large amounts of cash and working capital. Drobetz and Gruninger (2007) have observed that CEO duality increased working capital in a sample of Swiss firms. Lau and Bloch (2012) found high cash balances in founder-controlled firms.

The study identifies working capital and excess cash as measures of agency costs. In accordance with Jensen and Meckling (1976), working capital and cash from short cash conversion cycles are agency costs of managers as agents failing stakeholders such as environmental groups. This failure is manifested in the need to maintain excess cash to pay for non-compliance with ESG standards. This study adds working capital and cash from the cash conversion cycle to earlier measures of the adverse effects of ESG risk on financial performance, including stock returns (Filbeck, 2019), Z-scores (Cohen, 2023a), and cost of capital (Ernst & Woithe, 2024). In keeping with Mitchell's (1997) theory, the study has shown the importance of ESG risk that increases short-term liquidity and demonstrates the power of stakeholders who can exact punitive monetary damages on firms that fail to meet their needs in three countries.

This study increases knowledge of the usage of short-term liquid sources of capital in the three major industrialized countries. Mohamad et al. (2021) has observed low social scores in the ESG Social component. It is possible that our finding of higher working capital balances and cash balances are being used to pay for regulatory noncompliance in the social area of ESG risk. Tsuruta (2018) has observed that Japanese firms are largely bank-financed and need large amounts of cash and marketable securities to prevent defaults on loans. The large cash balances may stem from the need to pay for ESG non-compliance and to meet bank liquidity requirements. Another form of capital is identified in our study is cash and working capital which is indicated by Le Sourd and Shahriyar (2021) that the inflow of long-term capital is limited for firms with high ESG risk in the French sample and may seek alternative forms of capital, such as increased cash flows from operations and increased cash flow from financing (Nguyen, 2019).

Finally, the easy access to short-term debt in U. K. firms due to their location in the prominent financial services sector provides a source of short-term capital (Nguyen, 2019). This study adds to this finding in that it identifies working capital as an additional form of short-term capital.

6.2 Practical Implications

Corporations must reduce agency costs. It is unethical for managers to overlook ESG risk, given the seriously adverse effects such risk may have on individual and societal well-being. Caring for ESG components not only restores morality to corporate practice but assists firm growth by eliminating the need to keep cash to pay for ESG infringements.

6.2.1 Environmental Risk

Environmental risk may be reduced by the installation of pollution control devices such as scrubbers in factories. In offices, energy conservation can take the form of replacing paper and plastic and installing LED lighting. Recycling can result in safe and sanitary waste disposal. Fuel- efficient vehicles will use less polluting fossil fuels. At a minimum, firms in all three of the sampled countries can adopt these measures. Beyond these measures, firms must be proactive in taking advantage of opportunities to gain from environmental risk reduction. Japanese firms have capitalized upon such opportunities by leading in patents for new energy efficient products. French firms can increase the green content of industrial products that they export to former colonies. Creating rooftop gardens in offices cleanses the air. Planting mangrove swamps at the oceanfront limits beach erosion. Tree planting efforts can turn drab concrete landscapes into lush greenery. Banks and financial institutions in the U.K. may finance green production by providing bank loans. They may include green securities, such as stocks and bonds, in institutional and individual investor portfolios.

6.2.2 Societal Risk

Firms in all three countries must strive to maintain healthy working relationships with vendors, customers and shareholders, who are the stakeholders for the firm. With vendors, timely payments for raw materials are expected. With online sales, safe products delivered in a timely fashion followed by generous return policies, build customer satisfaction. For shareholders, the firm must invest in high-growth projects on an ongoing basis. In essence, the firm must be a good corporate citizen that furthers the interests of society.

6.2.3 Governance Risk

Governance pertains to internal processes that promote equity for employees and accountability for management. Regarding equity, employees must be subject to clear procedures in wage negotiations, leaves and vacation time. The employee's voice must be encouraged in these deliberations. To the extent that the Japanese sample has scored low on governance in the literature, Japanese firms must create processes to promote employee equity. The U.K. firms have examined service-sector employees, who are typically concerned about wages and benefits. It follows that firms that provide equitable wages and benefits will need to maintain lesser amounts of cash to compensate aggrieved employees. Accountability for management is the responsibility of the board of directors. Greater management accountability may increase ESG compliance, thereby reducing the need for large amounts of cash and working capital to pay for non-compliance.

6.3 Economic Implications

Western industrialized economies are slow-growth economies. In order to increase rates of economic growth, businesses in these countries need to implement high-growth strategies. They must create innovative products, hire talented and trained workers in new technologies such as artificial intelligence. These initiatives require significant cash investment. This cash investment may never be realized if firms have to maintain cash balances to pay for ESG infringements. Therefore, ESG risk imposes a significant financial opportunity cost on economies that seek growth. The world is de-carbonizing. The rise of electric vehicles and renewable energy has created markets for energy-efficient transportation and home energy choices from wind and solar energy. Firms that have high ESG risk face the unenviable reality that they stagnate and become obsolete as customers, vendors, and shareholders abandon them for being outdated and irrelevant.

6.4 Research Limitations and Recommendations for Future Research

This study has examined working capital as a total measure. It would be insightful, particularly with the trade economies of Japan, United Kingdom and France that have significant levels of the components of working capital to measure the impact of ESG risk on these components. The components include accounts receivable period, inventory conversion period and accounts payable period.

This paper has yielded results using samples from three industrialized G-7 countries. It does not explore the impact of ESG risk on short-term liquidity in developing countries. These countries are building new infrastructure and modernizing industrial plants as they embark on development. Their ESG risk arises from non-compliance with ESG standards in construction, unlike ESG risk in the developed countries in this study. Future research should replicate this study for developing countries.

References

Abbas, M., Aslam, M. A., Naheed, K., and Aamir, M. (2019). Inter relationship among corporate governance, working capital management, and firm performance: panel study from Pakistan. *Paradigms, 13*(1), 75-81.

Azeem, N.M., Ali, R., Rehman, R.U., Ntim, C.G. (2022). Corporate governance, working capital management and firm performance: some new insights from agency theory. *Managerial and Decision Economics, 43*(5), 1448-1461.

Bao, N. V., and Yoshihisa, S. (2021). The motivating role of sentiment in ESG performance: Evidence from Japanese companies. *East Asian Economic Review, 25*(2), 125-150.

Barros, V., Falcao, P. F., and Sarmento, J. M. (2022). Are more sustainable firms able to operate with lower working capital requirements?. *Finance Research Letters, 46*(6), 1-8.

Bruna, M. G., Loprevite, S., Raucci, D., Ricca, B., Rupo, D. (2022). Investigating the marginal impact of ESG results on corporate financial performance. *Finance Research Letters, 47*, Part A.

Chen, S., Song, Y., and Gao, P. (2023). Environmental, social and governance (ESG) performance and financial outcomes: Analyzing the impact of ESG on financial performance. *Journal of Environmental Management, 345*.

Cohen, G. (2023a). ESG risks and corporate survival. *Environment Systems and Decisions, 43*(1), 16-21.

Cohen, G. (2023b). The impact of ESG risks on corporate value. *Review of Quantitative Finance and Accounting, 60*(4), 1451-1468.

Dittmar, A., Mahri-Smith, J., and Servaes, H. (2003). International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis, 38*(1), 111-133.

Drobetz, W., Schillhofer, A., & Zimmermann, H. (2004). Corporate governance and expected stock returns: Evidence from Germany. *European financial management*, *10*(2), 267-293.

Droebetz, W., & Gruninger, M. C. (2007). Corporate cash holdings: evidence from Switzerland. Financial Markets Portfolio, 21(3), 293-324.

El-Chaarani, H., Abraham, R., and Skaf, Y. (2022). The impact of corporate governance on the financial performance of the banking sector in the MENA region: An immunity test of banks for Covid-19. *Journal of Risk and Financial Management, 15*(3), 82-102.

Ernst, D., and Woithe, F. (2024). Impact of Environmental, Social and Governance rating on the cost of capital: Evidence

from the S&P500. *Journal of Risk and Financial Management, 17*(4), 91-106.
European Commission. (2008). Overview of the Links Between Corporate Social Responsibility and Competitiveness, European Competitiveness Report, Brussels: European Commission, 106-121.
Fiador, V. (2016). Does corporate governance influence the efficiency of working capital management of listed firms?. *African Journal of Economic and Management Studies, 7*(4), 482-496.
Filbeck, A., Filbeck, G., & Zhao, X. (2019). Performance assessment of firms following sustainalytics ESG principles. *The Journal of Investing, 28(*2).
Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*, Boston: Pittman.
Gill, A., & Shah, C. (2012). Determinants of corporate cash holdings: evidence from Canada. *International Journal of Economics and Finance, 4*(1), 70-79.
Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics, 3*(4), 305- 360.
Lau, J., & Block, J. H. (2012). Corporate cash holdings and their implications on firm value in family and founder firms. *Corporate Ownership and Control, 9*(2), 1-40.
Le Sourd, V., & Shahyar, S. (2021). The European ETF market: growth, trends, and impact on underlying instruments. *Journal of Portfolio Management, 47*(7), 95-111.
Mitchell, R. K., Agle, B. R., and Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: defining who and what really counts. *Academy of Management Review, 22*(4), 853-886.
Mohamad, N. E. A., Saad, N. M., and Abdullah, F. N. (2021). Comparative Analysis of Environmental, Social and Governance (ESG) implementation across Asia. *Global Business and Management Research: An International Journal, 13*(4), 554-563.
Nguyen, C. (2019). The asymmetry in firms' mechanisms of cash holdings adjustments: Evidence from the G-5 economies. *Review of Quantitative Finance and Accounting, 53*(2), 429- 463.
Pangestuti, I. R. D., Pridarsanti, K. Y., and Robiyanto, R. (2021). Location, working capital, corporate governance and profitability: the case of Indonesian manufacturing firms. *International Journal of Business and Society, 23*(2), 881-900.
Tanjung, M. (2023). Cost of capital and firm performance of ESG companies: what can we infer from COVID-19 pandemic?. *Sustainability Accounting, Management and Policy Journal, 14*(6), 1242-1267.
Tolliver, C., Hidemichi, F., Keeley,A. R., and Managi, S. (2021). Green innovation and finance in Asia. *Asian Economic Policy Review, 16*(1), 67-87.
Tsuruta, D. (2018). Do working capital strategies matter? Evidence from small business data in Japan. *Asia-Pacific Financial Studies, 47*(6), 824-857.
Witherall, W. H. (2023). Cross-channel competition: A look at the U.K. and French economies, Cumberland Comment Special to the Herald Tribune, heraldtribune.com/business/2023/05/22/witherall-moderate growth can be expected for the U.K. and French economies/70218103007.

© 2025 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).