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The investment-cash flow sensitivity and the financing constraints hypothesis for emerging markets: a bibliometric and systematic literature review

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Abstract

Purpose – The literature on financing constraints in emerging markets is still under-researched and is often described as a "black box." This study aims to shed light on this underexplored area for emerging economies. Specifically, it attempts to understand the phenomenon of financing constraints through a systematic review and bibliometric analysis.

Design/methodology/approach – A systematic literature review and bibliometric analysis are used to identify the main features of investment-cash flow sensitivity and the financing constraints hypothesis in the context of emerging markets.

Findings – Financing constraints and investment-cash flow sensitivity in emerging markets should be analyzed in light of capital market imperfections, financial liberalization and macroeconomic conditions.

Research limitations/implications – This study is expected to serve as a valuable resource for researchers interested in the financing challenges faced by firms in emerging economies.

Originality/value – To the best of the author's knowledge, this is the first comprehensive systematic and bibliometric literature review that examines the distinct characteristics of the financing constraints hypothesis on investment decisions in emerging markets.

Keywords Financing constraints hypothesis, Investment, Emerging markets, Systematic literature review, Investment-cash flow sensitivity, Bibliometric analysis

Paper type Literature review

1. Introduction

Following the seminal work of Fazzari *et al*. (1988) (hereafter FHP), investment-cash flow sensitivity is usually referred to as the "financing constraints" problem for a firm. The classical regression model of financing constraints, based on Fazzari *et al*. (1988), is expressed as follows:

$$I_{i,t}/K_{i,t} = \alpha + CF_{i,t}/K_{i,t} + \beta x_{i,t} + \varepsilon_{i,t} \quad (1)$$

where I is the investment or capital expenditures, K is the capital stock, typically measured using tangible assets at the beginning of the period, CF is the cash flow, and x is the firm-level

JEL Classification — G11, G31

Some parts of this study are derived from the Ph.D. thesis/dissertation titled "The Determinants of Investment in the Manufacturing Sector in Turkey", which was submitted to Kadir Has University in 2017 and completed under the supervision of Professor Özgür Orhangazi.

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confounding variables that may influence investment, and ε is the error term. In Equation (1), i, and t superscripts denote firm-level (N) and time-level (T) observations, respectively. In this model, investment-cash flow sensitivity is expected to be positive and significant for financially constrained firms. However, the classification of firms as financially constrained is crucial and has been debated in existing literature (see Kaplan and Zingales, 1997), which challenges the criteria used by FHP. This challenge is especially relevant for emerging markets, where financial constraints are more complex to identify.

The main purpose of this literature review and bibliographic analysis is to provide a "how to do" guide for researchers interested in studying investment-cash flow sensitivity in emerging markets, rather than simply referencing seminal papers and drawing general conclusions as is typical in traditional literature reviews. By focusing on the specific characteristics of emerging markets, this paper aims to serve as a guide for future research in the field. Additionally, decision-makers and policymakers can use the insights on the investment-cash flow sensitivity, considering the unique characteristics found in emerging markets.

This paper is organized as follows. The systematic literature review is provided in Section 2. Section 3 presents the results of the bibliometric analysis. Section 4 provides the discussion and explores the research gaps identified from both the systematic review and the bibliometric analysis. Finally, Section 5 provides the conclusion.

2. Systematic literature review

This study first relies on a systematic literature review to analyze the financing constraints hypothesis in emerging markets. The research follows the methodology outlined by Kumar *et al*. (2020), Rosado-Serrano *et al*. (2018), and Billore and Anisimova (2021).

2.1 The search process

The search process utilized many databases, including Google Scholar, Emerald Insight, Science Direct, Taylor and Francis, Wiley, Oxford Journals, and Cambridge Core. A total of 941 papers on financing constraints were identified via Google Scholar. However, many of these papers were excluded as they focused on developed economies or addressed financing constraints from unrelated angles (e.g. R&D, exporting, or specific firm characteristics). Morgan Stanley Capital International (MSCI) classifications were used to determine which countries are considered emerging markets. Only papers published in journals indexed by the Web of Science (WoS) were considered, reducing the final number of papers related to emerging markets to 55 [1].

2.2 The inclusion criteria for the literature

The inclusion criteria for this review included search queries such as "financing constraints and investment", "financial constraints and investment", and "investment cash flow sensitivity". Papers from the Web of Science were used and only studies that provided sufficient details on their methodological approach and research design parameters were included (see Billore and Anisimova, 2021). To ensure comparability, studies based on a micro-level (or firm-level) datasets were selected, while those from the financial or manufacturing sectors were excluded. The period spans from 1990 to 2021, and the study follows the PRISMA guideline (see Figure A1 in the Appendix).

2.3 Review structure

This section uses Callahan's (2014) 4W approach to structure the systematic literature review. Tables in this section are organized according to this approach.

2.3.1 What do we know about the financing constraints hypothesis in emerging markets?. Table 1 provides a summary of studies that examine the financing constraints hypothesis in emerging markets, listing relevant studies, the journal in which they were published, and the number of citations. The studies are heterogeneous in terms of the number of citations (see Table 1). The following section examines the countries that the studies focus on.

Table 1. Studies included in the present study

No.	The study	Country	Cited by	Journal
1	Xu and Xu (2019)	China	4	China Finance Review International
2	Lensink *et al*. (2003)	India	125	Journal of Developing Studies
3	Poursoleiman *et al*. (2020)	Iran	2	International Journal of Islamic and Middle Eastern Finance and Management
4	Kim (1999)	South Korea	51	Small Business Economics
5	Chan *et al*. (2012a)	China	137	Economics Letters
6	Hanazaki and Liu (2007)	South Korea, Malaysia, the Philippines, Thailand	53	Journal of Asian Economics
7	Chan *et al*. (2012b)	China	197	Emerging Markets Review
8	Yu *et al*. (2020)	China	50	Chinese Economic Review
9	Ghosh (2006)	India	1	Emerging Markets Review
10	Gül and Taştan (2020)	Turkey	108	Emerging Markets Review
11	Vijayakumaran (2021)	China	5	International Review of Economics and Finance
12	Fu and Liu (2015)	China	N/A	Research in International Business and Finance
13	Rousseau and Kim (2008)	South Korea	20	China Journal of Accounting Research
14	Kumar and Ranjani (2018)	India	43	Journal of Banking and Finance
15	Ameer (2014)	India, Indonesia, Malaysia, Pakistan, South Korea, Thailand	9	Financial Innovation
16	Gupta and Mahakud (2019)	India	26	Journal of Asian Economics
17	Bhaumik *et al*. (2012)	India	21	Financial Innovation
18	O'Toole and Newman (2017)	Viet Nam	58	Journal of Banking and Finance
19	Kandilov and Leblebicioğlu (2012)	Mexico	12	Review of Finance
20	Jaramillo *et al*. (1996)	Ecuador	16	The World Bank Review
21	Aivazian and Santor (2008)	Sri Lanka	252	Journal of Developing Studies
22	George *et al*. (2011)	India	304	Canadian Journal of Economics
23	Crnigoj and Verbic (2014)	Slovenia	100	Journal of Multinational Financial Management
24	Ganesh-Kumar *et al*. (2001)	India	28	Economic Systems
25	Saeed and Vincent (2012)	India	105	Journal of Developing Studies
26	Shin and Park (1999)	South Korea	15	Emerging Markets Trade and Finance
27	Lin and Bo (2012)	China	656	Journal of Corporate Finance
28	Xu *et al*. (2013)	China	60	European Journal of Finance
29	Ro *et al*. (2017)	South Korea	175	European Financial Management
30	Ding *et al*. (2013)	China	11	Emerging Markets Trade and Finance
31	Demir (2008)	Mexico, Turkey	311	Journal of Banking and Finance
32	Gezici *et al*. (2019)	Turkey	63	World Development

(*continued*)

Table 1. Continued

No.	The study	Country	Cited by	Journal
33	Pellicani *et al*. (2019)	Brazil	10	Emerging Markets Trade and Finance
34	Srinivasan and Thampy (2017)	India	1	Emerging Markets Trade and Finance
35	Kuo and Hung (2012)	Taiwan	16	Journal of Corporate Finance
36	Tsai *et al*. (2014)	Taiwan	58	Corporate Governance: An International Review
37	Francis *et al*. (2011)	Brazil, Chile, Hong Kong, India, Indonesia, South Korea, Malaysia, Pakistan, the Philippines, Singapore, South Africa, Taiwan, Thailand, Turkey	46	Journal of Banking and Finance
38	Gupta *et al*. (2020)	India	119	Emerging Markets Review
39	Machokoto *et al*. (2021)	Egypt, Ivory Coast, Kenya, Ghana, Morocco, Nigeria, South Africa, Tunisia, Zambia	N/A	International Journal of Managerial Finance
40	Ahiadorme *et al*. (2018)	Ghana	N/A	International Journal of Managerial Finance
41	Crisostomo *et al*. (2014)	Brazil	13	International Journal of Emerging Markets
42	Guizani and Ajmi (2020)	Saudi Arabia	26	International Journal of Managerial Finance
43	Sitthipongpanich (2017)	Thailand	N/A	Journal of Economic and Administrative Sciences
44	Guizani (2020)	Saudi Arabia	9	International Journal of Managerial Finance
45	Guizani (2019)	Gulf Cooperation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE)	N/A	International Journal of Finance and Economics
46	Altaf and Shah (2018)	India	2	Review of Behavioral Finance
47	Yeh and Lin (2020)	Taiwan	21	Decision
48	Gugler and Peev (2010)	Bulgaria, Serbia& Montenegro, Czech Rep., Estonia, Croatia, Hungary, Latvia, Poland, Romania, Slovenia, Slovakia, Ukraine	N/A	Eurasian Business Review
49	Sun and Yamori (2009)	China	16	Comparative Economic Studies
50	Hung and Tseng (2009)	Taiwan	29	Pacific Economic Review
51	Jiang *et al*. (2019)	China	9	Asia-Pacific Journal of Financial Studies
52	Hung and Kuo (2011)	Taiwan	18	Journal of Business Ethics
53	Guariglia *et al*. (2012)	Transition economies which are Bulgaria, Czech Republic, Romania, and Poland	21	Applied Financial Economics
54	Mansour *et al*. (2017)	Bahrain, Kuwait, Oman, UAE, Saudi Arabia, Qatar	26	Economics Letters
55	Wan and Zhu (2011)	China	6	Emerging Markets Trade and Finance
			352	China Journal of Accounting Research

Note(s): N/A is used to the studies are published within last 1 year. For studies that utilize cross-country datasets, if at least one emerging market is included, the study is classified as an emerging market-related
Source(s): The author

2.3.2 Where is the research happening?. Table 1 shows the geographic distribution of studies in the existing literature, showing that most research on financing constraints in emerging countries is concentrated in India and China. These countries are the most active countries in research on this topic.

2.3.3 How was the research conducted?. Table 2 shows the methodologies used in the current literature. Modeling the financing constraints hypothesis poses empirical challenges. Many firm-level analyses rely on financial statements, which can lead to simultaneity bias, where two-way causality may exist between investment and its determinants. Usually, lags of investment variables are often used as regressors to capture the inertia effect in econometric models. However, in addition to the simultaneity bias, the lagged investment variable may be correlated with the error term, a phenomenon referred to as "Nickell's bias" (see Nickell, 1981), which contributes to the endogeneity problem in the econometric model. To address this, 27 of the 55 papers in the existing literature used the generalized method of moments (GMM) to address endogeneity and simultaneity biases.

2.3.4 "Why should academicians, and policymakers know more about investment-cash flow sensitivity and financing constraints?". As financial development and/or financial liberalization progress remains problematic, and the transition from a planned or closed economy to a free market economy is still problematic in emerging economies, investment-cash flow sensitivity and financing constraints play an important role. This sensitivity may be exacerbated by incomplete financial liberalization, which contributes to financial fragility in emerging markets.

3. Bibliometric analysis

The bibliometric analysis considered all 55 papers identified in the previous section, using VOSViewer 1.6.15 due to its convenience and compatibility with various file formats and databases. VOSViewer, developed by Van Eck *et al*. (2010), is widely used in bibliometric studies (see Molina-García *et al*., 2022; Donthu *et al*., 2021).

Figure 1, generated using VOSViewer, demonstrates that the main points highlighted in the existing literature are focused primarily on investment and financing constraints. Co-occurrence analysis generates thematic clusters, where the keywords of each document or paper reflect its content and appear in different papers (this is defined as occurrence). The frequency with which these keywords appear together with the authors' keywords (co-occurrence) helps identify the main themes and the process of knowledge accumulation in the literature (Alayo *et al*., 2020; Casado-Belmonte *et al*., 2021; Zong *et al*., 2013; Molina-García *et al*., 2022).

VOSviewer reported four thematic clusters characterized by the largest nodes, with terms such as "Financial Constraints," "Financing Constraints," "Investment," "Investment Cash Flow Sensitivity," and "Corporate Investment", each appearing at least five times in the existing literature:

(1) Cluster 1: Chinese enterprises, debt, financial liberalization, political connection, and Türkiye

(2) Cluster 2: Banking system reform, China, state ownership,

(3) Cluster 3: Financial crisis, financial development, financial reform, monetary policy

(4) Cluster 4: Business groups, generalized method of moments, India

Figure 2 shows the most frequently cited papers in emerging market studies addressing the relationship between investment-cash flow sensitivity and financing constraints. However, aside from Hoshi *et al.* (1991), most of these studies focus on frameworks for developed countries. In this context, it is very difficult to compare the unique framework of emerging markets with those of developed countries.

Table 2. The methodologies per study

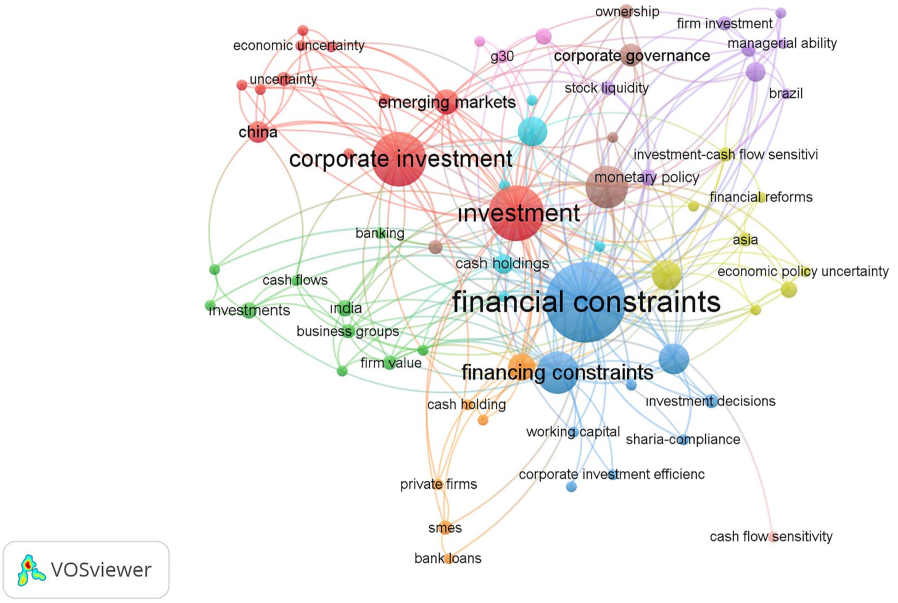
The study	Methodology
Xu and Xu (2019)	OLS
Lensink *et al*. (2003)	OLS, GMM
Poursoleiman *et al*. (2020)	OLS
Kim (1999)	OLS
Chan *et al*. (2012a)	OLS, IV, Panel FE
Hanazaki and Liu (2007)	OLS
Chan *et al*. (2012b)	GMM
Yu *et al*. (2020)	OLS
Ghosh (2006)	OLS, GMM
Gül and Taştan (2020)	GMM
Vijayakumaran (2021)	GMM
Fu and Liu (2015)	OLS
Rousseau and Kim (2008)	GMM
Kumar and Ranjani (2018)	GMM
Ameer (2014)	Panel Smooth Transition Regression Model
Gupta and Mahakud (2019)	GMM
Bhaumik *et al*. (2012)	Stochastic Frontier Model, Pooled OLS, Panel FE
O'Toole and Newman (2017)	GMM
Kandilov and Leblebicioğlu (2012)	GMM
Jaramillo *et al*. (1996)	GMM
Aivazian and Santor (2008)	Matching, Heckman Selection
George *et al*. (2011)	OLS, 2SLS
Crnigoj and Verbic (2014)	GMM, Panel Switching Regression Model
Ganesh-Kumar *et al*. (2001)	GMM, OLS
Saeed and Vincent (2012)	GMM
Shin and Park (1999)	OLS
Lin and Bo (2012)	GMM
Xu *et al*. (2013)	OLS
Ro *et al*. (2017)	GMM
Ding *et al*. (2013)	OLS, Mlogit
Demir (2008)	GMM
Gezici *et al*. (2019)	GMM
Pellicani *et al*. (2019)	GMM
Srinivasan and Thampy (2017)	OLS
Kuo and Hung (2012)	OLS
Tsai *et al*. (2014)	OLS, Higher Order GMM
Francis *et al*. (2011)	OLS, 2SLS
Gupta *et al*. (2020)	GMM
Machokoto (2021)	GMM
Ahiadorme *et al*. (2018)	GMM
Crisostomo *et al*. (2014)	GMM, GLS, OLS
Guizani and Ajmi (2020)	GMM
Sitthipongpanich (2017)	GMM
Guizani (2020)	OLS
Guizani (2019)	OLS
Altaf and Shah (2018)	GMM
Yeh and Lin (2020)	OLS
Gugler and Peev (2010)	OLS
Sun and Yamori (2009)	OLS
Hung and Tseng (2009)	OLS
Jiang *et al*. (2019)	OLS, IV, Heckman Selection Model, Matching Method
Hung and Kuo (2011)	OLS

(*continued*)

Table 2. Continued

The study	Methodology
Guariglia *et al*. (2012)	GMM
Mansour *et al*. (2017)	GMM
Wan and Zhu (2011)	OLS

Note(s): OLS: Ordinary Least Squares, GMM: Generalized Method of Moments, IV: Instrumental Variables Estimations, 2SLS: Two Stages Least Squares; MLogit: Multinomial Logit, Panel FE: Panel Fixed Effects; Matching: Treatment models
Source(s): The author



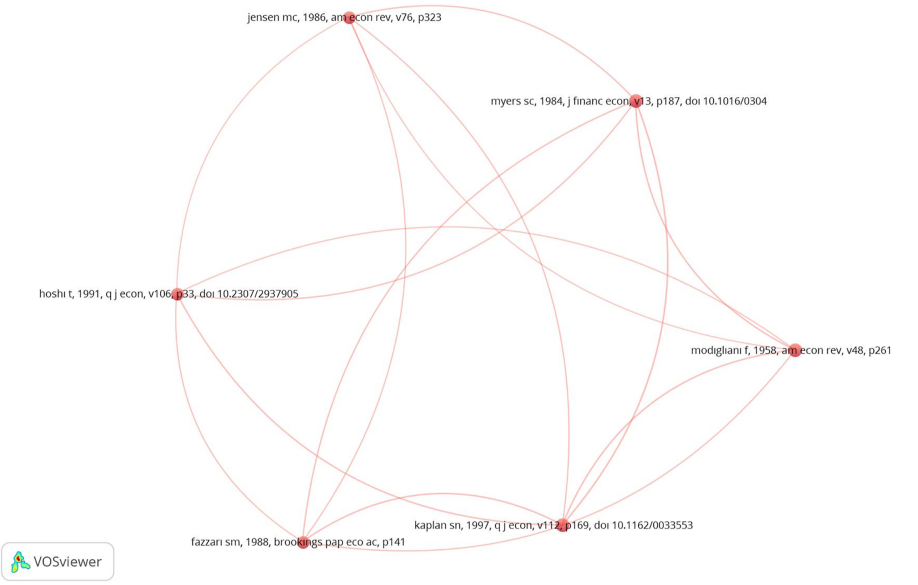
Note(s): Node size represents the total number of citations
Source(s): The author using the VOSviewer

Figure 1. Co-occurrence analysis of author's keywords in the existing literature

4. Discussion

4.1 Theme 1: poor financial development, state-led banking and financial frictions

Studies examining the financing constraints hypothesis in emerging markets often focus on the role of financial liberalization in alleviating such constraints (see Table A1 in the Appendix). In these markets, firms frequently face higher external financing premiums compared to those in developed countries due to limited financial deepening. In theory, financial liberalization should help firms reduce their financing constraints by narrowing the gap between internal and external financing costs, a gap referred to as financial friction [2]. However, due to poor financial development, the banking sector plays a crucial role in providing external finance for firms in emerging markets. The role of banks as key players in the structural transformation of emerging markets has led to the rise of state capitalism, with the state-led banking system becoming increasingly dominant in these economies (Naughton and Tsai, 2015; Nölke *et al*., 2019; Petry *et al*., 2023).



Source(s): The author using the VOSviewer

Figure 2. Studies commonly used by papers related to emerging markets, focusing on financing constraints and investment-cash flow sensitivity, with a minimum of 20 citations

In emerging markets, the challenge of overcoming financial frictions is compounded by banks' demands for additional collateral, as well as the difficulties in resolving information asymmetries. Several studies, starting with the seminal paper of Almeida and Campello (2007), have emphasized the role of collateral in addressing these issues. Moshirian *et al.* (2017) also highlighted this in the context of a comparative study of emerging markets. Therefore, firms operating in these markets should focus on increasing asset tangibility to improve their chances of accessing external finance. More research is needed to analyze financial markets (including the banking sector) within the framework of institutional structures concerning investment-cash flow sensitivity.

4.2 Theme 2: the open nature of emerging markets to business cycles

Emerging markets are vulnerable to external shocks and business cycles, leading to significant fragility. As Akyuz (2008) notes, such sharp fluctuations create uncertainty in these economies, which may prompt firms to forgo or cancel investment or capital expenditures (see Dixit and Pindyck, 1994; Keynes, 1936; Kalecki, 1937). During these periods of economic volatility, financially constrained firms struggle more to secure financing. Table A2 (see Appendix) shows that business cycles or financial crises are key factors influencing investment-cash flow sensitivity for financially constrained firms in emerging markets.

4.3 Theme 3: financing constraints classification paradox and uncommon firm characteristics in emerging markets

The classification of financial constraints in emerging markets is a challenging task. As shown in Table 3, most studies rely on factors such as firm ownership, size, age, and business group membership to determine whether a firm faces financial constraints. The existing literature suggests that small firms, young firms, those affiliated with business groups, and those with state ownership tend to exhibit higher investment-cash flow sensitivity in emerging markets.

Table 3. Financial constraints classifications

The study	FC criterion	Is investment-cash flow sensitivity supported under the financing constraints Hypothesis?[a]
Xu and Xu (2019)	N/A	N/A
Lensink *et al*. (2003)	Business group affiliation	Yes
Poursoleiman *et al*. (2020)	Debt maturity	Yes
Kim (1999)	Firm size	Yes
Chan *et al*. (2012a)	Politically connected firm status	Yes
Hanazaki and Liu (2007)	Family ownership status	Yes
Chan *et al*. (2012b)	Firm size	Yes
Yu *et al*. (2020)	State-owned status, Cash ratio, Firm size, Firm age, Liquidation ratio, Tangibility, Profitability, Product market competition, Firm-specific score	Yes
Ghosh (2006)	Firm size	Yes
Gül and Taştan (2020)	Firm size	Yes
Vijayakumaran (2021)	State-owned status	Yes
Fu and Liu (2015)	N/A	N/A
Rousseau and Kim (2008)	Firm size, Firm age, Business group affiliation	Yes
Kumar and Ranjani (2018)	Ownership, Firm size, Debt capacity, Business group affiliation	Yes
Ameer (2014)	N/A	N/A
Gupta and Mahakud (2019)	Dividend payment, Firm size, Business group affiliation	Yes
Bhaumik *et al*. (2012)	Firm Size, Business group affiliation, Indebtedness	Yes
O'Toole and Newman (2017)	State-owned status, Firm size	Yes
Kandilov and Leblebicioğlu (2012)	N/A	
Jaramillo *et al*. (1996)	Firm size, Firm age	Yes
Aivazian and Santor (2008)	Firm Size	Yes
George *et al*. (2011)	Firm Size, Business group affiliation	Yes
Crnigoj and Verbic (2014)	Firm Size	Yes
Ganesh-Kumar *et al*. (2001)	Firm Size, Ownership, exporter status	Yes
Saeed and Vincent (2012)	Firm Size, Ownership, debt level	Yes
Shin and Park (1999)	Business group affiliation, Firm size, debt level	Yes
Lin and Bo (2012)	KZ Index, State ownership	Yes
Xu *et al*. (2013)	Politically connected firm status, Quality of corporate governance, Family firms	Yes
Ro *et al*. (2017)	Firm size	Yes
Ding *et al*. (2013)	Ownership status	Yes
Demir (2008)	Firm size	Yes, but there is no difference between small firms and large firms
Gezici *et al*. (2019)	Firm size, Financing constraints score	Yes
Pellicani *et al*. (2019)	Ownership (Family firm status), KZ Index, WW Index	Yes
		Yes

(*continued*)

Table 3. Continued

The study	FC criterion	Is investment-cash flow sensitivity supported under the financing constraints Hypothesis?[a]
Srinivasan and Thampy (2017)	Close banking relationships (especially with government banks)	
Kuo and Hung (2012)	Family ownership status, Future growth opportunities (Low Q and High Q)	Yes
Tsai *et al*. (2014)	Firm Ownership Status, Politically Oriented Firms	Yes
Francis *et al*. (2011)	Country and firm- level corporate governance	Yes
Gupta *et al*. (2020)	Firm size, Business group affiliation, Firm's age	Yes
Machokoto (2021)	WW Index, KZ Index, Debt level, Firm size, HP Index, PP&E level, Dividends	Yes
Ahiadorme *et al*. (2018)	N/A	
Crisostomo *et al*. (2014)	Dividend payment	Yes
Guizani and Ajmi (2020)	Business group affiliation	Yes
Sitthipongpanich (2017)	Family ownership status	Yes
Guizani (2020)	Family ownership status, Sharia-compliant firms	Yes
Guizani (2019)	Sharia-compliant firms	Yes
Altaf and Shah (2018)	Dividend payment status, Coverage status	Yes
Yeh and Lin (2020)	Business group affiliation, Related party transactions	Yes
Gugler and Peev (2010)	Firm ownership status	Yes
Sun and Yamori (2009)	Regional disparity	Yes
Hung and Tseng (2009)	Firm size, Index classification, Foreign investment ratio	Yes
Jiang *et al*. (2019)	Analyst coverage, Diversification	Yes
Hung and Kuo (2011)	Family ownership status, Future growth opportunities (Low Q and High Q)	Yes
Guariglia *et al*. (2012)	Irreversible investment status	Yes
Mansour *et al*. (2017)	Working capital level	Yes
Wan and Zhu (2011)	N/A	N/A

Note(s): [a]If investment-cash flow sensitivity is found to be valid for at least one financing constraints classification, it is reported as "Yes". WW: Whited-Wu Index, KZ: Kaplan and Zingales Index, HP: Hadlock-Pierce Index, PP&E: Property, Plant and Equipment, Q: Tobin's Q
Source(s): The author

The relationship between investment and cash flow under the financing constraints hypothesis is widely supported by studies focusing on emerging markets (see Table 3). However, classifications based on developed countries may not fully capture the realities of financial constraints in emerging economies, where weak investor protection and underdeveloped financial sectors are prevalent. Finally, firm-specific characteristics or dynamics that reduce investment-cash flow sensitivity should also be taken into account in the context of emerging markets [3].

Overall, the systematic literature review and bibliometric analysis suggest that there is no universal conclusion or understanding regarding investment-cash flow sensitivity in emerging

markets in relation to financing constraints. Most studies frame this sensitivity within the context of financial liberalization (see Table A2 and Figure 1) and financial crises, yet no consensus has been reached. Moreover, the firm dynamics featured in economic models play a significant role in determining the relationship between investment and cash flow sensitivity in emerging markets.

The issue of endogeneity often arises in these models, especially when lagged dependent variables are included as regressors on the right-hand side in the econometric model. Therefore, studies using standard OLS models may be biased. Nearly half of the studies reviewed fail to address this endogeneity issue. Re-estimating these models using the GMM method may yield different conclusions and shift the direction of the literature (see Table 3).

Another problem related to the selection of emerging market samples. First, data availability is often limited, as private companies (which are not listed companies) in emerging economies are rarely included, and the number of listed companies is small compared to developed economies. Second, accounting inconsistencies in emerging markets may limit the information available. For example, China did not have cash flow statements before 1988, and the adoption of International Financial Reporting Standards (IFRS) varies across countries, making comparison between emerging economies difficult. This lack of standardized financial statements forces researchers to rely on surrogate variables, which further restricts the availability of financial data. The adoption of IFRS could potentially improve the availability of financial reports for companies operating in emerging markets (see Ben Cheikh and Ben Rejeb, 2021; for a recent analysis supporting this claim).

Based on the literature review, the following research gaps can be identified:

Research gap 1: To what extent does endogeneity influence investment and cash flow sensitivity in the existing literature, given that most studies use fixed effects or other instrumental regression methods?

Research gap 2: To what extent do country-specific issues hinder the universal applicability of investment-cash flow sensitivity across all emerging markets? What commonalities exist among emerging markets in this regard?

Research gap 3: How does cash flow facilitate investment through the mediating effects of the institutional context in emerging markets?

5. Conclusion

This paper presents a systematic literature review and bibliometric analysis of the financing constraints hypothesis in emerging markets. The existing literature proves the sensitivity of investment-cash flow for firms facing financing constraints in these markets, particularly where financial performance is weak, and capital markets are underdeveloped. It concludes that investment-cash flow sensitivity is an important phenomenon in emerging markets. Governments can offer incentives to financially constrained firms to improve their access to finance.

This study employs a systematic literature review and bibliometric analysis to highlight key aspects of the existing literature on investment-cash flow sensitivity and financing constraints in emerging markets. Financing constraints in these economies should be analyzed by focusing on financing frictions stemming from insufficient financial liberalization, state-led banking systems, firm characteristics, and unstable macroeconomic conditions (such as the business cycle). Additionally, the *a priori* classification of financial constraints remains a paradox for emerging markets, meriting further attention.

Moreover, policymakers should prioritize improving the efficiency of financial markets, particularly by addressing information asymmetries between parties that could be alleviated through regulation. Access to finance is an important driver of economic growth via the investment channel in emerging markets. Practitioners, especially C-suite executives, should

recognize that investment-cash flow sensitivity arises from capital market inadequacies related to low levels of financial development in these markets. Therefore, they should consider strategies to secure financing premiums, especially when operating in firms with limited financial capacity. Designing approaches to access these premiums can help mitigate competitive disadvantages. C-suite executives and practitioners should also be mindful of the recurring business cycles typical of emerging markets.

Notes

1. This study focuses specifically on studies that directly address emerging markets. In this framework, studies that include mixed samples of emerging markets and developed economies in a cross-country framework are outside the scope of this literature review.
2. At the same time, Larkin *et al*. (2018) found a binding relationship between economic development and investment-cash flow sensitivity at the global level. Given that economic development often stimulates financial liberalization, this relationship is believed to align with the findings of this study, which emphasizes the connection between financial liberalization and investment-cash flow sensitivity.
3. Recently, negative cash flow, cash flow volatility, and cash flow persistence have also emerged as important firm characteristics (see Gatchev *et al*., 2010; Minton and Schrand, 1999; Moshirian *et al*., 2017). Although these studies focus on developed economies, these aspects should be further explored within the context of emerging markets.

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Supplementary material

The supplementary material for this article can be found online.

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