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**The Causal Relationship between Financial Development and Investment: a Review of Related Empirical Literature**

**Abstract**

*This article reviews the theoretical and empirical literature on the causal relationship between financial development and investment. Based on the literature considered, it can be concluded that there is little consensus to date on the direction of causality between financial development and investment. The study concludes that most of the research done on the causal relationship between financial development and investment is highly skewed towards assessing the causal relationship between the bank-based side of financial development, as compared to the market-based side of financial development. Given the number of studies assessed, the causal relationship between financial development and investment appears to be inconclusive, at best. Moreover, the study shows that the relationship between these two macroeconomic variables seems to differ from country to country; it is dependent on the proxies used to measure the level of financial development, as well as the methodology employed.*

**Keywords:** *Bank-based financial development, Causality, Investment, Market-based financial development*

**JEL:** *E44, G21, O16*

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## 1. Introduction

A substantial body of empirical work on financial development focuses on its interaction with economic growth (Nazlioglu et al., 2009). The main implication of this praxis is that the transmission mechanism from finance to investment is being overlooked. More so, most of these studies on the finance-growth phenomena have focused more on developed nations than developing nations and have had significant inferences on the causal relationship between the bank-based side of financial development than the market-based.

Given the aforementioned, this paper aims to give a summative evaluation of studies that examine the relationship between financial development and investment. Section 2 discusses the functional theoretical framework that validates the importance of financial development to investment. Section 3 discusses the studies that focused on assessing the causal relationship between financial development and investment. Given the few studies on the causal relationship, the section is not subdivided as the previous section was but is structured chronologically, starting with studies that found unidirectional causality from financial development to investment, followed by those that found unidirectional causality from investment to financial development; then followed by the studies that found bidirectional causality between financial development and investment; then lastly, the studies that found no causality between financial development and investment. The final section (section 4) concludes the study.

## 2. The Causal Relationship between Financial Development and Investment: a Functional Theoretical Approach

Financial development *per se* is a term that has been used to mean a number of things in economics, although they all centre on the financial sector. Levine (2004: 5) defines financial development functionally as involving improvements in producing information about possible investments and allocating capital; monitoring firms and exerting corporate governance; the facilitation of trading, diversification, and management of risk, the mobilisation and pooling of savings, and easing the exchange of goods and services. These functions of the financial system are taken to influence investment decisions and technological innovations through their influence on savings mobilisation and market organisation and centrality. The financial system, as a component of the economy, comprises a number of interrelated components including the legal infrastructure, the markets and the institutions (Hawkins 2006: 67). The importance of the financial sector is main-

ly explained, in economics, through its facilitation of investment through capital accumulation and technological innovation that then results in economic growth (Levine 1997). Therefore, the link between financial development and investment is of paramount importance in assessing an economy's prospects in achieving sustainable economic growth. Notably, most studies in financial development have focused on its effect on economic growth (supply-leading hypothesis) and the effect of economic growth on financial development (demand-following hypothesis). A supply-leading hypothesis is that financial development causes economic growth, which gives the implication that the development of financial institutions and markets increases the supply of financial services, and therefore leads to increases in economic growth (Patrick 1966). Proponents of the supply-leading hypothesis include Bagehot (1873), McKinnon (1973), Shaw (1973), and King and Levine (1993). Alternatively, the demand-following hypothesis posits the reverse causality, where increasing demand for financial services increases the financial sector as the economy expands (Dawson 2008: 327). This assertion tends to follow Robinson (1952), who resolved that where enterprise leads, finance follows.

The link between financial sector development and investment can be theoretically explained by looking at the cause of the need for financial markets. Market frictions that exist in the economy tend to cause the need for financial systems (Levine 1997). The extent to which market frictions are dealt with by the financial sector so as to influence investment can be explained in relation to the individual functional role of financial systems. Financial markets and intermediaries, by noticing the existing market frictions, react by supplying friction-mitigating services to the economy. The provision of these services (management of liquidity risk, information acquisition and resource allocation, monitoring of investment projects, mobilisation of savings, facilitation of exchange, risk amelioration) leads to increased investment (Levine 1997). The alternative view postulates that economic agents demand for such services fosters the development of financial markets (Patrick 1966). For a better understanding of the relationship between financial development and investment, following Levine (1997), a discussion of each of the functional roles of financial systems and intermediaries as it translates to investment is explored in this study. The functional roles of the financial sector are information acquisition and resource allocation, management of liquidity risk, monitoring of investment projects, mobilisation of savings, facilitation of exchange, and risk amelioration.

Liquidity risk mainly arises due to uncertainties associated with converting an asset into a medium of exchange (UNECA, 2008: 104). Therefore, there is a need to circumvent the effect of not having a manager of liquidity risk in the economy. Otherwise, long-term investment projects would hardly be financed, direct investment into expensive illiquid assets would not be possible for individuals except if they pool their resources, and the cost of getting information on any investment project would be restrictive and partly inefficient as each and every individual does their personal research.

Financial markets and intermediaries offer the service for the management of liquidity risk due to the economy-wide need for long-term capital, the existence of high individual trading costs in financial products and the general dislike of the relinquishing of savings for a long period. Financial development then offers services that manage risk while at the same time improving access to long-term capital. In addition, because of specialisation in financial services, they lower the costs of trading and increase savers' confidence, which in turn increases market liquidity, as they bear the liquidity risk associated with financial transactions.

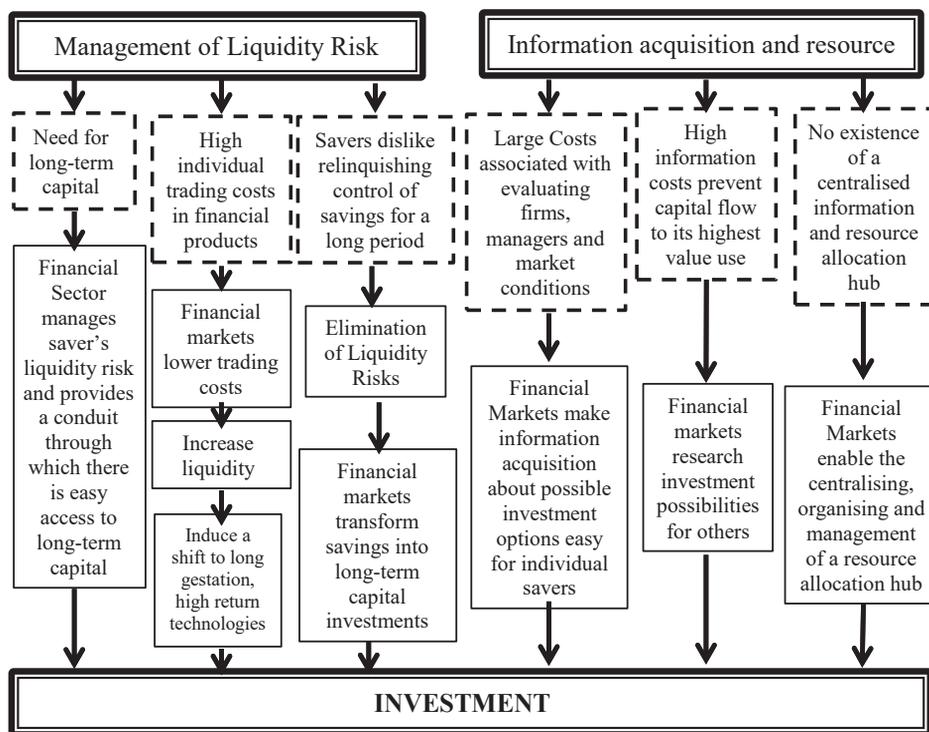
Financial systems, especially intermediaries, tend to eliminate the liquidity risk associated with savings as they provide a one-stop shop for savers, at the same time providing a one-stop shop for borrowers (investors). Therefore, intermediaries have a mandate from the saver to keep savings safe and they also have a mandate from the borrower to keep their doors open to provide such a service. Hence, the savers benefit from financial systems through the elimination of liquidity risk on their part for they now hold liquid assets. More so, these liquid assets are provided to the investor market, which in turn should lead to the financing of quality investment projects, as financial intermediaries will be more prone to finance investments with less risk.

Furthermore, due to the large costs associated with evaluating firms and market conditions, the unavailability of a centralised capital trading market and the limited capability of individual savers to collect such information, financial intermediaries undertake the costly process of researching investment options for others.

Due to the related economies of scale, financial development leads to easier and cheaper information gathering and acquisition and the delegation of financial market research needs, and it enables the establishment, centralisation, organisation and management of a resource allocation hub (Boyd and Prescott 1986). This, in turn, leads to greater and more quality investment in the economy.

Information on the monitoring of solvency, managers and board of directors is non-rival and almost non-excludable in nature, and like any impure public good, it is likely to be undersupplied. Assuming that managers know that they are not being adequately monitored, they may tend towards inappropriate risks and to individualistic rent-seeking behaviour that is detrimental to the company or investment option. Therefore, financial markets and financial institutions provide a platform through which firm managers are compelled to manage the firm in the best interests of the owners, creditors and investors. Better corporate governance procedures are instituted because of the presence of delegated ardent monitors, which tends to induce an increase in investor confidence and investment. In addition, financial systems act as a solution to the problem of achieving an acceptable nationwide standard in debt contracts and administration. Financial systems, therefore, lead to increased nationwide corporate governance, investor confidence and improved credit allocation procedures among competing investments. These entire financial sector products are envisaged to lead to increased investment in the transmission

mechanism as illustrated in Figure 1. Figure 1 gives a summary of how and why (dashed boxes) the two functional roles of the management of liquidity risk, and information acquisition and resource allocation, translate into investment.



**Figure 1. Liquidity Risk Management, Information Acquisition and Resource Allocation, and Investment**

Source: Levine, (1997), UNECA (2008).

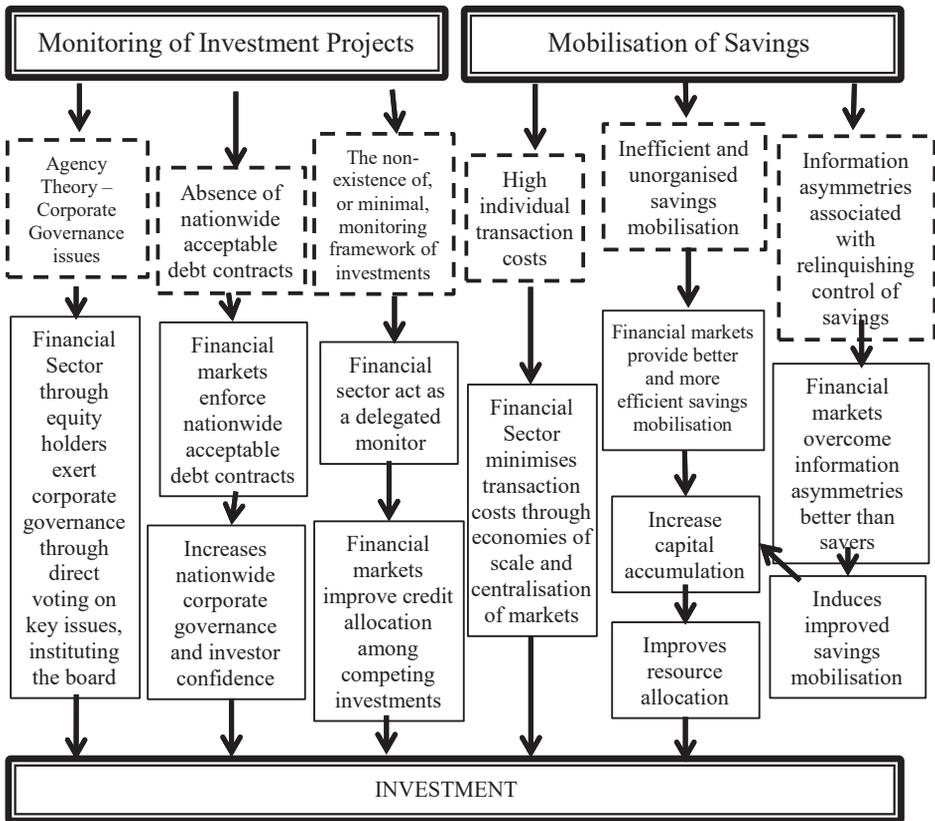
The mobilisation of savings is a costly process of amassing capital from distinct savers to investors. With the absence of financial systems, expectations are that there will be high individual savings in mobilisation transaction costs, inefficiency and information asymmetries mainly associated with renouncing control of savings to other parties. Financial systems provide the avenue to correct these market imperfections, as illustrated in Figure 2. Due to their specialised capability, financial systems are associated with minimising transaction costs, improving capital accumulation and resource allocation, and overcoming information asymmetries. All these capabilities are taken to boost investment and technological innovation.

Financially sound arrangements may lead to lower transacting costs, increased financial market access by both small and large savers, lower fixed costs associ-

ated with establishing markets and better payment systems. In addition, such arrangements lead to the promotion of specialisation, technological innovation and investment (Ang 2008).

Financial development allows for the avoidance or lowering of risk associated with long-term projects, innovation and capital externalities, and the investment-mix of portfolios. Risk amelioration by the financial sector is the consequence of the ample liquidity in financial markets. For example, stock markets tend to give very low-level investors the chance to invest in high-return projects while allowing the recipient firm to have access to such funds. Therefore, financial systems provide vehicles for trading, pooling and diversifying risk that in turn leads to increased resource allocation *vis-à-vis* investment – not to mention the importance of the financial sector to investment as it also allows for the pooling and sharing of single project and inter-project intertemporal risk through improved diversification. The transmission mechanism of risk amelioration services impacting investment is illustrated in Figure 3. Financial systems also play a substantive role in investment as facilitators of exchange. In the advent of investment, there is a need for easily accessible credit and financing facilities, and the guaranteeing of payments. Financial systems ensure that financial transactions are well structured, transacting costs are minimised, investor and saver confidence is maintained, and the appropriate feedback mechanism between investors and investments is activated and well managed. Hence, financial development generates a positive causal effect on the savings-investment process.

The functional role of financial development as pertains to its impact on investment is a fundamental issue in theoretical economics and has given rise to a number of questions that have been investigated empirically. As far as theory is concerned, financial development is postulated as having a significant causal relationship with investment. Figure 2 gives a summary of how and why (dashed boxes) the two functional roles of monitoring of investment projects and mobilisation of savings by the financial sector translate into investment. On the other hand, Figure 3 gives a summary of how and why the two functional roles of facilitation of exchange and, risk amelioration by the financial sector translate into investment.



**Figure 2. Monitoring of Investment Projects, Savings’ Mobilisation, and Investment**

Source: Levine, (1997), UNECA (2008).

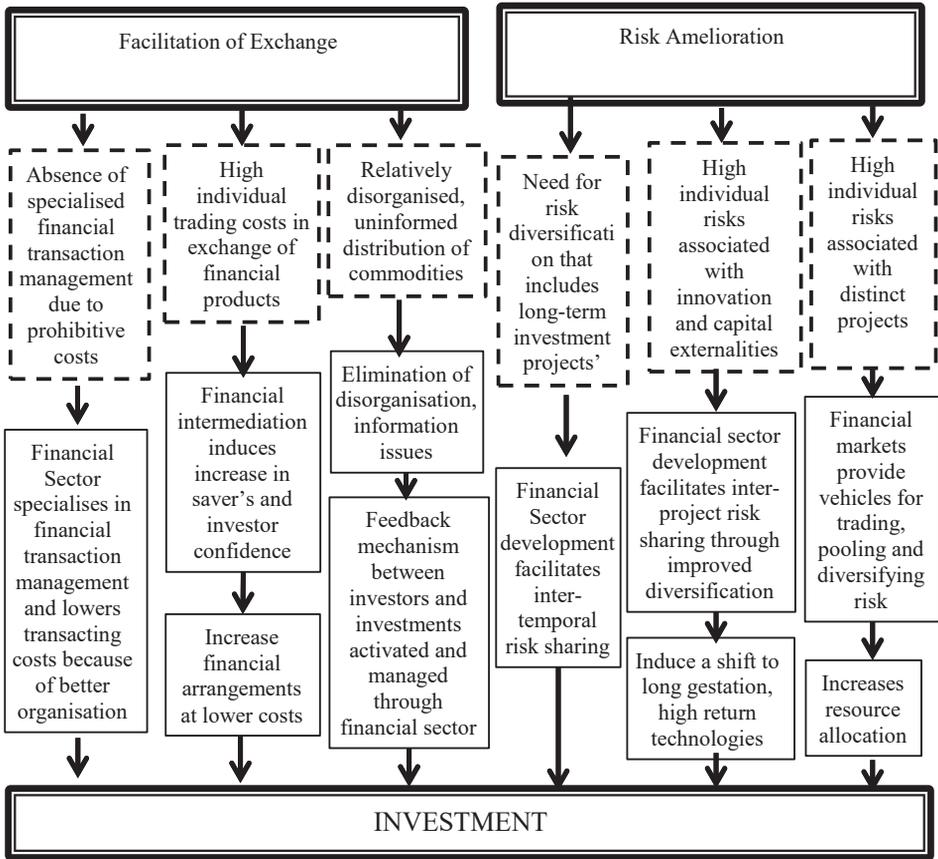


Figure 3. Facilitation of Exchange, Risk Amelioration, and Investment

Source: Levine, (1997), UNECA (2008).

### 3. The Causal Relationship between Financial Development and Investment: Empirical Evidence

Overall, there has been a limited number of studies that focused on evaluating the causal relationship between financial development and investment. Of the limited number of studies, a few have particularly distinguished between bank-based financial development indicators and market-based financial development indicators. Most of the studies have used bank-based financial development indicators as the preferred measure of financial development. There are four possible outcomes on the causal relationship between financial development and investment

(see Muyambiri and Odhiambo 2017). The four outcomes encompass: financial development Granger-causes investment; investment Granger-causes financial development; a bidirectional causal relationship between financial development and investment; and there is no causal relationship between financial development and investment.

A considerable number of empirical assessments have found that financial development Granger-causes investment. In a study using Japan time series data for the 1880 to 1913 period, Rousseau (1999) comes to the conclusion that the expansion of the financial sector that began in the Meiji transition (1868–1884) preceded the expansion of investment in the subsequent three decades. The total assets of financial intermediaries and the aggregate total assets of financial intermediaries are the two main measures of financial development that are employed in the study. The total assets of financial intermediaries include the assets of commercial banks (national, private and ordinary), special banks, savings banks, agricultural cooperatives and insurance companies, and is taken as reflecting the size and possibly the sophistication of Japan's most important financial institutions (Rousseau 1999). However, it should be noted that the assets of quasi-banks (pawnshops, small credit cooperatives, etc.) that were involved in financial activities were not included in this variable due to a lack of consistent and reliable estimates. The second measure of financial development employed by Rousseau (1999) is the aggregate total assets of financial intermediaries that added non-intermediary holdings of corporate stocks and bonds to the first measure. Investment is measured by gross domestic fixed investment and the private domestic fixed investment.

Xu's (2000) cross-sectional study using annual data of 41 countries for the period 1960–1993 found that it is largely financial development that drives investment in most of these countries. The 41 countries included in the study were composed of seven Asian and Pacific countries, one Middle-Eastern country, three Caribbean countries, fifteen African countries, eleven Latin American countries and four European countries. The preferred measure of financial development in Xu's (2000) study is the geometric mean of the sum of the current year's bank deposits and the previous year's deposits, divided by the GDP. The value of the bank deposits is arrived at by subtracting the currency in circulation from the sum of money and quasi-money (M2).

Caporale, Howells and Soliman (2005) examined the hypothesis of endogenous growth models whereby financial development causes higher growth through its influence on the level of investment and its productivity using a sample of four countries. The selected countries were Chile, Korea, Malaysia and the Philippines. Caporale et al. (2005) use quarterly data for the period 1979Q1 to 1998Q4 in their estimation. Only market-based financial development indicators, the market capitalisation ratio and the value-traded ratio are employed as indicators of financial development. The level of investment and investment productivity are measured by the ratio of gross fixed capital formation to nominal GDP and the ratio of the

real change of GDP to the real level of total investment, respectively. Caporale et al. (2005) find that stock market development Granger-causes investment productivity in all four countries. However, stock market development is only found to Granger-cause investment in Korea and Malaysia.

Rousseau and Vuthipadadorn (2005) investigate the causal relationship between finance, investment, and growth for ten Asian economies over the period from 1950–2000. Finance is found to have driven investment in seven of the ten countries (India, Japan, Korea, Malaysia, Pakistan, Sri Lanka and Thailand). A bidirectional causality relationship is found for two of the countries, the Philippines and Singapore. Only for Indonesia is the result of no causality concluded. Two measures of financial development are used and both of them are bank-based. Rousseau and Vuthipadadorn (2005) follow Xu (2000) in using the residual of M2 (after subtracting M1) as the first measure of financial development. The second measure of financial development used is the credit allocated to the private sector. Investment is measured using gross domestic fixed investment.

Chaudhry (2007) evaluates the efficacy of financial development in fostering investment in Pakistan over the period 1972–2006. Broad money, private sector credit, and stock market capitalisation are found to drive investment. Carp (2012) studies the causal relationship between stock market capitalisation, investment and economic growth for Romania for the period 1995–2010. Stock market development measured as market capitalisation over GDP is found to have a unidirectional causal relationship with investment. Hamdi, Hakimi and Sbia (2013) in their study of Tunisia have the same result – financial development Granger-causes investment. However, Hamdi et al. (2013) make use of bank-based financial development indicators only. Asongu (2014), using a number of indicators, finds that financial development predominantly precedes investment. Asongu (2014) evaluates the causal relationship between bank-based financial development and investment for sixteen African countries. In their study of Mauritius, Muyambiri and Odhiambo (2016) also find that both bank-based and market-based financial development precede investment, both in the long run and the short run. They make use of composite financial development indices to measure financial development. Contrary to some of these findings, Odhiambo (2010) and Muyambiri and Odhiambo (2017a) find some evidence in favour of investment-led financial development in South Africa. Odhiambo (2010) concludes that investment precedes bank-based financial development, while Muyambiri and Odhiambo (2017a) conclude that investment precedes both bank-based and market-based financial development in the short run.

On the other hand, Shan, Morris and Sun (2001), Lu, Fausten and Smyth (2007) and Shan and Jianhong (2006) find the existence of bidirectional causality between financial development and investment for China. In addition, Nazlioglu, Yalama and Aslan (2009), Huang (2011) and Muyambiri and Odhiambo (2017b) arrive at the same conclusion in their studies on Turkey, 43 countries and Bot-

swana, respectively. Lu et al. (2007) use a neoclassical Cobb-Douglas production function with constant returns to scale, cointegration testing and Granger causality testing on data from China to obtain their result. Nazlioglu et al. (2009) use the bounds- (ARDL) testing approach to cointegration for measuring the relationship between financial development and investment in Turkey. Nazlioglu et al. (2009), in assessing the limitations of their study, advocate for the use of other time series techniques that do not use only financial development indicators as explanatory variables but also use other non-finance control variables to assess the finance-investment relationship.

Shan and Morris (2002), Majid (2008) and Marques, Fuinhas and Marques (2013) find evidence of no causality between financial development and investment. Shan and Morris (2002) study 19 OECD countries and China, while Majid (2008) and Marques et al. (2013) study Malaysia and Portugal. Rousseau and Vuthipadorn (2005) also arrived at the same conclusion (no causal relationship between financial development and investment) for Indonesia.

Table 1 gives a summary of studies that have endeavoured to investigate the causal relationship between financial development and investment.

**Table 1. Related Literature on Causality between Financial Development and Investment**

Author(s)	Region/ Country	Variables	Methodology	Direction of Causality
Studies in Favour of Unidirectional Causality from Financial Development to Investment				
Rousseau, 1999	Japan	Total assets of financial intermediaries; Non-intermediary holdings of corporate stocks and bonds; Per capita GNP; Gross domestic fixed investment; Private domestic fixed investment; Currency in circulation; Mid-year population; Assets of insurance companies; Loan agricultural cooperatives; Assets of savings institutions; Assets of special banks; Assets of commercial banks.	Vector autoregressive models and Granger Causality	Financial development Investment.
Xu, 2000	41 countries	Real GDP; Real Domestic investment; Index of financial development; Liquid liabilities/GDP; Total bank deposits/GDP.	Multivariate Vector autoregressive models (VAR)	Financial development Investment.
Caporale et al., 2005	4 countries	Ratio of gross fixed capital formation to nominal GDP; Ratio of the real change of GDP to the real level of total investment; Market capitalisation ratio; Value traded ratio.	Toda and Yamamoto Causality test	Stock market development Investment.

Author(s)	Region/ Country	Variables	Methodology	Direction of Causality
Rousseau & Vuthipadorn, 2005	10 Asian countries	Difference between broadly defined and narrow money (M2- M1); Credit allocated to the private sector; Gross domestic product; Gross domestic fixed investment.	Vector autoregressive models (VARs) and vector error correction models (VECMs)	Financial development Investment. (in seven of the ten countries – India, Japan, Korea, Malaysia, Pakistan, Sri Lanka, and Thailand)
Chaudhry, 2007	Pakistan	Economic Growth; Investment; Broad Money; Private Sector Credit; Stock Market Capitalisation; Foreign Direct Investment; Trade Openness	Engle-Granger Approach and ECM	Financial development Investment.
Carp, 2012	Romania	Annual percentage growth rate of GDP at market prices; Local currency market capitalisation of listed companies, as a percentage of GDP; turnover ratio (%); stock traded, as a percentage of GDP; Total investment as a percentage of GDP	Vector autoregressive models and Granger Causality	Stock market development Investment.
Hamdi et al., 2013	Tunisia	Banking deposit liabilities to GDP ratio; M3 to GDP; Private sector credit to GDP; Real GDP to total population; Investment to GDP	Multivariate Granger Causality in VECM Model	Financial development Investment.
Asongu, 2014	16 countries	Deposit Money Bank Assets/(Deposit Money + Central Bank Assets); Liquid Liabilities/GDP; Central Bank Assets/GDP; Deposit Money Bank Assets/GDP; Private Credit by Deposit Money Banks/GDP; Bank Deposits/GDP; Financial System Deposit/GDP; Bank Credit/Bank Deposits; Private Credit by Deposit Money Banks and Other Financial Institutions/GDP; Foreign Direct Investment/GDP; Private Capital Flows/GDP; Remittance; Net Development Assistance/GDP; Gross Private Investment/GDP; Gross Public Investment/ GDP; Gross Fixed Capital Formation/GDP; Gross Domestic Investment/GDP; Net Long Term Borrowing; Portfolio Investment/GDP; Portfolio Equity Flows/GDP; Budgetary Investment/GDP; Net Foreign Investment/GDP; Total Gross Domestic Savings	Vector Error Correction Model and Granger causality	Financial development Investment.

Author(s)	Region/ Country	Variables	Methodology	Direction of Causality
Muyam-biri and Odhiambo, 2016	Mauritius	Gross fixed capital formation, Bank-based financial development composite index; Market-based financial development composite index; Liquid liabilities as a ratio of GDP (M3); Domestic credit to private sector to GDP; Domestic credit provided by financial sector to GDP; Stocks traded, total value to GDP; Market capitalisation of listed companies to GDP; The turnover ratio; Gross domestic savings	Trivariate causality model ARDL Bounds testing procedure	Both bank-based and market-based financial development Investment.
Studies in Favour of Unidirectional Causality from Investment to Financial Development				
Odhiambo, 2010	South Africa	Liquid Liabilities/GDP; Private Credit/GDP; M2/GDP; Investment; Economic Growth	Trivariate ARDL-based causality model	Investment financial development.
Muyam-biri and Odhiambo, 2017a	South Africa	Gross fixed capital formation; Bank-based financial development composite index; Market-based financial development composite index; Liquid liabilities as a ratio of GDP (M3); Domestic credit to private sector to GDP; Domestic credit provided by financial sector to GDP; Stocks traded, total value to GDP; Market capitalisation of listed companies to GDP; The turnover ratio; Gross domestic savings	Trivariate causality model ARDL Bounds testing procedure	Investment financial development.
Studies in Favour of Bidirectional Causality between Financial Development and Investment				
Shan et al., 2001	9 countries	Real per capita GDP; Ratio of loans made to the private sector by commercial banks and other deposit-taking banks to GDP; Total factor productivity; Ratio of the sum of imports and exports to GDP; Investment as a percentage of GDP; Consumer price index; Stock market price index	Toda and Yamamoto Granger Causality procedure	Investment financial development in China.
Rousseau & Vuthipadorn, 2005	10 Asian countries	Difference between broadly defined and narrow money (M2- M1); Credit allocated to the private sector; Gross domestic product; Gross domestic fixed investment.	VARs and VECMs	Financial development Investment. (in two of the ten countries – Philippines and Singapore)
Lu et al., 2007	China	M2; Bank deposit liabilities to GDP; Bank domestic credit to GDP; Real GDP per capita; Real per capita investment; Real physical capital per capita	Granger causality	Investment financial development.

Author(s)	Region/ Country	Variables	Methodology	Direction of Causality
Huang, 2011	43 countries	Nominal private investment to nominal GDP; Financial intermediary development index; Liquid Liabilities over GDP; Private Credit to GDP; Commercial bank assets to the sum of commercial bank and central bank assets	Panel Causality Regression	Investment financial development.
Shan & Jianhong, 2006	China	Real GDP; Total credit to the economy; Labour force; Net investment; Total trade as a % of GDP	VAR and IRF	Investment financial development.
Nazlioglu et al., 2009	Turkey	Gross fixed capital formation to nominal GDP; Government investment to nominal GDP; Private investment to nominal GDP; Money to income; Banking deposit liabilities to income; Domestic credit to income; Private sector credit to income; Share of private sector credit in domestic credit; Liquid liabilities to income.	Dolado and Lutkepohl (1996) causality lest technique and Bounds Testing Approach to Cointegration	Investment financial development.
Muyam- biri and Odhiambo, 2017b	Botswana	Gross fixed capital formation; Bank-based financial development composite index; Market-based financial development composite index; Liquid liabilities as a ratio of GDP (M3); Domestic credit to private sector to GDP; Domestic credit provided by financial sector to GDP; Stocks traded, total value to GDP; Market capitalisation of listed companies to GDP; The turnover ratio; Gross domestic savings	Trivariate cau- sality model ARDL Bounds testing procedure	Both bank-based and market-based financial development Investment.
<b>Studies in Favour of No Causality Relationship Between Financial Development and Investment</b>				
Rousseau & Vuthi- padadorn, 2005	10 Asian countries	Difference between broadly defined and narrow money (M2- M1); Credit allocated to the private sector; Gross domestic product; Gross domestic fixed investment.	VARs and VECMs	No causal relationship between fi- nancial devel- opment and investment (Indonesia)
Majid, 2008	Malaysia	The ratio of total bank deposits liabilities to nominal GDP; Share of gross fixed capital formation to nominal GDP; Growth rate of real Gross Domestic Product (GDP); Changes in the Consumer Price Index	ARDL Bounds testing procedure	No causal relationship between fi- nancial devel- opment and investment.
Shan and Morris, 2002	19 OECD countries and China	Real GDP; Ratio of total credit to GDP; Spread of borrowing and lending interest rates; Productivity; Ratio of gross investment to GDP; Ratio of total trade to GDP; Consumer price index; Official interest rate; Stock market price index	Toda and Yamamoto Granger Causality procedure	No clear cau- sal relation- ship between financial de- velopment and investment.

Author(s)	Region/ Country	Variables	Methodology	Direction of Causality
Marques et al., 2013	Portugal	Real gross domestic product; Stock market capitalisation/GDP; Total domestic credit ratio /GDP; Investment ratio logarithm /GDP; Consumer price index	VAR and IRF, Granger Causality	No causal relationship between financial development and investment.

*NB: indicates direction of causality.*

Source: Author's own compilation.

#### 4. Conclusion

In this paper, a review of the related theoretical and empirical literature on the causal relationship between financial development and investment nexus has been discussed. Based on the literature considered, it can be concluded that there is little consensus to date on the direction of causality between financial development and investment. Further, the said causal relationship has not been investigated extensively in economic circles. Notwithstanding the aforementioned, four main deductions seem to have surfaced in the finance-investment causality investigation: Firstly, studies in favour of a unidirectional causal flow from financial development to investment (finance-led investment); secondly, studies in favour of a unidirectional causal flow from investment to financial development (investment-led financial development); thirdly, studies in favour of a bidirectional relationship between financial development and investment; and fourthly, studies in favour of no causality between financial development and investment. Unfortunately, most of the research done is highly skewed towards assessing the causal relationship between the bank-based side of financial development, compared to the market-based side of financial development. Given the findings of the studies assessed in this paper, the causal relationship between financial development and investment appears to be inconclusive, at best. Moreover, the study shows that the relationship between these two macroeconomic variables seems to differ from country to country; it is dependent on the proxies used to measure the level of financial development, as well as the methodology employed.

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## Streszczenie

### ZWIĄZEK PRZYCZYNOWY MIĘDZY ROZWOJEM FINANSOWYM A INWESTYCJAMI: PRZEGLĄD LITERATURY EMPIRYCZNEJ

*Artykuł zawiera przegląd literatury teoretycznej i empirycznej, dotyczącej związku przyczynowego między rozwojem finansowym a inwestycjami. W oparciu o rozważaną literaturę można stwierdzić, że jak dotychczas nie osiągnięto konsensusu w kwestii kierunku związku przyczynowego między rozwojem finansowym a inwestycjami. W artykule stwierdza się, że większość badań dotyczących związku przyczynowego między rozwojem finansowym a inwestycjami jest w większym stopniu ukierunkowana na związek przyczynowy między rozwojem finansowym opartym o banki niż o rynek, a inwestycjami. Z analizy opracowań można wyciągnąć wniosek, że związek przyczynowy między rozwojem finansowym a inwestycjami jest w najlepszym wypadku niejednoznaczny. Ponadto w artykule wskazano, że związek między tymi dwiema zmiennymi makroekonomicznymi wydaje się różnić w zależności od kraju: jest zależny od aproksymant używanych do pomiaru poziomu rozwoju finansowego, a także od zastosowanej metodologii.*

**Słowa kluczowe:** *rozwój finansowy oparty o banki, przyczynowość, inwestycje, rozwój finansowy oparty o rynek*