Review

Financial Intermediation, Economic Growth, and Business Cycles

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Abstract: This paper aims to examine the importance of financial intermediation in economic activity. We also explore the effects of monetary factors and financial frictions on the relationship between financial intermediation and economic growth, the drivers of business cycles, and how shocks spread through the intermediation process. Financial intermediaries improve fund allocation, minimize monitoring costs, minimize liquidity risk, simplify risk management, and facilitate portfolio diversification and resource allocation to more productive activities. In addition, financial intermediaries collect and analyze information about investment projects, allocating resources and managing information more efficiently than individual investors. We conclude that financial intermediation is significant for economic growth. In addition, we show that financial market frictions can amplify exogenous shocks, affecting investment, economic growth rates, and macroeconomic stability. Reducing financial frictions through intermediation is crucial.

1. Introduction

The objective of this paper is to investigate the significance of financial intermediation in economic activity. Specifically, I address several questions related to this topic. These include the following: What role does financial intermediation play in economic growth? How do monetary factors impact the relationship between financial intermediation and economic growth? Are the financial market frictions drivers of business cycles? To what extent do shocks propagate through the financial intermediation process?

Financial intermediaries are institutions that facilitate the transfer of funds between economic units. They accept deposits from those who have surplus funds, such as savers, and provide loans to those who need funds, such as borrowers. However, in cases where the Modigliani–Miller Theorem (Modigliani and Miller 1958, 1963) is applicable, financial intermediation becomes irrelevant. This is because households can create portfolios that offset any position taken by financial intermediaries. Thus, financial intermediation does not add any value. In essence, the financial markets are efficient at allocating resources, and financial intermediaries have no role to play in this process.

Despite the popularity and wide acceptance of the Modigliani–Miller Theorem, frictions in the financial sector, such as transaction costs and asymmetric information, have challenged this theorem. Theories of financial intermediation have been developed to explain how financial frictions can be mitigated through resource allocation based on perfect and complete markets. In particular, transaction costs have been noted as a critical factor, as emphasized by Gurley and Shaw (1955). They observed that financial intermediaries possess an advantage over individuals due to the fixed costs of asset evaluations, which can be shared. Additionally, financial intermediaries are better able to diversify their portfolios than individuals due to trading costs. Asymmetric information is another factor that has been investigated by economists, providing an alternative explanation for the importance

of financial intermediation. Leland (1972) suggests that financial intermediaries can signal their informed status by investing their wealth in assets that they have specialized knowledge about. Furthermore, Diamond (1984) argues that financial intermediaries can overcome asymmetric information problems by acting as "delegated monitors". In particular, delegated monitoring permits savers to access safe investments that offer high returns. Banks can reduce their monitoring costs by pooling funds from multiple savers and diversifying their investments across different borrowers. As a result, savings can be invested in productive projects at a lower cost. Banks lend to many risky investments but finance them with a safe debt from savers, which provides the right incentive for monitoring borrowers. In the case of a default, deposit holders can force banks into bankruptcy. Pooling helps solve the problem of "who should monitor the monitor".

It has been observed that transaction costs and asymmetric information have significantly reduced. This has led to a decrease in the importance of traditional banks that accept deposits and provide loans. As a result, other intermediaries, like pension and mutual funds, have grown. Furthermore, new financial markets, such as financial futures and options, have emerged as markets for financial intermediaries. Consequently, the development of these changes has led to the creation of theories of financial intermediation, which emphasize risk trading, risk management, and participation costs as the key reasons behind the existence of modern financial intermediaries.

Stiglitz and Weiss (1981) worked on a model with asymmetric information between borrowers and lenders about the characteristics of individual projects. They assume that entrepreneurs have private information about their projects, which have the same expected return but different probabilities of success. Because of limited liability, borrowers can default on their loans in the event that the project does not succeed. Hence, at high levels of interest rates, the only entrepreneurs who would find borrowing attractive are high-risk ones, with a low probability of repayment. The resulting equilibrium is characterized by credit rationing and underinvestment. Finally, DeMeza and Webb (1999) consider a different form of uncertainty about entrepreneurs' projects that leads to an overinvestment in equilibrium. They assume that each project receives the same return, R, if successful, but have different probabilities of success. The result is an overinvestment as high-probability projects subsidize low-probability ones.

The purpose of this work is twofold. First, I delve into the relationship between financial intermediation and the formation of economic growth. Through a comprehensive analysis of the relevant literature, this study aims to provide a deeper understanding of the mechanisms and factors that contribute to the impact of financial intermediation on economic growth. By exploring this relationship, I aim to identify potential avenues for policymakers to promote economic growth.

Another purpose of this study is to investigate the impact of financial frictions on the amplification of shocks and their effects on the stability of markets. Financial frictions, such as incomplete insurance markets, can magnify the impact of shocks on the economy, potentially leading to instability. Policymakers must take into account the role of financial frictions to implement appropriate measures that ensure market stability and the welfare of society. In particular, incomplete insurance markets can create adverse selection and moral hazard problems that may exacerbate the effects of shocks. Therefore, it is essential to identify and address these issues in order to mitigate the negative consequences of financial frictions.

The paper is structured as follows. Section 2 presents the impact of financial intermediation on economic growth. Section 3 develops the role of monetary factors in determining the interaction between financial intermediation and economic growth. Section 4 presents the relationship between financial intermediation and business cycles. Section 5 presents my conclusions.

2. Financial Intermediation and Economic Growth

Numerous studies by Gurley and Shaw (1955), McKinnon (1973), Bencivenga and Smith (1991), Greenwood and Jovanovic (1990), King and Levine (1993a, 1993b), Pagano (1993), Demirguc-Kunt and Maksimovic (1996), Beck et al. (2000), Levine et al. (2000), and Mhadhbi et al. (2020) have asserted that financial intermediation is crucial to creating enduring economic growth. The fundamental reason is that financial institutions serve as the conduits for efficiently directing funds from savers to borrowers, enabling investments in physical capital, and promoting innovation and creative destruction processes. Schumpeter's (1932) seminal work was the first to expound on this notion, underscoring financial institutions' pivotal roles in enhancing the real economy's growth.

Gurley and Shaw (1955) and McKinnon (1973) argue that financial intermediaries positively affect economic growth by raising the level of investment, improving the allocation of funds most efficiently, and reducing monitoring costs. Financial intermediaries also minimize liquidity risk and simplify the management of risk by savers and investors. According to Bencivenga and Smith (1991), financial intermediaries are designed to channel savings into long-term assets that are more productive than short-term assets. Moreover, financial intermediation facilitates portfolio diversification for savers and investors. As the financial system evolves, more options are presented to investors, enabling them to allocate resources to more productive activities, as highlighted by Greenwood and Jovanovic (1990) and Demirguc-Kunt and Maksimovic (1996). In economies with underdeveloped financial systems, there are fewer investment opportunities, which implies a higher probability that resources are wasted on unproductive uses.

Another argument revolves around the role of the financial system in collecting and processing information about investment projects. Financial intermediaries collect and evaluate information more effectively and less expensively than individual investors because of the economies of scale that are developed. As a result, the overall cost of investment declines, stimulating economic growth. Therefore, low financial development or distortions in the financial system increase the cost of investment and thus slow down economic growth.

In the literature on growth and finance, the endogenous growth theory by Aghion and Howitt (1998), Bencivenga and Smith (1991), and Tomohiro and Yanagawa (2017) has gained ground over the neoclassical exogenous growth theory. The latter suggests that the growth of output in the steady state is fully determined by exogenous factors, meaning that financial variables only have level effects. However, the former theory proposes that financial deepening can influence growth by converting savings into investments. Thus, Pagano (1993), working on an endogenous growth model, concludes that one channel through which financial deepening affects growth is converting savings into investments. Several notable scholars, including Bencivenga and Smith (1993), Levine (1991,[1] 1992), and Saint-Paul (1992)[2] conclude that financial institutions promote growth by allocating resources more efficiently. More specially, in their works, financial markets are considered institutions that provide the services of risk pooling and the collection of information about borrowers. They also facilitate the flow of resources from savers to investors, especially in the presence of market imperfections. Studies in this area propose different ways to tackle issues such as adverse selection, moral hazard, or liquidity shocks to encourage the creation of intermediaries. The role of intermediation is to reduce the inefficiencies caused by these imperfections.

The subsequent trend in the endogenous economic growth theory, developed by Grossman and Helpman (1991) and Romer (1990), points out that economic growth is generated by the invention and development of new products rather than the accumulation of physical or human capital. Based on Schumpeter's idea, many economists examined how financing innovation could affect the growth process and concluded that this was crucial for economic growth and that the more efficient the financial sector, the faster the economy grows. In particular, King and Levine (1993a), de la Fuente and Marin (1996), and Blackburn and Hung (1998), working on this new framework, introduced informational frictions in the

credit market, providing a rationale for the appearance of intermediaries. King and Levine (1993a) consider financial intermediaries that act as evaluators of prospective entrepreneurs and providers of insurance for innovators. However, they do not introduce incentive problems. These intermediaries help entrepreneurs to overcome the challenges that they face in raising finance for their innovative ideas. However, the economists did not introduce incentive problems. As such, it is important to note that the appearance of intermediaries in the credit market does not necessarily guarantee the smooth flow of funds to entrepreneurs. There can be other factors, such as a lack of incentives, which can hinder the growth of innovative entrepreneurs. This problem can arise because risk-averse innovators try to acquire full insurance. They try to acquire the same payment, whether or not they innovate. If this payment is positive, researchers do not innovate; especially if, to innovate, they must make an effort. The studies by de la Fuente and Marin (1996) and Blackburn and Hung (1998) consider this moral hazard problem, although from different perspectives. The first pair of authors provided banks with an imperfect monitoring technology that revealed the innovator's level of effort with a certain probability, whereas Blackburn and Hung used the costly state verification paradigm, that is, innovators have incentives to declare that they have not been successful so as to avoid making a payment. At some cost, investors can verify the result of the project.

As previously mentioned, the papers listed above do not incorporate capital accumulation as a component of economic growth. Aghion and Howitt (1998) argued that they ignored capital accumulation because it was assumed that labor was the only input in the research and that labor was inelastically supplied. Therefore, a rise in capital intensity has two opposite effects. On the one hand, it makes the payoffs toward innovation greater, but on the other hand it increased labor productivity, making the input into the research more expensive. These two effects cancel each other out so that capital accumulation leaves innovative activity unaffected, and thus, it cannot influence long-run growth. However, it is arguable that the only source of growth is innovation, and accordingly, Aghion and Howitt propose another model of creative destruction with capital accumulation. They assume that the research is produced out of labor and intermediaries' inputs. In their model, both R&D activities and capital accumulation determine growth, and they are complementary. Growth cannot continue indefinitely without innovation. Diminishing returns reduce investments, but without capital accumulation, rising costs choke off innovation.

3. The Role of Monetary Factors in Determining the Interaction between Financial Intermediation and Economic Growth

The relationship between financial intermediation and economic growth under the light of monetary factors has been a topic of interest in various studies (Konstantakopoulou et al. 2009; Kollintzas et al. 2011). Historical observations during the Great Depression in the US and Japan revealed that low nominal interest rates were linked to low investment and economic growth rates. Additionally, Fischer (1993), Barro (1995), Bullard and Keating (1995), Khan and Senhadji (2001), and Konstantakopoulou and Tsionas (2011) claimed that high inflation rates corresponded to low economic growth rates. King and Levine (1993a, 1993b) conducted a comprehensive study on various financial indicators and demonstrated that financial intermediation was crucial to promoting economic growth. Boyd et al. (2001) concluded that increases in the long-run rate of inflation had a strong and permanent effect on private lending, the main indicator of the degree of financial development. It is also worth noting that Khan and Senhadji (2001) add that the point at which inflation starts having a negative effect on the rates of economic growth is very closely related to the point at which inflation has a negative effect on the financial system. In other words, inflation not only affects economic growth rates, but also the financial system in a significant way.

We presently return to our initial observation as regards the positive relationship between nominal interest rates and the level of investment. In order for this relationship to exist, the nominal rate of interest should affect the composition of bank portfolios. Under empirically plausible conditions, low nominal rates of interest create strong incentives for

banks to undertake low investment activities. Moreover, when there are credit market frictions, such as costly state verification problems, which have an endogenous degree of severity, high rates of inflation can lead to more severe credit rationing and, therefore, to low levels of investment and low rates of growth. Therefore, it is important to acknowledge the impact of credit market frictions on the relationship between nominal interest rates and investment levels, as these factors can significantly affect economic performance.

The introduction of financial intermediaries, which play a serious role in determining the level of investment, has a strong implication. When nominal interest rates are low, banks face a reduced opportunity of holding cash reserves, which leads them to hold relatively low levels of cash reserves and fund a relatively low level of investment. Therefore, it is clear that low nominal interest rates have a direct impact on the investment decisions of financial intermediaries, which ultimately affects the overall economic growth.

In addition, the presence of credit market frictions whose severity is endogenous also imposes some costs associated with excessively high rates of inflation. There is strong empirical evidence that, for most economies, the nominal rate of interest is either not significantly correlated or is negatively correlated, both in the short and long runs, with the rate of inflation. Thus, as an empirical matter, higher rates of inflation have a negative impact on long-run real rates of return. Moreover, when real rates of return are reduced, this increases the incentives of agents to borrow and reduces the incentives of agents to save. As a result, excessively high rates of inflation also impede lending for capital investment.

In summary, financial intermediation and economic growth under the influence of monetary factors have been studied extensively. Low nominal interest rates lead to low investment and economic growth rates. High inflation rates correspond to low economic growth rates. Financial intermediation plays a vital role in promoting economic growth. Low nominal interest rates have a direct impact on the investment decisions of financial intermediaries, affecting the overall economic growth. High rates of inflation can lead to more severe credit rationing, low levels of investment, and low rates of growth. Credit market frictions affect the relationship between nominal interest rates and investment levels, significantly affecting economic performance. Higher rates of inflation have a negative impact on long-run real rates of return, reducing incentives to save and impeding lending for capital investment.

4. Financial Intermediation and Business Cycles

Financial market frictions can create propagation mechanisms that significantly increase the real consequences of exogenous shocks. Many works have illustrated this phenomenon and financial intermediation's role in addressing these frictions. Williamson (1987), Bernanke and Gertler (1989), and Carlstrom and Fuerst (1998, 2001) worked on this area, whereas Smith (1988) and Boyd and Smith (1998) focused on financial market frictions as a potential source of endogenously arising volatility. And, indeed, one of the oldest theories of business cycles was introduced by the banking and currency schools in the early 19th century. These schools focused on how the expansion and contraction of bank credit, which, at the time, might have been financed by printing notes, could lead to business cycle phenomena. In summary, the study of financial market frictions and their impacts on the economy is a critical area of research that requires attention to ensure macroeconomic stability.

Bernanke et al. (1999) and Carlstrom and Fuerst (2001) studied the moral hazard problem in the principal–agent relationship that exists in debt contracts. Their models show that there are certain bad states of the world when it may be more efficient for firms to default on their debts, while borrowers may prefer to default on borrowing in other states due to limited liability. Since state verification is costly, lenders must pay a price to ensure whether the true state of the world warrants a default. To compensate for this cost, lenders demand an external finance premium in a steady state. This results in firms finding it cheaper to invest from retained funds rather than borrowed funds. Therefore, a stronger firm cash flow leads to a higher investment. This mechanism has the potential to

provide amplification and propagation in the general equilibrium, as aggregate demand shocks affect the firm's cash flow, causing persistent movements in the firm's average costs of capital and investment.

Kiyotaki and Moore (1997) introduced an important concept in economics: incomplete enforceability. This concept implies that there are limitations to the extent to which contracts can be enforced. They showed that entrepreneurs, in particular, were highly credit constrained due to this incomplete enforceability. To explain this phenomenon, Kiyotaki and Moore argued that lending institutions were only willing to issue loans up to the value of physical capital when the value of investment projects was highly dependent on human or entrepreneurial capital. This is because physical capital can be foreclosed if borrowers default on their loans, while human capital cannot. As a result, entrepreneurs who heavily rely on their own human capital may not be able to secure adequate financing for their projects. The aggregate consequences of this credit constraint are similar to those identified by Bernanke et al. (1999). Specifically, an investment is highly dependent on the value of collateral, which can generate amplification and persistence following monetary shocks. This means that even small changes in the monetary policy can have significant effects on the economy, due to the constraints faced by entrepreneurs.

In addition, Cooley et al. (2004) assumed incomplete enforceability and explored how entrepreneurs and lenders could create long-term incentive-compatible contracts. They discovered that incentive-compatible contracts encouraged higher investment and growth in new firms compared to old ones, and that the investment in new firms depended on cash flow. The reasoning behind this is as follows: when a firm is young and/or has a high cash flow, the entrepreneur may be tempted to break the contract and keep all the cash flow. Therefore, the optimal contract must motivate the entrepreneur not to default. This is achieved through growth in the firm's value, which is possible through higher investments. The study conducted by Cooley et al. (2004) shows that, in general, equilibrium, financial contracts that are incentive-compatible, can actually prolong and intensify shocks. These models are based on the existence of moral hazard issues in debt markets. Properly designed financial contracts under a moral hazard setting can result in considerable deviations from the Modigliani–Miller axioms and generate a role for credit during economic fluctuations. Incomplete insurance markets are another necessary condition for credit to have a role in monetary transmission. If private agents were able to purchase an insurance policy against a "credit crunch", none of the abovementioned mechanisms would have any impact on the economy. However, such insurance policies do not exist. Overall, the study highlights the complex interplay between financial contracts, moral hazards, and economic shocks. While financial contracts can play a critical role in mitigating risk and promoting economic stability, it is essential to design them carefully to avoid unintended consequences. Additionally, policymakers must consider the impact of incomplete insurance markets on monetary transmission and take the appropriate steps to mitigate any adverse effects.

At this point, we should analyze the interaction between financial intermediation and another form of financial market friction in the light of monetary shocks. This financial friction is included in the models of Lucas (1990), Fuerst (1992), Christiano and Eichenbaum (1991, 1992, 1995), Christiano et al. (1997), Dotsey and Ireland (1995), and King and Watson (1996), and considers that some portfolio decisions are made without complete information, prior to a monetary shock. As a result, monetary injections affect agents differently; that is, they only affect the balance sheets of the financial intermediaries and a new channel is introduced by which employment and outputs are affected. As long as the nominal interest rate is positive, intermediaries will wish to increase their lending in response to a positive monetary injection. To induce firms to borrow additional funds, the interest rate on loans must fall. Hence, a liquidity effect is generated; interest rates decline in response to a positive monetary injection. Because of the restrictions on trading, cash injections create a wedge between the value of cash in the hands of household shopping in the goods market and the value of cash in the financial market. Because Fuerst (1992) and Christiano

and Eichenbaum ([1992](#), [1995](#)) assume firms must borrow to fund their wage bills, the appropriate marginal cost of labor for firms is the real wage times the gross rate of interest on loans. The interest rate decline generated by the liquidity effect lowers the marginal cost of labor; for each real wage, the labor demand rises. As a result, equilibrium employment and output increase.

5. Conclusions and Discussion

This paper aimed to examine the importance of financial intermediation on economic activity. The focus was on its role in promoting economic growth, the effects of monetary factors and financial frictions, the drivers of business cycles, and how shocks spread through the intermediation process. Although the Modigliani–Miller Theorem suggests that intermediaries do not add value, frictions, such as transaction costs and asymmetric information, challenge this view. Theories of intermediation have emerged to explain how these frictions can be mitigated.

Financial intermediation drives economic growth by directing funds from savers to borrowers, enabling investments in capital and innovation. Furthermore, financial intermediaries contribute to economic growth by raising investment levels, improving fund allocation, reducing monitoring costs, minimizing liquidity risk, and simplifying risk management. They channel savings into long-term assets, facilitating portfolio diversification and resource allocation to more productive activities. In addition, financial intermediaries collect and analyze information about investment projects, allocating resources more efficiently and managing information more efficiently than individual investors due to their economies of scale.

Financial intermediation plays a crucial role in promoting economic growth. The investment decisions are affected by low nominal interest rates, which in turn affect economic growth. High inflation rates lead to credit rationing and lower levels of investment and growth rates, reducing saving incentives and impeding lending for capital investment. The composition of bank portfolios, credit market frictions, and the severity of inflation affect the relationship between nominal interest rates and investment levels, which in turn impact economic performance.

The incomplete enforceability of contracts and financial market frictions can amplify exogenous shocks, which in turn affect investment, growth, and macroeconomic stability. Incentive-compatible contracts can encourage investment and growth in new firms, while incomplete insurance markets are necessary for credit to have a role in monetary transmission. Therefore, policymakers must consider the impact of incomplete insurance markets on monetary transmission.

Finally, financial market frictions amplify the impact of exogenous shocks, making it crucial to reduce financial frictions through financial intermediation.

Limitations and Recommendations for Further Research

Some limitations that influenced this research are described below. Firstly, it is worth noting that the paper mainly focuses on theoretical literature rather than empirical evidence. As a result, the conclusions drawn from this study may be limited in terms of their empirical applicability. Additionally, the paper lacks empirical investigations to determine the measurable impact between financial intermediation, economic growth, and business cycles. This highlights the need for further research to extend the scope of the paper's subject matter and provide more concrete evidence to support the theoretical framework proposed by this study. Therefore, future research should address these limitations mentioned in the empirical documentation of the main conclusions of my work.

Conflicts of Interest: The author declares no conflict of interest.

Notes

[1] He demonstrates that portfolio diversification affects the social marginal productivity of capital by raising the fraction of resources devoted to human capital-augmenting firms. Through the externality effect of human capital accumulation, this results in higher growth rates.

[2] He develops a model where individuals can choose between highly flexible, but low-productivity, technology (which allows for the diversification of production in the presence of consumers' taste shocks), and a more productive but rigid one. In the financial market, autarchy agents insure themselves against sectoral demand shocks by investing in flexible technology, while a stock market, industry, or firm-specific risk can be eliminated. Thus, in this situation, agents choose the more productive (and specialized) technology. By assuming externalities in human capital accumulation, the above result implies a higher marginal product of capital and steady-state growth.

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