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Improving small and medium-size enterprise performance: Does working capital management enhance the effectiveness of financial inclusion?

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Abstract

Growth of the small and medium-size enterprise (SME) sector is traditionally an important driver of overall economic growth, particularly in emerging economies. SME growth is enhanced by access to finance (financial inclusion). In this study, we show that efficient working capital management has a positive influence on performance that is independent of the effect of financial inclusion. Our results remain robust to alternative measurements and estimations, and may be useful to national policy-makers in developing strategies for SMEs' greater access to finance and introducing ways of improving financial management education and training for SME managers.

KEYWORDS

financial inclusion, performance, SME, working capital management

JEL CLASSIFICATION

M14, C12, C21

1 | INTRODUCTION

It is well known that business operating performance is a product of operating efficiency, profitability and capital structure. In the small and medium-size enterprise (SME) sector, it has been established by prior studies that performance is enhanced by operational efficiency and impeded by lack of access to finance. Unfortunately, lack of access to finance is common in this sector. About 80% of small businesses in Organisation for Economic Co-operation and Development (OECD) countries lack access to finance, and in non-OECD countries, the proportion is as high

as 90% (Park et al., 2008). This low financial inclusion[1] limits business growth through the drivers of capital supply and leverage. Better financial inclusion for SMEs could lead to improvements in their operating performance, and could create employment opportunities and improve sustainable economic development for the national economy. In emerging and developing economies, SME performance is particularly crucial for economic growth, and low financial inclusion is acknowledged as a critical issue for them (Park & Mercado, 2015; World Bank, 2014).

In this paper, we focus on the context of SME performance in a less developed economy, and address the question of whether better financial inclusion could provide the impetus for enhanced performance and growth in the SME sector of emerging economies. We investigate whether efficient working capital management practices enhance the effectiveness of access to finance in this context. By identifying specific factors that enhance SME performance, our evidence will guide relevant economic and educational policies and improve accountants' and auditors' abilities to assess SME financial viability and future prospects.

The SME sector is traditionally recognised as a vehicle for economic growth. For example, in India, an economically significant emerging country, SMEs can be a key driver of productivity. They comprise 95% of total industrial units, employ 40% of the workforce, contribute 30% of GDP, and provide 45% of total manufacturing output and 40% of total exports. However, the sector's ability to promote sustainable economic growth across rural and urban areas and reduce unemployment is constrained by lack of access to finance. SMEs receive only 16% of bank loans in India. In order to kick-start this potential economic growth engine, the Indian government has undertaken measures to support financial inclusion for SMEs. For example, it has introduced instant approval of loans (up to 1 crore of Indian Rupees) for SMEs, a 2% interest subsidy on loan payments, a 5% discount on interest on loan payments by exporters, and the establishment of 100 technology centres across the country. The demonstrated high growth of the Indian SME sector in recent decades, with its potential for further growth, are the reasons why we have chosen the Indian SME sector for our study.

The SME literature demonstrates the negative effects of the lack of financial inclusion on performance and growth (Demirgüç-Kunt et al., 2008). It also establishes the impact of efficient working capital management on performance (Bellouma, 2011; Javid & Dalian, 2014; Orobia et al., 2013; Pais & Gama, 2015). What is not known is whether efficient working capital management affects the relation between the level of financial inclusion and SME performance. Our contribution is to explore the combined and interactive effects of financial inclusion and working capital management on performance at the firm level in a methodologically sound way. Our research design allows us to address shortcomings in the extant literature, and to explore whether the observed positive associations between financial inclusion and SME performance are causal in nature or merely attributable to model misspecification. Prior studies have considered country-level institutional factors (Beck et al., 2007; Sharma & Pais, 2011) and causal relations between financial inclusion and SME performance (Balling et al., 2009; Banerjee & Duflo, 2014; Giuliodori et al., 2018; Irwin & Scott, 2010; Shukla & Shukla, 2015). The evidence to date on whether firm-level financial inclusion improves SME performance and the relation between efficient working capital management and SME performance is inconclusive. This may be due to methodological issues such as reverse causality (Hong et al., 2012), omitted variable bias (Margolis et al., 2009) and model misspecification (Servaes & Tamayo, 2013), all of which we address in our research.

Our study is timely in the face of growing international concerns related to sustainable economic growth. We find that financial inclusion and efficient working capital management have a statistically significant positive impact on SME performance, when examined both separately and together. The results suggest that SMEs with shorter cash conversion cycles are able

[1]World Bank (2014) defines 'financial inclusion as "a course of actions that ensures access, availability and usage of the formal financial services to all individual and firms of an economy"'.

to benefit more in terms of a higher operating performance from their access to finance. Our study extends the literature in two ways. First, we show the nature of interactions between the determinants of SME growth and performance. Prior research in this area has not addressed the possible role of efficient working capital management on the financial inclusion – SME performance relation. Second, the findings of our study contribute to the broader debate on the availability of financial resources to promote economic growth in developing countries. Our findings may be useful to national policy-makers in developing strategies for greater access to finance by SMEs, and in introducing ways to improve financial management education and training for SME managers. Our findings will also be useful to accountants and auditors who are required to assess the adequacy of an SME's working capital (IAASB, 2007).

The rest of the paper is structured as follows. Section 2 introduces the theory and the key constructs in this paper: financial inclusion, working capital management, and SME performance, and then develops our research questions. Explanations of the research models and variable measurement are provided in Section 3. Section 4 discusses the sample, data and descriptive statistics. Section 5 explains the results. We summarise and conclude in Section 6.

2 | THEORY AND RESEARCH QUESTIONS

2.1 | Resource-based theory

The well-known link between working capital management, access to finance, and performance can be considered through the lens of resource-based theory (RBT). The fundamental objective of RBT is to explain performance differences among competing firms in terms of differences in their resources (Peteraf & Barney, 2003). RBT emphasizes the importance of firm-specific resources and capabilities or competencies in strategy formulation as key determinants of firm performance (Barney & Clark, 2007; Tokarczyk et al., 2007).

The theory postulates that enhanced and competitive performance is embedded in firm-specific resources and capabilities (Spanos & Lioukas, 2001). It recognises that firms comprise unique bundles of resources, and emphasises the significance of internal resources and capabilities (Barney et al., 2011). Teece (2012, p. 1351) states that 'dynamic capabilities are higher-level competencies that determine the firm's ability to integrate, build, and reconfigure internal and external resources/competencies to address, and possibly shape, rapidly changing business environments'. In other words, firms experience enhanced performance not because they possess better resources but because their distinctive knowledge allows them to make better use of the resources at their disposal (Ireland et al., 2003). In our study, we consider access to finance as an important resource of a business and efficient working capital management as its critical functional capability. We examine how this resource and this capability independently and jointly affect firm performance.

2.2 | Financial inclusion and SME performance

Financing is a more critical performance hindrance to SMEs than to large firms and financial inclusion is essential for growth and competitiveness, especially in young firms. Prior literature demonstrates that SMEs lack access to debt finance and external equity finance (Balling et al., 2009; Irwin & Scott, 2010; Park et al., 2008; Vos et al., 2007), a situation that is worse in many emerging countries due to the weaknesses of their financial systems (Beck et al., 2007).

Resource-based theory recognises that to be able to create a competitive advantage and achieve superior performance, firms need resources. Finance is a key resource (Barney, 1991) that enables small businesses to fund their working capital, invest in fixed assets, employ skilled

workers, and develop markets and new products, all of which improve competitiveness and performance (Beck & Demirgüç-Kunt, 2006; Harvie, 2010).

The effects of lack of finance on SME performance are well established in the literature (Atieno, 2009; Banerjee & Duflo, 2004, 2014; Beck & Demirgüç-Kunt, 2006; Bowen et al., 2009; Kersten et al., 2017). Zia (2008) reports that smaller firms recorded larger decreases in profits when a credit subsidy to yarn firms in Pakistan was withdrawn. Bukvic and Bartlett (2003) report that SME performance in Slovenia was significantly impacted by the lack of financial inclusion. Bowen et al. (2009) find that lack of adequate financing was the main obstacle to the performance, growth, and survival of small businesses in Kenya. Ayyagari et al. (2010) report the SMEs with access to finance grew faster in China than firms that are dependent on informal funding. In a meta-analysis study, Kersten et al. (2017) find a positive effect of SME finance on capital investment and firm performance. Their analysis suggests that the financial inclusion of SMEs can positively affect several firm performance indicators, depending on firm size and loan amount.

Shukla and Shukla (2015) report finance as a significant factor constraining the growth of Indian SMEs. Even when finance is available, its high cost increases the risk of insolvency (Hess & Immenkötter, 2014). These challenges with finance may prevent SMEs in India from being able to harness new technologies for improved productivity through retooling, thus rendering them less competitive compared to their larger counterparts (AGI, 2011). Using data from an Indian priority SME financing program, Banerjee and Duflo (2004) show that Indian SMEs are constrained by a lack of finance. In a later study, the same authors show that Indian SMEs can improve their performance through increased access to finance (Banerjee & Duflo, 2014). They estimate that 'an increase of 100.000 Rs in the loan corresponds to an increase of 829.000 Rs in sales and 739.000 Rs increase in costs. This impliesan 89.500 Rs increase in profit for the average firm, after repaying interest' (p. 601-602)'. Similar results were reported by Kapoor et al. (2012), who find that the expansion of finance leads to a significant increase in the sales growth rate.

It is clear that the literature supports the explanation provided by RBT concerning SME access to finance: those with the key resource of access to finance perform better than those without it. Our first research question is designed to confirm the findings of the prior literature: is there a positive relation between Indian SME financial inclusion and their performance?

2.3 | Working capital management and SME performance

Efficient working capital management is a critical internal capability of a business which improves its operating efficiency and profitability. For example, this capability may result in a business's current assets such as cash, accounts receivable, and inventory being partly financed at no explicit cost by current liabilities such as short-term loans and lines of credit. It may ensure that excess current assets are not held and current liabilities are managed carefully.

The literature confirms the effects of efficient working capital management on profitability (Gill et al., 2010; Lazaridis & Tryfonidis, 2006). Businesses which keep key assets and liabilities at optimal levels have more stable operations that lead to enhanced performance (Deloof, 2003; Ramachandran & Janakiraman, 2009). Effective working capital management includes efficiency in cash flow management, so that sales can be increased with limited capital investment (Hutchison et al., 2007). Poor working capital management is costly because it necessitates higher funding (Faden, 2014). Improvements in working capital management will minimise costs and hence increase profitability (Hutchison & Farris, 2009), while freeing up additional cash from working capital to use in long-term investments.

The main finding in the literature is a significant positive relation between working capital management and performance. We argue that efficient utilisation of resources associated with working capital requires the capability of effective and efficient day-to-day management of

working capital items. Efficient and effective working capital management impacts performance through adequate finance and liquidity, ensuring solvency, survival, and profitability (Javid & Dalian, 2014). In an economic environment of restrictive financial access, rising costs of raw materials, and increasing competitiveness, small businesses need to manage their working capital as effectively as possible (Ekanem, 2010; Ul Haq et al., 2011). The literature overwhelmingly suggests that efficient working capital management practices are positively associated with performance (Bellouma, 2011; García-Teruel & Martínez-Solano, 2007; Masoud & Mbega, 2008; Pais & Gama, 2015). Consequently, our second research question extends the findings of the prior literature to the Indian context: is there a positive relation between Indian SME working capital management practices and their performance?

2.4 | Combined effect of access to finance and working capital management on SME performance

We have argued that both financial inclusion and efficient working capital management by SMEs are likely to be positively associated with performance. We now consider how working capital management impacts the association between financial inclusion and performance. Is the association enhanced by efficient working capital management practices, themselves critical factors in internal management? Prior studies have found that the relation between financial inclusion and SME performance is associated with other firm-level factors such as firm size, age and growth (Beck & Demirgüç-Kunt, 2006; Harvie, 2010; Vos et al., 2007) and owner characteristics such as gender, education and wealth (Bellucci et al., 2010; Roper & Scott, 2009).

The literature documents that SMEs may lack finance because of supply-side factors, that is, because banks and investors are reluctant to finance them. SMEs are considered to be high-risk borrowers, a result of low capitalisation and limited assets, vulnerability to market fluctuations, and high mortality rates (Berger & Black, 2011; Cassar & Holmes, 2003; Kundid & Ercegovac, 2011; Park et al., 2008). Furthermore, the high administrative and transaction costs of lending or investing small amounts, such as monitoring operations and enforcing payments on small loans, make SME financing an unprofitable undertaking (Aryeetey et al., 1994). These issues are further exacerbated in developing economies where under-developed financial markets and legal institutions limit the supply of finance to the small business sector (Firth et al., 2009; Garretsen et al., 2004; Harvie, 2010; La Porta et al., 1998; Le & Nguyen, 2009).

Not all barriers to successful financial inclusion are from the supply side. Some researchers argue that demand-side factors place greater barriers on access to finance for small businesses (Harvie, 2010; Sarapaivanich & Kotey, 2006). Small businesses without sufficient expertise in financial management may be unable to estimate their own short-term and long-term financial needs accurately (Johnston et al., 2008). To be able to judge the loan requirements of small businesses, finance providers need precision in financial projections, asset (both current and fixed) valuations, and documentation (Chakraborty & Mallick, 2012; Hyytinen & Pajarinen, 2008). This implies that efficient internal operations could enhance access to finance and improve performance for SMEs by reducing information asymmetry between finance providers and small business borrowers. Hyytinen and Pajarinen (2008) note that lack of accounting records and inadequate financial statements or business plans ("opaqueness") make it difficult for outsiders to effectively assess the creditworthiness of small business proposals for funding. Therefore, it is argued that working capital management affects a firm's configuration of internal resources, enabling it to maximise the performance outcomes of its financial inclusion by purposefully adopting efficient working capital management activities.

Based on these supply and demand side arguments, our third research question is whether efficient working capital management enhances the positive relation between financial inclusion and the performance of SMEs.

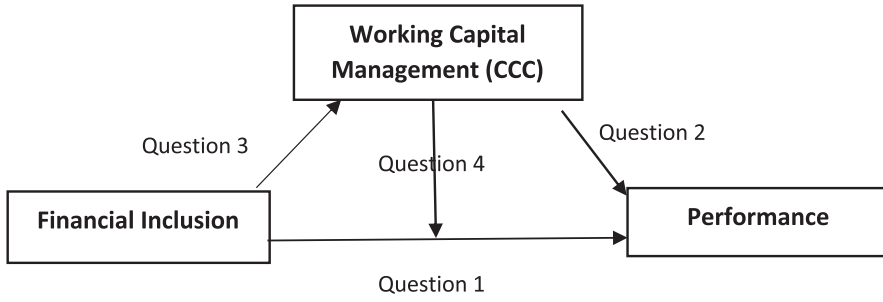

FIGURE 1 Representation of four research questions linking financial inclusion, working capital management and performance.

2.5 | Moderating effects of working capital management on financial inclusion – SME performance relation

Financial inclusion and working capital are directly linked through a firm's liquidity as measured by its cash flow. Liquidity is known to be a critical area of assessment in the lending and investment decision of creditors, banks and investors. Dobson and Soenen (1993) argue that working capital management determines the extent to which a firm can access debt finance. We know that SMEs may have difficulty securing external credit because of low cash inflows and savings (Ganesan, 2007; Thevaruban, 2009). Effective working capital management enables small businesses to have sufficient funds on hand for their operations, and to meet maturing obligations on time. The increasing cash flows generated by these actions signal to external financiers that a loan will be repaid, encouraging them to make more funds available to such businesses.

Based on the above discussion, our fourth research question is whether the interaction of efficient working capital management and financial inclusion impacts the strength and direction of the financial inclusion-SME performance relation.

These four research questions are represented in Figure 1.

3 | MODELS AND VARIABLE MEASUREMENT

Our research questions examine whether the level of financial inclusion is related to SME performance and whether this relation is enhanced or changed by efficient working capital management. Accordingly, we estimate the following models:

$$Performance_t = \alpha_a + \beta_a FI_t + \sum \mu_{a,i} Control\ variables_{i,t} + \varepsilon_t, \quad (1)$$

$$Performance_t = \alpha_b + \beta_b CCC_t + \sum \mu_{b,i} Control\ variables_{i,t} + \varepsilon_t, \quad (2)$$

$$Performance_t = \alpha_c + \beta_{1,c} FI_t + \beta_{2,c} CCC_t + \sum \mu_{c,i} Control\ variables_{i,t} + \varepsilon_t, \quad (3)$$

$$Performance_t = \alpha_d + \beta_{1,d} FI_t + \beta_{2,d} CCC_t + \beta_{3,d} FI_t{}^{*} CCC_t + \sum \mu_{d,i} Control\ variables_{i,t} + \varepsilon_t. \quad (4)$$

These models are estimated using ordinary least squares (OLS) regression, and statistical inference is derived using standard *t*-statistics. We address potential concerns about endogeneity and reverse causality using the two-stage least squares (2SLS) and generalised method of moments (GMM) approaches (Section 5.2). Further, the robustness of our results is checked using different robust *t*-statistics (Section 5.3).

The main variables in our models are measured in the following ways. We measure firm performance using operating efficiency, which we calculate as total annual sales to total assets of the firm, following the prior literature (for example, Freel & Robson, 2004; Gruber et al., 2010; Pais & Gama, 2015; Wood, 2006). In robustness checks, we use net profit margin as an alternative measure of firm performance (Section 5.3). Financial inclusion at the firm level (FI) is measured as the value of annual bank borrowings, following Chauvet and Jacolin (2017). We use a measure of inefficient working capital management, following prior literature (Baños-Caballero et al., 2010; Tauringana & Adjapong Afrifa, 2013), which is the number of days in the cash conversion cycle (CCC): the sum of days of uncollected accounts receivable and days of inventories in stock, less days of unpaid accounts payable.

To mitigate potential omitted variable bias, we include several control variables in our models: firm size, leverage, return on assets, profit margin, cash flow, and CEO pay, and a dummy variable taking a value of one if a firm exports, and zero otherwise. The choice of control variables is guided by the literature (see for example, Bhattacharya & Rahman, 2019; Chauvet & Jacolin, 2017; Harrison et al., 2014; Lys et al., 2015). Size is used as larger firms may have additional resources for collateral security, giving them greater access to financial inclusion (Wu, 2006). We use leverage as a control variable because the current level of debt in relation to assets is an important determinant of a firm's borrowing capacity, and it also reflects the level of risk (Javid & Dalian, 2014). Firms with lower debt and lower risk levels may be more likely to secure working capital finance and other forms of debt financing (Orlitzky & Benjamin, 2001). We control for return on assets and profit margin as these variables indicate a firm's ability to generate profits conditional on its efficient management of assets and level of expenses. A firm that generates more profit may have more efficient working capital management, implying that it is a good candidate for lending. We include cash as it is associated with a firm's working capital management strategies and reflects its ability to pay short-term obligations. We include CEO pay as this variable may reflect potential agency problems that can impact SME performance. A dummy variable capturing whether a firm engages in exporting is incorporated following Chauvet and Jacolin (2017), as an export-oriented firm is likely to manage its working capital more efficiently and may have a greater ability to borrow. Variable definitions are provided in Table A1.

We present the main results for our models, both including and excluding industry and year-fixed effects. We use industry-fixed effects because differences in environmental impact and expected growth are likely to affect financial inclusion (Karpoff et al., 2005). We use year-fixed effects to address the concern that the effects of financial inclusion and working capital management on firm performance may be time-dependent.

4 | DATA, SAMPLE PERIOD AND DESCRIPTIVE STATISTICS

All data used in this paper are collected from Prowess, the largest database of the financial performance of Indian business entities. The database is maintained by the Centre for Monitoring Indian Economy (CMIE), an independent Indian think-tank and business information organisation. It has been used by Gopalan et al. (2007) and Manchiraju and Rajgopal (2017), among others, in their firm-level analyses of Indian companies. The sample period is 2015 to 2018, because all variables are available for this period.[2] Our initial sample comprises all SMEs listed on the Indian stock exchanges (2973 firm-year observations). We exclude firms with missing observations and also firms with a CCC greater than 365 days or less than −365 days. The final sample comprises of 1340 firm-year observations.

Descriptive statistics are presented in Table 1. We observe that the mean for SME performance is 1.344, which indicates that an average SME generates sales revenue higher than its level

[2]Note that one of our robustness checks excludes observations from 2015.

TABLE 1 Descriptive statistics.

	Mean	Std. dev.	Skewness	Kurtosis
Dependent variable				
PERFORMANCE	1.344	1.184	4.243	36.755
Financial inclusion and working capital management variables				
FI	18.55	2.234	0.034	2.007
CCC	65.021	105.728	−0.504	4.572
Control variables				
ROA	0.355	10.626	−19.904	597.126
SIZE	314.44	1.421	0.633	4.500
LEVERAGE	0.767	1.330	11.157	160.645
PM	−0.136	4.059	−33.951	1212.478
CFO	−0.008	0.959	−29.288	987.555
CEO pay	14.406	1.355	−0.840	12.665

Note: All variables are defined in Table A1.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

of assets. The average (FI of SMEs is INR 18.55 million). The average CCC is 65 days, indicating a lag of 65 days between the payment of current liabilities and the collection of current assets. The average size of SMEs is INR 314.44 million. Contrary to the conventional wisdom that SMEs have less access to borrowed funds, we find that, on average, about 77% of their capital is financed by debt. The firms have been able to generate an impressive average return on assets (ROA) of 35.5%, however their average profit margin is −13.6%. The average cash flow from operating activities is negative, and the average CEO pay is INR 14.41 million.[3]

The correlation matrix is presented in Table 2. As expected, we find that FI and CCC are respectively positively and negatively correlated to firm performance. Although the correlation coefficients are statistically significant at the conventional level, the magnitude of the coefficients reveals that the two key variables (FI and CCC) have a weak economic association with firm performance. The coefficients range between 0.07 and 0.12. A moderately positive correlation is found between FI and CCC (r = 0.203), indicating that firms with a higher level of borrowing typically have a longer CCC. Interestingly, the control variables (except CEO pay) show statistically insignificant correlations with firm performance and between themselves. SIZE and CEO pay exhibit statistically significant positive correlations with FI. CEO pay also has negative correlations with firm performance although the correlation coefficients of CCC are only marginally significant. As expected, CEO pay has statistically significant positive relations with SIZE and LEVERAGE, indicating that larger firms and firms with higher levels of borrowing typically pay higher CEO compensation.

5 | EMPIRICAL RESULTS AND DISCUSSION

5.1 | Main results

We first explore the effect of financial inclusion on SME performance. The relevant results are presented in Table 3. Columns (1) and (2) show the results of regressing firm performance only

[3]Although FI and SIZE have been measured respectively as the log of borrowing and log of total assets, in the descriptive statistics, we have used the actual figures.

TABLE 2 Correlation matrix.

	PERFORMANCE	*FI*	*CCC*	*ROA*	*SIZE*	*LEVERAGE*	*PM*	*CFO*	*CEO pay*
PERFORMANCE	1.000								
FI	0.123***	1.000							
	(4.523)	–							
CCC	−0.071***	0.203***	1.000						
	(−2.616)	(7.567)	–						
ROA	0.007	0.029	0.068**	1.000					
	(0.270)	(1.059)	(2.502)	–					
SIZE	−0.034	0.499***	0.042	0.056**	1.000				
	(−1.239)	(21.040)	(1.539)	(2.038)	–				
LEVERAGE	0.017	0.026	−0.022	−0.049*	−0.077**	1.000			
	(0.617)	(0.936)	(−0.790)	(−1.803)	(−2.821)	–			
PM	0.038	0.038	0.028	0.014	0.040	−0.028	1.000		
	(1.379)	(1.402)	(1.018)	(0.506)	(1.448)	(−1.032)	–		
CFO	−0.007	0.032	−0.044	−0.006	0.030	−0.027	0.014	1.000	
	(−0.253)	(1.188)	(−1.609)	(−0.218)	(1.115)	(−0.972)	(0.509)	–	
CEO pay	−0.058**	0.176***	−0.045*	−0.023	0.238***	0.072***	−0.014	0.033	1.000
	(−2.123)	(6.535)	(−1.663)	(−0.842)	(8.954)	(2.652)	(−0.515)	(1.216)	–

Note: All variables are defined in Table A1. The entries are the bivariate correlation and *t*-statistics in parenthesis. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

TABLE 3 Financial inclusion and small and medium-size enterprise performance.

Variable	(1)	(2)	(3)	(4)
Constant	0.451***	1.154***	1.61***	2.38***
	(2.71)	(21.84)	(4.36)	(6.84)
Financial inclusion variable				
FI	0.062***	0.065***	0.10***	0.10***
	(4.30)	(4.52)	(6.15)	(6.17)
Control variables				
ROA			0.00	0.00
			(0.29)	(0.28)
SIZE			−0.11***	−0.09***
			(−4.05)	(−3.39)
LEVERAGE			0.00	0.01
			(0.11)	(0.24)
PM			0.01*	0.01
			(1.68)	(1.29)
CFO			0.00	−0.01
			(0.02)	(−0.25)
EXPORT			−0.04	−0.09
			(−0.53)	(−1.33)
CEO pay			−0.05**	−0.05**
			(−2.10)	(−2.22)
R-squared	6.80%	1.51%	8.80%	3.4%
Year fixed effect	Yes	No	Yes	No
Industry fixed effect	Yes	No	Yes	No
Observations	1340	1340	1340	1340

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis derived from estimating model (1). The model is estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

on FI, while columns (3) and (4) present results which incorporate the control variables. Columns (2) and (4) exclude year- and industry-fixed effects.

Across all four columns, we observe that FI has a statistically significant positive association with SME performance, indicating that SMEs with greater access to finance typically exhibit higher operating performance. Importantly, this result is also economically meaningful. In column (1), we see that a one standard deviation increase in FI results in a ($2.234 \times 0.06 = 0.1340$) 13.40% improvement in SME operating performance. This result remains robust to the inclusion of control variables (columns (3) and (4)) and industry- and year-fixed effects (columns (2) and (4)). Our finding is consistent with our expectations regarding the first research question and is in line with the findings of Ayyagari et al. (2010), Banerjee and Duflo (2014), Giuliodori et al. (2018), and Kersten et al. (2017). These studies, in general, show that financial inclusion has a positive effect on SME performance. Our result is also in line with Chauvet and Jacolin (2017), who find that financial inclusion contributes to firm growth in developing and emerging countries. With regard to the control variables, we find that SIZE and CEO pay have statistically significant negative coefficients indicating that larger firms typically underperform compared to smaller firms and that CEO pay has a negative relation with firm operating performance.

TABLE 4 Working capital management and small and medium-size enterprise performance.

Variable	(1)	(2)	(3)	(4)
Constant	0.547***	1.396***	1.362***	2.187***
	(3.293)	(36.852)	(3.691)	(6.238)
Working capital management variable				
CCC	−0.001***	−0.001***	−0.001***	−0.001***
	(−3.176)	(−2.616)	(−3.357)	(−2.684)
Control variables				
ROA			0.002	0.001
			(0.534)	(0.463)
SIZE			−0.030	−0.013
			(−1.271)	(−0.550)
LEVERAGE			0.012	0.017
			(0.498)	(0.693)
PM			0.015*	0.012
			(1.870)	(1.474)
CFO			−0.002	−0.009
			(−0.074)	(−0.273)
EXPORT			0.022	−0.021
			(0.310)	(−0.308)
CEO pay			−0.049**	−0.050**
			(−2.040)	(−2.012)
R-squared	6.20%	1.18%	6.99%	1.13%
Year fixed effect	Yes	No	Yes	No
Industry fixed effect	Yes	No	Yes	No
Observations	1340	1340	1340	1340

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis derived from estimating model (2). The model is estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

Next, we explore the effect of CCC on SME performance. As reported in Table 4, the relevant results suggest that more efficient working capital management measured by a reduced cash conversion cycle is associated with better operating performance. Thus, our finding provides a positive answer to our second research question. The coefficient is statistically significant at the 1% level across all four columns. A one standard deviation rise in CCC is associated with a reduction in firm operating performance by (0.001 × 105.73 = 0.1057) 10.57%. Again, although the coefficient appears small, it has economic significance. We find similar results when we estimate the models excluding control variables (columns (1) and (2)), including control variables (columns (3) and (4)), and omitting industry- and year-fixed effects (columns (2) and (4)). Our results are consistent with the findings of prior studies. For instance, Bellouma (2011), García-Teruel and Martínez-Solano (2007), Masoud and Mbega (2008), Pais and Gama (2015), among others, report that efficient working capital management practices are associated with improved operating performance. Regarding the control variables, similar to the results presented in Table 3, we find that CEO pay has a statistically significant negative impact while profit margin has a positive influence on SME performance. However, in contrast to our previous result, SIZE is statistically insignificant.

TABLE 5 Financial inclusion, working capital management and small and medium-size enterprise performance.

Variable	(1)	(2)	(3)	(4)	(5)
Constant	0.447***	1.769***	1.773***	1.854***	1.773***
	(2.697)	(4.817)	(4.828)	(5.135)	(4.828)
FI	0.073***	0.118***	0.124***	0.162***	0.124***
	(5.017)	(7.030)	(6.600)	(9.153)	(6.600)
CCC	−0.001***	−0.001***	−0.001***	−0.001*	
	(−4.088)	(−4.762)	(−2.620)	(−1.715)	
*FI*CCC*			−0.000		
			(−0.758)		
FI(CCC)*^{2}				−0.000***	
				(−6.921)	
–CCC					0.001***
					(2.620)
FI–CCC*					0.000
					(0.758)
ROA		0.002	0.002	0.001	0.002
		(0.591)	(0.547)	(0.390)	(0.547)
SIZE		−0.120***	−0.119***	−0.122***	−0.119***
		(−4.471)	(−4.426)	(−4.653)	(−4.426)
LEVERAGE		0.001	0.000	0.006	0.000
		(0.032)	(0.011)	(0.239)	(0.011)
PM		0.014*	0.014*	0.013*	0.014*
		(1.803)	(1.773)	(1.666)	(1.773)
CFO		−0.007	−0.006	−0.004	−0.006
		(−0.215)	(−0.189)	(−0.135)	(−0.189)
EXPORT		−0.009	−0.008	−0.015	−0.008
		(−0.126)	(−0.111)	(−0.225)	(−0.111)
CEO pay		−0.059**	−0.060**	−0.057**	−0.060**
		(−2.472)	(−2.505)	(−2.421)	(−2.505)
R-squared	7.94%	10.34%	10.38%	13.50%	10.38%
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	1340	1340	1340	1340	1340

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis. The results in columns (1) and (2) are derived from estimating model (3) while the results in columns (4)–(6) are generated from estimating model (4). The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

Third, we investigate the effect of both FI and CCC on SME performance. The relevant results are presented in Table 5. Consistent with our findings reported in Tables 3 and 4, when we include both FI and CCC in the same regression, the relation of FI to SME performance is a positive one while CCC has a negative relation. Both coefficients are statistically significant at the conventional level. Also consistent with our previous findings, the results are similar when

Product of CCC and FI	"Good" CCC (small or negative number)	"Poor" CCC (large number)
"Good" FI (large number)	Intermediate product (may be negative)	Largest product
"Poor" FI (small number)	Smallest product (may be negative)	Intermediate product

FIGURE 2 Products of measures of FI and CCC.

we estimate the models excluding control variables (column (1)), including control variables (column (2)), and omitting industry- and year-fixed effects (untabulated).

We observe that the strength of the relation between FI and SME performance improves when CCC is included. The coefficient of FI increases from 0.10 in Table 3 (column (3)) to 0.118 in Table 5 (column (2)). The coefficient of CCC remains the same in both models. This result suggests that, on average, efficient working capital management works to enhance the positive financial inclusion – SME performance relation. In other words, firms with greater access to finance report higher operating performance while longer CCC harms their operating performance. This result is economically intuitive. Better access to borrowing reduces an SME's capital constraints and allows it to undertake profitable projects to expand its business. A higher level of borrowing also forces it to be more efficient in order to meet its repayment obligations on time. On the other hand, higher CCC indicates that a firm's funds are tied up in accounts receivable for longer before being collected. Therefore, it may need to rely on costly interest-bearing sources of financing to be able to pay its accounts payable on time, which has a negative impact on SME performance. With regard to the control variables, we again find statistically significant negative coefficients for SIZE and CEO pay, with a marginally significant positive co-efficient on profit margin. Overall, our results somewhat support our third research question that efficient working capital management enhances the positive relation between financial inclusion and the performance of SMEs.

Finally, we investigate whether efficient working capital management moderates the relation between FI and firm performance. In theory, such an effect is expected when a firm's benefit from FI depends on the degree of efficiency with which working capital is managed. Therefore, we include an interaction between FI and CCC in the regression along with other explanatory and control variables. The results are reported in column (3) of Table 5. They show that the interaction variable is statistically insignificant and provide no evidence of an interaction effect.

To understand these unexpected results, we have undertaken additional analyses and further examination of our data. We have identified that the result on the interaction term is a consequence of the ways in which FI and CCC are measured. FI is measured as the level of borrowing and has a positive relation to performance, as expected. CCC is measured as the number of days in the cash conversion cycle, which can be negative, and has the opposite (negative) relation to performance, as expected. However, when these variables are multiplied to construct an interaction variable for model (4), the impact of each variable can negate the impact of the other.

Figure 2 illustrates the effect of combinations of higher and lower values of the two variables on the interaction term. The smallest measure of the interaction between CCC and FI is for a firm with 'poor' (low) FI and 'good' (low) CCC, shown in the lower left quadrant. The largest measure of the interaction between CCC and FI is for a firm with 'good' (high) FI but 'poor' (high) CCC, shown in the upper right quadrant. Neither of these combinations is expected to have a more extreme effect on performance, based on theory and our prior results.

The combination that should improve performance the most is shown in the upper left quadrant, with 'good' FI and 'good' CCC. However, the way in which CCC is measured means that this interaction variable may be positive or negative, and would be either in the middle or at the bottom of the interaction variable's range. The combination that should not drive better performance at all is shown in the lower right quadrant. Again, this interaction variable would be towards the middle of the range. In other words, when both CCC and FI are at 'good' or 'bad' levels for enhancing performance, the resulting interaction variable is at an average level, because one input variable is low and the other is high.

To avoid the effects of negative observations of CCC, we have included two alternative interaction variables: the square of CCC multiplied by FI [FI*(CCC)^2] and the negative of CCC multiplied by FI [FI*(–CCC)]. Results for model (4) using these measures of the interaction variable are presented in columns (4) and (5) of Table 5. Although the underlying problem of FI and CCC offsetting each other is not resolved, which is evident in the coefficients for all measures of the interaction term being very close to zero, we are pleased to note that when the interaction term has no negative observations, it is a significant determinant of performance. In other respects, the results in columns (4) and (5) are quite similar to the results presented in the other columns in Table 5.

We conclude that this additional analysis supports our explanation of the results in Table 5. Noting that a moderating variable will affect the strength of the relation between two other variables, we argue that Table 5 provides evidence of working capital management moderating the relation between FI and performance.[4] Table 5 provides evidence that the overall relation between FI and performance is stronger when the interaction of FI and CCC is recognised. When only FI is included in the model, the coefficient is 0.10 (Table 3, columns (3) and (4)). When both FI and CCC are included, the coefficient is 0.118/0.117 (Table 5, column (2)). When both variables and an interaction term are included, the coefficient on FI is 0.124/0.162/0.124 (Table 5, columns (3)–(5)).

Overall, we find some evidence that CCC moderates the association between FI and firm performance. Our results indicated that the coefficient on FI takes a higher value when the interaction term FI*(CCC) is included in the model, so the strength of the relation between FI and performance is influenced by working capital management. We also observe in the result reported in Table 6 that the interaction term (FI*CCC) is statistically significant indicating that CCC moderates the relation between FI and firms' operating performance. However, this result is not conclusive as the results also indicated a non-significant coefficient on FI*(CCC). This result provides some support for our fourth research question.

5.2 | Addressing endogeneity

Our main results are based on the OLS regressions. However, the relations between the variables may be subject to endogeneity and reverse causality biases. Our analysis assumes that FI produces higher operating performance, but it is also plausible that higher operating performance induces a higher level of borrowing. For example, loans may be more easily approved to firms in better financial health. To address this concern, we re-estimate our models using the two-stage least squares (2SLS) and generalised method of moment (GMM) approaches.

To estimate the 2SLS regression, we use the instrumental variable (IV) approach. The IV approach employs a variable that is correlated with the potentially endogenous variable (FI) but is not related to the dependent variable (SME performance). We use firm age as our instrumental variable because while older firms may have long-standing relations to lenders that give them

[4]Like the results in columns (1) and (2), we find similar results when we estimate the models reported in columns (3)–(5) without industry- and year-fixed effects (untabulated).

TABLE 6 Financial inclusion, working capital management and small and medium-size enterprise performance (2 SLS and GMM approaches).

	(1)	(2)	(3)	(4)
Variable	**2SLS**		**GMM**	
Constant	2.132***	2.931***	0.992***	1.527***
	(5.614)	(8.127)	(2.941)	(4.134)
FI	0.123***	0.130***	0.166***	0.175***
	(6.504)	(6.768)	(9.169)	(9.941)
CCC	−0.001***	−0.001***	−0.001*	−0.001*
	(−4.776)	(−4.285)	(−1.843)	(−1.883)
*FI*CCC*	0.000	0.000	0.000	−0.000***
	(−0.693)	(−1.587)	(−1.644)	(−2.732)
ROA	0.002	0.001	0.001	0.001
	(0.549)	(0.439)	(0.281)	(0.314)
SIZE	−0.118***	−0.096***	−0.126***	−0.115***
	(−4.408)	(−3.609)	(−4.910)	(−4.612)
LEVERAGE	0.000	0.003	−0.009	−0.003
	(0.018)	(0.123)	(−0.462)	(−0.143)
PM	0.014*	0.010	0.010***	0.008***
	(1.774)	(1.321)	(3.269)	(2.845)
CFO	−0.006	−0.014	−0.020	−0.024
	(−0.196)	(−0.411)	(−0.860)	(−1.182)
EXPORT	−0.008	−0.062	0.017	0.001
	(−0.114)	(−0.915)	(0.339)	(0.024)
CEO pay	−0.060**	−0.063**	−0.007	−0.003
	(−2.504)	(−2.594)	(−0.255)	(−0.134)
R-squared	10.30%	4.60%	7.50%	2.60%
Year fixed effect	Yes	No	Yes	No
Industry fixed effect	Yes	No	Yes	No
Observations	1340	1340	1340	1340

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis derived from estimating model (3). The model is estimated using the 2-stage least squares (2SLS) and generalised method of moments (GMM) approaches. Statistical inference is based on standard *t*-statistics. Firm age is used as an instrumental variable to estimate the 2SLS method. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

greater access to FI, firm age is not necessarily associated with better performance.[5] The residuals derived from the first-stage regression of FI on firm age are used as a proxy for the endogenous variable in the re-estimated regression model. This approach helps to mitigate the potential endogeneity bias of residuals being exogenously determined (Gul et al., 2011).

We also use a two-step system GMM estimator following Wintoki et al. (2012). This approach includes instruments in the estimation process to address biases pertaining to dynamic endogeneity, unobserved heterogeneity, and simultaneity (Wintoki et al., 2012).

[5]The correlation coefficient between firm age and firm performance is only −0.13.

The results are reported in Table 6. The OLS regression results as reported in Tables 3–5 remain essentially unchanged when the models are estimated using the 2SLS or GMM approach. For instance, in line with our previous result, firm performance has a positive association with FI and a negative association with CCC. The signs and magnitudes of the coefficients are consistent with our previous results. Interestingly, in contrast to the result reported in Table 5, we observe that the interaction term (FI*CCC) is statistically significant indicating that CCC moderates the relation between FI and firms' operating performance. The associations of the control variables with firm performance (negative for SIZE and CEO pay and positive for PM) are also consistent with our previous findings. Overall, our main results do not appear to be significantly influenced by endogeneity or reverse causality biases and we find some evidence of the moderating effect of CCC.

5.3 | Robustness checks

In this subsection, we present several robustness checks. We employ robust test statistics, estimate lead–lag relations, use alternative measures of key variables including changes rather than levels, and conduct sub-sample analyses, including by industry.

First, we re-estimate model (3) using: (i) Huber and White heteroscedasticity consistent standard errors and covariance; (ii) heteroscedasticity and autocorrelation consistent standard errors and covariance; and (iii) industry-cluster robust standard errors and covariance. The relevant results are reported in columns (1)–(3), respectively, of Table 7. We observe that our key results (the positive coefficient for FI, the negative co-efficient for CCC and statistically insignificant coefficient of FI*CCC) remain robust irrespective of the test statistics used. The signs and magnitudes of the coefficients on the control variables are consistent with our previous results. Overall, these findings imply that our results are not sensitive to the use of standard or robust *t*-statistics.

Second, we lag the independent variables in our models. In the previous subsections, we have examined the contemporaneous effect of financial inclusion and working capital management on SME performance. However, it may take some time for a firm's access to borrowed funds to have an impact on its performance. Therefore, it can be argued that the level of financial inclusion in the current year may have a positive impact on SME performance in the following year (Chauvet & Jacolin, 2017; Coad et al., 2013). Likewise, efficient working capital management may have an impact on subsequent firm performance. To empirically verify these conjectures, we estimate model (4) with SME performance regressed on lagged FI and lagged CCC. More specifically, we estimate the following model:

$$Performance_t = \alpha_c + \beta_{1,c} FI_{t-1} + \beta_{2,c} CCC_{t-1} + \beta_{3,d} FI_{t-1}{}^{*} CCC_{t-1} + \sum \mu_{c,i} Control\ variables_{i,t} + \varepsilon_t. \quad (5)$$

The relevant results are reported in Table 8. Note that there are fewer observations in this analysis because observations for 2018 cannot be included. In line with our previous findings, we report that one-year-ahead SME performance has a positive (negative) association with the current level of FI (CCC). Overall, our findings establish that FI and working capital management are associated with both the current and one-year-ahead SME performance. Nonetheless, we continue to get a statistically insignificant coefficient of the interaction term.

Third, we separate financial inclusion into short-term and long-term components. Specifically, we use bank overdraft (OD) as a proxy for short-term borrowing and bank loans excluding overdraft as a proxy for long-term bank loans. We then re-estimate model (4) to examine if the short-term and long-term components of FI have an asymmetric impact on SME performance and whether CCC has a moderating impact on the FI and SME performance relation. The results are reported in Table 9. They show that in line with our main finding, SME performance is

TABLE 7 Financial inclusion, working capital management and small and medium-size enterprise performance (robust test statistics).

	Huber and white	HAC	Industry-cluster robust
Variable	**(1)**	**(2)**	**(3)**
Constant	1.773***	1.773***	1.773**
	(4.834)	(4.812)	(2.653)
FI	0.124***	0.124***	0.124***
	(6.244)	(6.281)	(3.768)
CCC	−0.001***	−0.001***	−0.001*
	(−3.135)	(−3.167)	(−1.904)
*FI*CCC*	0.000	0.000	0.000
	(−0.902)	(−0.910)	(−0.460)
ROA	0.002	0.002	0.002
	(0.312)	(0.324)	(0.377)
SIZE	−0.119***	−0.119***	−0.119***
	(−4.622)	(−4.626)	(−4.253)
LEVERAGE	0.000	0.000	0.000
	(0.013)	(0.012)	(0.011)
PM	0.014***	0.014***	0.014***
	(4.361)	(4.300)	(4.222)
CFO	−0.006	−0.006	−0.006
	(−0.272)	(−0.264)	(−0.346)
EXPORT	−0.008	−0.008	−0.008
	(−0.150)	(−0.152)	(−0.135)
CEO pay	−0.060**	−0.060**	−0.060
	(−2.205)	(−2.169)	(−1.078)
R-squared	10.40%	10.40%	10.40%
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Observations	1340	1340	1340

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis derived from estimating model (3). The model is estimated using the OLS regression method and statistical inference is alternatively based on Huber and White, industry-cluster robust and firm-cluster robust respectively in columns (1)–(3). ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

positively associated with the long-term component of FI. However, there is no statistically significant association between short-term borrowing and SME performance. The negative association between CCC and SME performance remains robust irrespective of the use of long-term or short-term components of FI. We find no evidence of the moderating effect of CCC on the relation between FI and SME operating performance regardless of the short-term and long-term borrowing.

Fourth, one could argue that the effect of FI and CCC on SME performance may be asymmetric based on the international exposure of a firm because exporting firms may undertake different hedging activities to hedge cash flow risk. To address this concern, we re-estimate model

TABLE 8 Financial inclusion, working capital management and subsequent small and medium-size enterprise performance.

Variable	(1)	(2)
Constant	1.639***	2.620***
	(3.557)	(6.282)
FI	0.113***	0.114***
	(5.391)	(5.368)
CCC	−0.001**	−0.001****
	(−2.593)	(−2.722)
*FI*CCC*	0.000	0.000
	(−0.043)	(−0.056)
ROA	−0.002	−0.002
	(−0.722)	(−0.763)
SIZE	−0.181***	−0.156***
	(−5.434)	(−4.665)
LEVERAGE	0.064	0.071*
	(1.603)	(1.751)
PM	0.570***	0.553***
	(4.286)	(4.102)
CFO	0.078	0.097
	(0.630)	(0.763)
EXPORT	−0.028	−0.115
	(−0.345)	(−1.454)
CEO pay	−0.029	−0.041
	(−0.958)	(−1.367)
R-squared	13.0%	6.70%
Year fixed effect	Yes	No
Industry fixed effect	Yes	No
Observations	870	870

Note: All variables are defined in Table A1. The entries are the regression coefficients and *t*-statistics in parenthesis derived from estimating model (5). The model is estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Abbreviations: CCC, cash conversion cycle; CEO pay, CEO compensation; CFO, cash flow from operation; FI, level of SME borrowing; LEVERAGE, level of debt in capital structure; PERFORMANCE, SME operating performance; PM, profit margin; ROA, return on asset; SIZE, firm size.

(4) separately for exporting and non-exporting firms, and report the results in Table 10. We observe that our key finding continues to hold for both sub-samples, with and without industry- and year-fixed effects. We conclude that the relation between effective working capital management and SME performance is not impacted by the use of hedging activities by exporting firms.

Fifth, we check the robustness of our main results to measuring the key variables as changes rather than levels. Accordingly, we calculate changes in CCC and FI as the differences between their levels in years t and $t-1$, which we include as independent variables in model (4). Again, note that there are fewer observations in this analysis because observations for 2015 cannot be included. The results are provided in Table 11, and show that our main finding is robust to the use of change in the cash conversion cycle (ΔCCC) and change in financial inclusion (ΔFI) instead of CCC and FI.

Sixth, it could be argued that CCC may be more meaningful for some industries and less so for others. To mitigate this concern and to explore if the association of FI and CCC with

TABLE 9 Short-term and long-term components of financial inclusion, working capital management and small and medium-size enterprise performance.

	(1)	(2)
	Long-term borrowing	**Short-term borrowing**
Constant	1.784***	1.353***
	(4.835)	(3.665)
FI	0.113***	0.033
	(6.225)	(0.891)
CCC	−0.001***	−0.001***
	(−2.691)	(−3.393)
*FI*CCC*	0.000	0.000
	(−1.040)	(0.827)
ROA	0.001	0.002
	(0.501)	(0.571)
SIZE	−0.106***	−0.034
	(−4.002)	(−1.411)
LEVERAGE	0.002	0.012
	(0.098)	(0.499)
PM	0.014*	0.015*
	(1.806)	(1.868)
CFO	−0.005	−0.003
	(−0.141)	(−0.092)
EXPORT	−0.003	0.027
	(−0.047)	(0.380)
CEO pay	−0.063***	−0.048***
	(−2.643)	(−1.996)
R-squared	10.0%	7.20%
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
Observations	1340	1340

Note: The entries are the regression coefficients derived from estimating model (3) and *t*-statistics are in parenthesis. The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. All variables are defined in Table A1. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

SME performance varies across industries, we re-estimate model (4) separately for seven broad industries, namely manufacturing, mining, electricity, construction, services, financial and diversified. The results are presented in Table 12. We observe that our main finding of a positive (negative) association of FI (CCC) with SME performance holds for mining, electricity, financial and diversified industries. However, SME performance in other industries (manufacturing, construction, and services) is found to be invariant to the length of cash conversion cycle/effective working capital management. We also find a statistically significant coefficient of the interaction term (FI*CCC) for several industries (manufacturing, mining, electricity, construction, and services) potentially implying that the moderating effect of CCC on the FI and SME performance relation is conditional on firms' industry belongingness.

Finally, we re-estimate model (4) using an alternative performance measure: net profit margin. Interestingly, none of the key variables (FI and CCC) and the interaction term (FI*CCC) are found to be statistically significant determinants of this measure at the conventional level, either

TABLE 10 Financial inclusion, working capital management and performance of exporting and non-exporting small and medium-size enterprises.

	(1)	(2)	(3)	(4)
Variable	**Export firms**		**Non-exporting firms**	
Constant	0.632	1.021**	2.396***	3.274***
	(1.267)	(2.447)	(4.550)	(6.515)
FI	0.098***	0.117***	0.128***	0.127***
	(4.132)	(4.797)	(4.760)	(4.737)
CCC	−0.001	0.000	−0.001**	−0.001
	(−0.871)	(−0.638)	(−2.073)	(−1.120)
*FI*CCC*	−0.000*	−0.000**	0.000	0.000
	(−1.753)	(−2.381)	(−0.129)	(−0.540)
ROA	0.016*	0.011	0.001	0.001
	(1.772)	(1.295)	(0.243)	(0.190)
SIZE	−0.102***	−0.097***	−0.130***	−0.101***
	(−3.121)	(−2.957)	(−3.444)	(−2.722)
LEVERAGE	0.530***	0.496***	−0.004	−0.002
	(5.124)	(4.706)	(−0.126)	(−0.077)
PM	0.554***	0.575***	0.013	0.010
	(2.962)	(2.982)	(1.483)	(1.082)
CFO	0.465***	0.395***	−0.021	−0.026
	(4.164)	(3.437)	(−0.552)	(−0.657)
CEO pay	0.017	0.021	−0.101***	−0.113***
	(0.610)	(0.756)	(−2.911)	(−3.194)
R-squared	0.246	0.155	0.094	0.044
Year fixed effect	Yes	No	Yes	No
Industry fixed effect	Yes	No	Yes	No
Observations	522	522	818	818

Note: The entries are the regression coefficients derived from estimating model (3) and *t*-statistics are in parenthesis. The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. All variables are defined in Table A1. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

with or without industry- and year-fixed effects (the only exception to this is the marginally significant coefficient of CCC in column (1)). Profit margin, a component of profitability, is invariant to the effectiveness of working capital management and the level of financial inclusion, as are most other control variables (Table A2). This result is consistent with the well-known framework that we have used in this research: operating performance being a product of operating efficiency, profitability and capital structure. Each of these determinants represents independent factors that drive performance, with little if any interdependence.

6 | CONCLUSION

Our study examines the impact of better financial inclusion on SME performance, and the impact of efficient working capital management on the SME financial inclusion-SME performance relation. We explore whether the level of financial inclusion is contemporaneously related to SME performance and whether this relation is moderated by efficient working capital management.

TABLE 11 Change in financial inclusion, working capital management and small and medium-size enterprise performance.

Variable	(1)	(2)	(3)	(4)
Constant	1.329***	1.181***	1.372***	2.340***
	(3.089)	(2.769)	(3.189)	(5.743)
ΔFI	0.034***		0.040***	0.043***
	(2.685)		(3.131)	(3.251)
ΔCCC		−0.001**	−0.001***	−0.001**
		(−2.057)	(−2.619)	(−2.216)
$\Delta FI^{*}\Delta CCC$			0.000	0.000
			(0.515)	(0.479)
ROA	0.000	0.001	0.000	0.000
	(0.059)	(0.225)	(0.105)	(−0.009)
SIZE	−0.057*	−0.028	−0.060**	−0.046
	(−1.940)	(−1.032)	(−2.061)	(−1.573)
LEVERAGE	0.021	0.027	0.024	0.034
	(0.631)	(0.823)	(0.725)	(1.012)
PM	0.129**	0.131**	0.136***	0.112**
	(2.534)	(2.562)	(2.675)	(2.161)
CFO	−0.011	−0.013	−0.012	−0.014
	(−0.322)	(−0.385)	(−0.363)	(−0.402)
EXPORT	−0.027	−0.003	−0.010	−0.057
	(−0.340)	(−0.043)	(−0.130)	(−0.728)
CEO pay	−0.044	−0.049*	−0.047*	−0.053*
	(−1.538)	(−1.708)	(−1.672)	(−1.841)
R-squared	7.40%	7.10%	8.10%	2.30%
Year fixed effect	Yes	Yes	Yes	No
Industry fixed effect	Yes	Yes	Yes	No
Observations	1008	1008	1008	1008

Note: The entries are the regression coefficients derived from estimating model (3) and *t*-statistics are in parenthesis. The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. All variables are defined in Table A1. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

Our results confirm that financial inclusion and efficient working capital management have statistically significant positive impacts on SME performance. These results suggest that SMEs with greater access to FI and a shorter cash conversion cycle typically exhibit higher operating performance. We find that efficient working capital management enhances the financial inclusion–SME performance relation, and also present arguments to support a moderating relation. Our results are robust to endogeneity checks and other alternative design and measurement choices.

Our primary contribution is evidence from an emerging economy of the importance of financial inclusion on SME performance and the impact of efficient working capital management practices on the relation between financial inclusion and SME performance. Achieving either better working capital management or access to finance will have this effect. Prior research in this area has not addressed this potential role for efficient working capital management.

Our findings indicate that financial inclusion for SMEs is a win-win for the business sector and society, with implications for India and other emerging economies. Our findings will be

TABLE 12 Financial inclusion, working capital management and small and medium-size enterprise performance across industries.

	Manufacturing	Mining	Electricity	Construction	Services	Financial	Diversified
Constant	5.217***	2.234***	−0.369	2.664***	1.051	2.175**	1.662*
	(4.184)	(5.286)	(−0.461)	(6.248)	(0.569)	(2.308)	(1.745)
FI	0.112	0.075***	0.382***	−0.008	−0.038	0.132***	0.190***
	(1.608)	(3.234)	(8.400)	(−0.269)	(−0.721)	(2.647)	(2.941)
CCC	0.001	−0.002***	0.001	−0.001	−0.002	−0.003**	0.000
	(0.792)	(−3.526)	(0.783)	(−1.432)	(−1.258)	(−2.100)	(−0.383)
*FI*CCC*	−0.001**	0.000**	−0.002***	0.000**	0.001*	0.000	0.000
	(−2.093)	(2.061)	(−4.446)	(1.946)	(1.987)	(0.141)	(−1.440)
ROA	0.004	−0.003	0.023**	0.014**	0.015	0.011	0.015
	(0.215)	(−1.364)	(2.085)	(2.145)	(0.552)	(0.627)	(0.953)
SIZE	0.127	−0.187***	0.093	−0.211***	−0.236***	−0.161***	−0.116
	(0.945)	(−5.337)	(1.287)	(−4.289)	(−4.307)	(−2.647)	(−1.530)
LEVERAGE	0.315	0.051	0.157**	−0.003	0.142	0.072	−0.079
	(1.583)	(1.553)	(2.459)	(−0.044)	(0.749)	(0.891)	(−1.664)
PM	0.647**	0.152***	2.518**	0.149***	0.215**	0.014	0.001
	(2.125)	(3.039)	(2.502)	(4.304)	(2.301)	(1.245)	(0.023)
CFO	0.113	0.131	0.404**	0.203	0.942	−0.027	0.133
	(0.464)	(1.090)	(2.312)	(1.184)	(1.243)	(−0.568)	(0.403)
EXPORT	−0.146	0.088	−0.049	−0.101	−0.101	−0.055	0.013
	(−0.502)	(1.236)	(−0.385)	(−1.344)	(−0.494)	(−0.258)	(0.036)
CEO pay	−0.332***	−0.012	0.032	−0.029	0.089	0.006	−0.065
	(−3.991)	(−0.393)	(0.648)	(−1.214)	(0.661)	(0.093)	(−1.001)
R-squared	15.70%	14.40%	58.40%	24.50%	50.20%	5.70%	38.00%
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183	406	124	181	45	348	53

Note: The entries are the regression coefficients derived from estimating model (3) and *t*-statistics are in parenthesis. The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. All variables are defined in Table A1. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.

useful to accountants and auditors who need to assess the adequacy of an SME's working capital requirement (IAASB, 2007), and to policy-makers and regulators to justify the introduction of schemes to improve access to finance for SMEs and to improve financial management education and training for SME managers. We present empirical evidence which is fundamental to changes that can kick-start an emerging economy via improving performance in the SME sector.

Our study is limited by the relatively small sample size and short sample period from 2015 to 2018. The sample size is constrained by data unavailability, especially for the cash conversion cycle. Although our results indicate some evidence that efficient working capital moderates the association between financial inclusion and firm performance, the result should be interpreted with some caution as this result is not conclusive. The result also indicated a non-significant coefficient of financial inclusion and efficient working capital interactive variable. We used manufacturing and services firms that are listed on the two Indian stock exchanges. Future research might include both listed and non-listed SMEs to expand our findings of the relations among financial inclusion, working capital management, and SME performance.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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APPENDIX 1

TABLE A1 Variable description.

Variable	Description
Panel A: Dependent variable	
PERFORMANCE (ASSET TURNOVER)	Sales divided by total asset at the end of financial year *t*
Panel B: Financial inclusion and working capital management variables	
FI	Natural log of bank borrowing
BANK_OD	Natural log of the level of bank overdraft
CCC	Cash conversion cycle (CCC): Number of days accounts receivable + number of days of inventory − number of days accounts payable
Panel B: Control variables	
SIZE	Natural log of total asset at the end of financial year *t*
LEVERAGE	Total debt as a percentage of total asset at the end of financial year *t*
PM	Net profit divided by sales for the financial year *t*
ROA	Profit before interest and tax from continuing operations divided by total asset at the end of financial year *t*
CFO	Cash flow from operating activities divided by total asset at the end of financial year *t*
EXPORT	A dummy variable that takes a value of one if an SME engages in export, and zero otherwise
CEO pay	Natural log of CEO compensation

TABLE A2 Financial inclusion, working capital management and small and medium-size enterprise performance [Dependent variable: Net profit margin].

	(1)	(2)
Constant	0.846	−0.075
	(0.635)	(−0.060)
FI	0.051	0.058
	(0.746)	(0.857)
CCC	0.003*	0.002
	(1.677)	(1.349)
*FI*CCC*	−0.001	−0.001
	(−1.312)	(−1.080)
ROA	0.001	0.002
	(0.125)	(0.217)
SIZE	0.133	0.095
	(1.374)	(1.017)
LEVERAGE	−0.071	−0.072
	(−0.832)	(−0.853)
ASSET TURNOVER	0.175*	0.127
	(1.773)	(1.322)
CFO	0.053	0.061
	(0.458)	(0.527)
EXPORT	0.147	0.128
	(0.589)	(0.540)
CEO pay	−0.061	−0.067
	(−0.712)	(−0.782)
R-squared	1.30%	1.00%
Year fixed effect	Yes	No
Industry fixed effect	Yes	No
Observations	1340	1340

Note: The entries are the regression coefficients derived from estimating model (3) and *t*-statistics are in parenthesis. The models are estimated using the OLS regression method and statistical inference is based on standard *t*-statistics. All variables are defined in Table A1. ***, ** and *Statistical significance at the 1%, 5% and 10% level, respectively.