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PASCUAL ALASTRUÉ ABADÍA

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"Monetary policies and private investments"

Work presented by: Pascual Alastrué Abadía

First evaluator: Prof. Claudia Catalina Soto de Prado Otero

Second evaluator: Prof. Kate Urban-Gratorex

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1. Introduction

1.1. Rationale for the topic

Monetary policy is one of the fundamental pillars of the economic functioning of any modern society. Although it is usually associated with technical decisions made by distant bodies such as central banks, in reality, it directly and daily affects people's lives: from the cost of a mortgage to the viability of a business project, from commodity inflation to household access to credit.

However, despite its importance, monetary policy tends to remain in the background in public debate, overshadowed by more visible issues of fiscal, labour or social policy. This disconnect between its real relevance and its presence in the public consciousness has been one of the main motivations for focusing this work on this topic: to understand how it works, who benefits or harms it, and what implications it has for a country's economy and its citizens.

This interest stems from the conviction that everyone should have access to a basic understanding of monetary policy, especially at a historical moment when interest rates, inflation or the decisions of the European Central Bank have gained renewed visibility. It is no longer a matter reserved for economists or financial analysts, as its effects are felt in the day-to-day lives of millions of people.

In addition, monetary policy not only acts on the present, but also anticipates the future. Their decisions allow us to foresee, to some extent, the direction that a national or even global economy may take. In this sense, studying its relationship with a variable as strategic as private investment allows us to better understand the mechanisms of growth, recovery or stagnation, as well as the inequalities that can emerge within the same monetary union, such as the European Union.

This work is therefore born from a double motivation: on the one hand, to make understandable a crucial economic tool, which is often perceived as distant or technical; and on the other, to explore its real effects on the economic behavior of companies and countries, seeking a critical, informed and socially relevant vision.

1.2. Research objectives

The main objective is to analyze how monetary policy decisions, especially those linked to interest rates and the money supply, affect private investment. This variable, often treated as an abstract macroeconomic indicator, reflects the productive pulse of an economy and is highly sensitive to stimuli or restrictions imposed by central banks.

However, the study does not claim to offer a uniform or simplified view. One of the essential purposes is to show that the same monetary policy measure is not transmitted homogeneously throughout the economy. Depending on the sector, the size of the companies, their financial structure or the institutional context, the effects can be divergent. Particular attention is therefore paid to structural heterogeneities and how they shape the effectiveness or ineffectiveness of a common policy.

Finally, it is proposed to explore whether these policies contribute to improving the allocation of capital in the economy or if, on the contrary, they perpetuate imbalances and favor agents with greater capacity to access credit. Through the analysis of different contexts and dynamics, the aim is to provide a more nuanced understanding of how monetary policy can act as a stabilizing force or, at times, as an amplifier of economic inequalities.

1.3. Methodology

To address a topic as broad and technical as monetary policy and its impact on investment, this literature review has opted for a progressive analysis strategy, which combines different theoretical and empirical approaches. The approach is based on a conceptual study, where the fundamentals of monetary policy are reviewed from different economic currents, highlighting their differences in terms of the role of the State, the discretion of decisions and the response to economic cycles. This theoretical basis allows us to frame today's dilemmas within a broader intellectual tradition.

From there, the specific role played by central banks is examined, focusing on how their decisions are transmitted through the financial system to the real economy. The specialized literature is reviewed to understand the channels of transmission, paying special attention to the factors that make these channels work differently depending on the type of economic agent or productive sector.

The review also incorporates empirical analyses from recent academic studies, which offer microeconomic evidence on how monetary policy affects firms with diverse

characteristics: some more productive, but with limited access to financing, others less efficient, but with financial backing. Relevant research has been selected not only for its methodological rigor, but also for its ability to illustrate how economic heterogeneity modifies the effects of a common policy.

2. Monetary policy

2.1. Money supply

Before explaining what monetary policy is, we must understand that it is monetary supply and demand.

First, the economic newspaper Expansión (2019) defines the money supply, also called money supply, as the amount of money in circulation in the economy at a specific time, and is made up of both cash in the hands of the public and bank deposits.

The way to measure this mass is from monetary aggregates. We call M1 the money supply in a strict sense, cash in circulation and demand deposits. As M2, the money supply in the broad sense we understand the cash in circulation, demand deposits and savings deposits are added. As a last addition, used by the Monetary Union, M3 is made up of time deposits.

2.1.1. Supply determinants

In addition to knowing the factors that make up the money supply, it is important to understand what factors its total volume depends on, as these ultimately determine the impact that monetary policy can have on the real economy.

From a classical approach, the money supply is conditioned by three key elements related to the process of money creation in the banking system. These are, first, (1) the cash ratio (c), the proportion of cash that the public wants to maintain with respect to total money. This comparison reflects the existing confidence in the banking system, which increases the ratio, if it increases. Then we have (2) the minimum custody reserves (r), imposed by the monetary authority on banks, which represent the percentage of deposits that these entities must keep immobilized, without being able to allocate it to loans, in order to guarantee the stability of the financial system and control the capacity for credit expansion. Finally, (3) the monetary base (MB), also called high-expansive money, is made up of the cash in circulation and the reserves that banks have in the central bank. This base is directly controlled by the monetary authority and serves as the starting point for the process of monetary expansion through the banking system.

With the influence of the first two factors, the phenomenon known as the monetary multiplier (m) occurs, which is important for understanding the money supply. We can explain it as the mechanism by which, thanks to the banking system, an amount of monetary base can generate a much larger amount of money in circulation. This process is based on the fractional reserve model, whereby banks are not obliged to retain the total deposits received but must keep only a fraction of these as mandatory reserves, being able to lend the rest. Through this mechanism, loans issued by banks are reintegrated into the system as new deposits, thus generating a multiplier effect on the total quantity of money.

2.1.2. The money supply function

Formally, this process is expressed by the formula:

$$m = (1 + c) / (c + r)$$

In this way, by understanding how the cash ratio, the reserve ratio, and the monetary base are interrelated through the monetary multiplier, we can establish the formula that determines the money supply in an economy. This expresses how a given monetary base, when multiplied by the expansion factor of the banking system, gives rise to the total money supply:

$$M = m \times BM$$

This relationship between monetary base, public confidence and banking regulation is essential to understand the margin of maneuver that the monetary authority has when applying its policies.

2.2. Money demand

Having analyzed the concept of money and the process of creating and determining its supply, it is now necessary to address what is meant by the demand for money, what are the reasons that induce demand and what importance this demand has for the proper implementation of monetary policy.

Money demand, also known as money demand, is defined as the amount of money that economic agents want to hold at a given time, rather than investing it in other financial assets. This demand is voluntary and responds to the utility provided by money according to the needs of individuals and companies.

The reasons why agents demand money have been analyzed by different currents of economic thought. Synthetically, these can be divided into two main approaches. On the one hand, those who consider money primarily as a medium of exchange, that is, as an instrument that facilitates transactions. In this case, variables such as income and the interest rate of alternative assets play an essential role; An increase in income implies a greater need for money to make payments, while a higher interest rate reduces the demand for money, by making other assets more attractive.

On the other hand, there is a perspective that conceives money as a store of value, that is, as an instrument that allows purchasing power to be preserved over time. In this approach, the wealth of the individual is the main determining factor, and the interest rate loses relevance, especially in short time horizons.

Despite these differences, modern monetary theory tends to integrate both views by applying the general theory of choice, recognizing that agents make decisions based on both the expected return and the utility they obtain from holding liquid money. However, differences in approach persist that are relevant when designing monetary policy, especially with regard to the way in which the demand for money is modelled: as an alternative asset to others, or as a good that provides specific services.

2.2.1. Demand determinants

The demand for money is not only a practical need to make payments, but is due to a number of reasons that explain why individuals and businesses choose to keep some of their wealth in liquid form. Understanding these factors is essential to interpret how the public reacts to economic changes and to assess the scope for monetary policy.

At first, money was considered simply a medium of exchange, and the only reason for keeping it was its usefulness in everyday transactions. However, this approach was overcome by later approaches that broadened the vision of the motives that induce the demand for money.

The economists of the Cambridge School (Marshall and Pigou, n.d.) were the first to analyse this question from a broader perspective. According to their approach, money not only serves as a means of payment, but also as an asset that people want to keep. The demand for money responds, therefore, to reasons such as the possibility of acquiring goods immediately, taking advantage of opportunities quickly or simply having security against possible unforeseen events. In this sense, factors such as expectations, opportunity cost, available resources or the convenience of keeping money in cash become key elements that explain its demand.

Subsequently, Keynes (1936) deepened this analysis and introduced a more precise classification, distinguishing three main reasons why economic agents decide to keep money in their possession. The first is the transaction motive, which is related to the need to have liquid money to meet payments derived from consumption or productive activity. This need depends directly on the level of income, since, the higher the income, the greater the volume of transactions to be carried out. The second reason is that of precaution, and responds to the desire to be prepared for possible unforeseen contingencies. In this case, liquidity is valued as a security mechanism that allows us to deal with situations of uncertainty. Finally, the speculation motive, which represents the main innovation in his theory. This is based on the expectation of changes in interest rates, and explains why agents may prefer to hold money rather than invest it in financial assets. When interest rates are expected to rise in the future, and therefore the value of bonds will decrease, it is preferred to hold on to cash in order to take advantage of the buying opportunity later, allowing you to make a profit.

These three reasons allow us to understand how the demand for money can vary depending on factors such as income, expectations, risk perception or the opportunity cost of holding money compared to other assets. Although the economic theories that deal with this

issue will be analysed in more depth in the later development, this approach is key to introducing the role played by the demand for money in the general framework of monetary policy.

2.2.2. The money demand functions

Once the factors that explain why individuals want to keep money in their possession have been understood, it is useful to express this relationship in a functional way, that is, through an equation that represents how the quantity demanded of money varies according to certain economic variables.

The money demand function seeks precisely this: to establish a relationship between the amount of money that agents want to keep and the factors that condition that decision. In the most basic developments, this demand is expressed as a function of income and the interest rate, as can be seen from the Keynesian approach. Rent acts as a positive factor, since as the income of agents increases, so does the volume of transactions and, therefore, the need to hold money. On the other hand, the interest rate has an inverse influence, as it represents the opportunity cost of holding money rather than investing it in return-generating financial assets.

Thus, based on the Keynesian approach, the money demand function can be represented as:

$$M_d = f(Y, i)$$

where M_d is the quantity of money demanded, Y rent and i the rate of interest.

Although this basic form allows us to grasp the fundamental logic of money demand, some more developed approaches, such as those inspired by the Cambridge School or monetarist models, incorporate additional variables such as wealth, expectations or even the price level. However, in all cases, the objective of the function remains the same: to represent in a simplified way the behavior of agents with respect to their desire to maintain monetary balances, and thus facilitate the analysis and formulation of economic policies.

2.3. Monetary policy

Monetary policy is defined as the set of measures and actions adopted by monetary authorities with the purpose of controlling the amount of money in circulation and credit conditions, and thus influencing key monetary variables. (European Central Bank, 2024)

2.3.1. Policy tools

Monetary policy is conducted through a set of tools that central banks use to influence liquidity conditions and, ultimately, macroeconomic variables such as inflation, economic growth, or unemployment.

Open Market Operations

Open market operations (OMAs) are one of the fundamental tools used by central banks around the world to implement their monetary policy. Through these operations, the central bank can inject or absorb liquidity into the financial system, influence short-term interest rates and, consequently, guide the behaviour of macroeconomic variables such as inflation, consumption or investment.

As explained by the European Central Bank (ECB), OMAs allow short-term interest rates to remain in line with the monetary policy objective set by its Governing Council, such as price stability, currently defined as an inflation rate close to but below 2% over the medium term. Although the European example is one of the most developed, the basic principles are applied globally in most central banking systems.

Types of open market operations:

AOMs can be classified according to their frequency, duration, operational objective, and procedure. Generally speaking, they can be:

- Main Refinancing Operations (MPOs): these are regular and frequent operations (usually weekly) through which the central bank provides short-term liquidity to the banking system, usually with a maturity of one week. In the case of the ECB, they are carried out through fixed-rate auctions with full award since 2008.

- Longer-term refinancing operations (LFOs): have longer maturities (e.g. three months or more) and are aimed at providing liquidity stability to banks. These include special programs such as VLTRO (Very Long-Term Refinancing Operations) and TLTRO (Targeted Long-Term Refinancing Operations), which have been applied in contexts such as the financial crisis or the COVID-19 pandemic to support credit and economic growth.

-Adjustment operations: these are used on a one-off basis to counteract unexpected fluctuations in liquidity in the market, which could destabilize interest rates in the short term. They are usually conducted through quick auctions and are aimed at selected counterparties.

-Structural operations: aim to modify the structural position of the banking system vis-à-vis the central bank in a more lasting way, for example, when there is a persistent excess or a liquidity deficit. These operations may involve the issuance of debt by the central bank or the purchase/sale of long-term assets.

While the ECB is one of the most transparent and sophisticated issuers in the execution of these operations, the logic behind OMAs is shared by central banks such as the Federal Reserve (US), the Bank of England or the Bank of Japan. In all cases, it is a matter of influencing the liquidity of the financial system in order to guide economic behavior through the interest rate channel.

Permanent facilities

Permanent facilities are key monetary policy instruments used by central banks to provide or absorb very short-term, usually overnight, liquidity under predefined conditions. They are activated at the initiative of financial institutions and serve as automatic adjustment mechanisms that guide short-term interbank market interest rates within the range set by the monetary authority. (Bank of Spain, 2024)

There are two fundamental rates, with opposite effects on the liquidity of the system.

The marginal credit facility allows financial institutions to obtain liquidity immediately and for one day from the central bank, at a previously established interest rate. To access this facility, entities must present collateral assets, but there is no quantitative limit on how much they can request.

It serves as the upper limit of the overnight interbank market interest rate. In other words, no rational bank would pay more in the market if it could finance itself cheaper directly from the central bank, as long as it has sufficient guarantees.

The marginal credit facility exists in monetary systems such as the Federal Reserve's "discount window" or the Bank of England's, with variations in its design, but with the same purpose: to provide urgent liquidity at a cost higher than the market to avoid systematic use.

The deposit facility, on the other hand, allows financial institutions to deposit their excess liquidity overnight at the central bank, obtaining in return a predefined remuneration, known in Europe as the deposit facility rate (DFR).

It acts as the lower bound of the overnight market interest rate. If the deposit rate is negative, as has happened in the eurozone in some recent periods, banks have little incentive to use it and will seek to place their money on the market, boosting the circulation of credit.

Also, this tool has equivalents in other central banks such as the Interest on Excess Reserves (IOER) in the US and reverse repo operations in other jurisdictions.

The permanent facilities are directly connected to the day-to-day management of bank reserves by financial institutions. They use the marginal lending facility when they need to cover liquidity shortfalls that prevent them from reaching the required level of reserves, while they use the deposit facility when they have excess reserves and want to obtain remuneration for unused funds.

In this way, the facilities act as stabilizing mechanisms, allowing banks to adjust their reserve position flexibly within the framework established by the central bank. In addition, by setting the upper and lower limits of the overnight market interest rate, they help banks to stay within the margins provided for in monetary policy.

Reserve ratio

Bank reserves are the liquid balances that credit institutions hold with the central bank and have traditionally been an important instrument both from the point of view of financial stability and monetary policy.

Originally, reserve requirements were conceived as a tool to ensure the soundness of the banking system, by ensuring that banks held sufficient funds to deal with possible cash withdrawals by depositors. In this sense, they also contributed to limiting the risk of contagion in episodes of liquidity crisis.

Beginning in the 1970s and 1980s, with the evolution of monetary thinking toward controlling monetary aggregates as the primary way to combat inflation, central banks began to use reserve ratios as an active monetary policy instrument. In this context, the required reserves imposed an upper limit on the expansion of credit and money, since by obliging banks to keep a part of their deposits in the central bank, the volume of funds available for lending was reduced.

In addition, reserve requirements made the monetary multiplier more stable and predictable, making it easier to control the money supply in the face of unforeseen shocks in the demand for money. A reduction in the reserve ratio could therefore weaken the central bank's ability to maintain monetary control, especially in contexts of market volatility.

In contemporary monetary policy frameworks, which focus more on controlling short-term interest rates than on direct control of monetary aggregates, bank reserves continue to play an important, albeit more auxiliary, role. Its main function is to help smooth out interest rate fluctuations in the interbank market, helping to keep financing conditions in line with monetary policy objectives.

In the case of the European Central Bank (ECB), credit institutions established in the euro area are obliged to maintain a certain volume of minimum reserve requirements in their accounts with national central banks. These reserves must be held on average for a holding period of about six weeks, and are calculated on the basis of certain liabilities on the balance sheet, mainly customer deposits with a maturity of less than two years.

Currently, these reserves are not remunerated, while the balances that institutions hold above that minimum, the so-called surplus reserves, can be remunerated at the interest rate of the deposit facility, or at 0%, whichever is lower. In this sense, there is a direct relationship between reserves and permanent facilities, since the deposit facility acts as a channel to absorb excess liquidity in the overnight system, also establishing the lower limit of the interest rate in the interbank market.

Therefore, the minimum reserve system, together with the use of instruments such as standing facilities and open market operations, allows the ECB to manage the liquidity of the financial system and anchor short-term interest rates, thus fulfilling its main mandate of maintaining price stability in the euro area.

Rediscount and Credit Policy

Credit rediscounting is a monetary policy instrument through which a central bank provides financing to commercial banks, accepting as collateral credit securities previously discounted by the latter. As described by Ignacio López Domínguez (Expansión), this operation consists of the central bank "discounting" or acquiring documents (such as bills of exchange or promissory notes) that banks have already discounted from their customers, providing liquidity to banks in exchange for the payment of an interest rate called the rediscount rate.

From an operational point of view, this tool fulfils a double function, providing liquidity to the banking system, allowing financial institutions to expand their capacity to grant credit, and allowing the central bank to influence the money supply, since a reduction in the rediscount rate encourages banks' demand for liquidity. increasing the available credit, while a rise tends to restrict it.

In this sense, rediscounting acts as a quantitative instrument that affects the secondary creation of money. Its effectiveness is based on the willingness of commercial banks to go to the central bank with assets that can be discounted, and on the conditions imposed by the monetary authority.

Although credit rediscounting has now been virtually replaced by more modern and flexible instruments, such as open market transactions with repurchase agreements, it is worth mentioning as a classic mechanism that illustrates well the logic of monetary control. Its direct structure and the control it gives the central bank over financing conditions make it a clear example of how liquidity provision instruments work within monetary policy.

2.3.2. Expansionary and contractionary approaches

One of the fundamental pillars of monetary policy is its ability to modulate macroeconomic behavior through two major orientations: expansionary policy and contractionary policy. This classification, widely recognized in the economic literature, has been systematized by authors and academics such as Mike Moffatt (2019), professor of economics at the Ivey Business School, who describes these policies as tools designed to directly influence the money supply, interest rates and, by extension, the level of economic activity.

According to Moffatt (2019), expansionary monetary policy aims to increase the supply of money in the economy, reduce interest rates, and facilitate access to credit. This strategy is particularly used in contexts of economic slowdown, when unemployment is high or GDP growth is below potential. By reducing the cost of credit, both consumption and private investment are stimulated, thus promoting economic reactivation.

By contrast, contractionary monetary policy is applied in situations where economic growth has generated inflationary pressures. In this case, the central bank chooses to restrict the money supply and raise interest rates, in order to make credit more expensive, moderate demand and contain inflation. This orientation tends to slow down the economy, but it does so with the aim of preserving price stability, which is a key mandate of many central banks, such as the European Central Bank or the Federal Reserve.

Although these definitions are conceptually clear, their practical application is not always obvious. In many cases, the monetary policy stance cannot be deduced simply by looking at a single variable such as the nominal interest rate. For this reason, several authors have developed indicators that allow the monetary stance to be assessed more accurately and systematically.

One of the most influential approaches in this regard is the one proposed by Boschen and Mills (1995), who developed a quantitative monetary policy index based on the analysis of the statements and decisions of the Federal Open Market Committee (FOMC) of the US Federal Reserve. Its index assigns each month a value between -2 in the case of a strongly contractionary policy, and $+2$ in the case of a strongly expansionary policy, depending on the tone, content and context of the monetary policy decisions adopted by the Federal Reserve. This method incorporates a narrative and qualitative dimension, but with a quantifiable criterion, which allows for finer empirical analyses of the impact of monetary policy.

The Boschen and Mills index is particularly useful for analysing the effects of changes in monetary stance on macroeconomic variables such as monetary aggregates, GDP or inflation. For example, episodes identified by the index as expansionary are usually accompanied by a fall in short-term interest rates, an increase in the monetary base, and higher growth in monetary aggregates such as M2. By contrast, periods classified as contractionary are usually associated with a slowdown in credit growth and a reduction in liquidity available in the system.

This type of tool reinforces the idea that monetary policy, beyond its traditional mechanisms, has a qualitative and communicative dimension that has a decisive influence on the expectations of economic agents. In fact, much of the effectiveness of an expansionary or contractionary stance depends not only on the direct action on financial variables, but also on how these decisions are perceived and interpreted by the markets.

The distinction between expansionary and contractionary monetary policy has not only theoretical value, but also a profound impact on the evolution of modern economies. The conceptual framework of authors such as Moffatt, complemented by empirical tools such as the Boschen and Mills index, allows us to understand and evaluate more rigorously how these policies are implemented and perceived in practice.

3. The monetary strategies dilemma

Monetary policy is a central tool of macroeconomic management, but its implementation has historically been marked by a profound dilemma: must the central bank act with discretion to adapt to economic circumstances, or follow strict rules to ensure stability and credibility. This debate cuts across both economic theory and institutional practice, and has direct consequences on fundamental variables such as inflation, employment and, especially, private investment.

This dilemma is not merely technical, but deeply ideological. The two major currents that have articulated it in the twentieth century, monetarism and Keynesianism, offer opposing diagnoses and prescriptions on the role of money, the functioning of markets and the capacity of the state to stabilize the economy. While monetarists advocate predictability and containment of the money supply, Keynesians advocate an active policy that responds to fluctuations in aggregate demand.

Keynesianism and monetarism

Monetarism, led by Milton Friedman, is based on the premise that inflation is always a monetary phenomenon (Friedman, 1968). In this approach, the central bank's role should be limited to ensuring price stability by controlling the quantity of money. Any attempt to stimulate economic activity through expansionary monetary policy will only generate inflation in the long run, with no lasting effects on growth or employment.

Friedman proposed a fixed monetary rule, whereby the money supply would grow at a constant rate equal to the potential growth of the economy. This predictability was aimed at strengthening the credibility of the central bank, thus reducing uncertainty for economic agents. From this perspective, private investment is favored not so much by one-off monetary stimulus, but by a stable environment free of inflationary shocks.

The German Bundesbank adopted a vision very close to monetarism in the decades after World War II, prioritizing almost exclusively the fight against inflation. This tradition directly influenced the design of the European Central Bank (ECB), whose independence and unique mandate of price stability reflect this philosophy (Issing, 2008).

However, in contexts of deep recession, this approach may be too rigid. If interest rates are at their lower bound, and the central bank refrains from acting, the economy may enter a trap of prolonged stagnation, as happened in Japan during the 1990s (Krugman, 1998).

On the contrary, Keynesianism starts from a more unstable vision of the economy. John Maynard Keynes (1936) argued that private investment depends to a large extent on business expectations and the level of effective demand. When confidence falls, even low interest rates may not be enough to stimulate investment.

In this context, monetary policy must be discretionary and active, adjusting to the business cycle to sustain aggregate demand. During recessions, an expansionary monetary policy, whether by lowering interest rates or expanding the monetary base, can help revive business investment, reducing the cost of credit and improving future profitability prospects.

Empirical evidence in the aftermath of the 2008 global financial crisis strengthened the Keynesian argument. Against a backdrop of falling private investment, many developed economies resorted to unconventional monetary policies, such as quantitative easing or negative interest rates. The ECB, after some initial reluctance, progressively adopted this approach since 2015 with its Asset Purchase Program, precisely with the aim of stimulating credit and investment (Rostagno et al., 2021).

Ultimately, there is no final execution. Each strategy has advantages and limitations, and its effectiveness depends both on the economic context, the degree of coordination with other fiscal, financial and structural policies, and the institutional architecture of the central bank. In an uncertain and asymmetrical world such as that of the eurozone, where the same monetary decisions have an unequal impact on different countries, the tension between rules and discretion is not resolved, but managed.

Therefore, rather than choosing between one approach or the other, the challenge for central banks is to balance both principles, adapting their strategy to the challenges of the moment without losing sight of long-term risks. As with private investment, monetary policy must also navigate between prudence and boldness, between predictability and flexibility.

4. Analysis of the impact of monetary policies on investment

4.1. Monetary transmission mechanisms and their link with investment

The transmission of monetary policy is the process by which decisions taken by a central bank, especially those referring to the modification of official interest rates, end up influencing real variables in the economy, such as investment, consumption, employment or inflation. This transmission is neither immediate nor direct, but operates through a chain of intermediate channels that affect the financial conditions of the private sector. As explained by the Bank of Spain (2021), the starting point is the monetary policy decision, usually in the form of a change in the guiding interest rate, such as the rate applied to the European Central Bank's main refinancing operations. From there, there is an adjustment in the interest rates of the interbank market, which is progressively transferred to the rates applied to companies and households.

These changes in the cost of money affect spending and investment decisions, insofar as they alter the relative price between consuming today or in the future and modify the cost of financing business projects. In this way, the interest rate channel acts as one of the main transmission mechanisms: a reduction in interest rates reduces the cost of capital, encourages investment and favours growth. But he is not the only one. The credit channel also plays a central role, influencing the supply of bank loans. When interest rates fall and the liquidity of the financial system increases, banks tend to relax their lending conditions, which facilitates access to credit, especially for those companies more dependent on external financing.

In addition, the prices of assets such as stocks or housing can increase when interest rates fall, increasing the wealth of economic agents and reinforcing their willingness to spend and invest. The exchange rate also comes into play, since a more expansive monetary policy tends to devalue the national currency, improving external competitiveness and stimulating exports, with the consequent indirect effects on business investment. Finally, the expectations channel is particularly relevant in contexts of uncertainty, as current decisions depend not only on present conditions, but also on expectations about the future evolution of the economy, inflation and monetary policy.

This conceptual framework, supported both by Mishkin (1995) and by recent publications by the Bank of Spain and the ECB, shows the complexity of the transmission mechanism and the multiplicity of channels through which monetary policy acts. All of them

come together to determine the behavior of economic agents, especially with regard to their investment decisions. It is precisely this connection with investment and its sensitivity to changes in interest rates, credit or expectations that is explored in greater depth in the following sections.

Role of the banking system in transmission

One of the key determinants in the effectiveness of monetary policy on private investment is the structure and health of the banking system through which credit is channeled. In economies where firms rely mostly on bank financing, such as the euro area, the ability to transmit monetary impulses depends to a large extent on how financial institutions react to changes in interest rates. This reality introduces considerable heterogeneity between countries, as banking systems present significant structural differences in aspects such as profitability, degree of competition, balance sheet risk or relative size within the economy.

The study by Mermelas and Tagkalakis (2024) constitutes a central contribution in this area. The authors use a VAR model applied to a panel of 20 eurozone countries over the period 2000–2023 to analyze how certain banking characteristics affect the intensity with which monetary policy is transmitted to private investment. Specifically, four dimensions are examined: the profitability of banks, the proportion of the financial system to GDP, the risk profile of bank assets and the average cost of liabilities.

The empirical results reveal that monetary transmission is more powerful in countries where banks show higher operating profitability. This result can be explained by the fact that profitable banks are better able to absorb risks and adjust their lending conditions more quickly in the face of a change in interest rates, transmitting central bank decisions more faithfully to real credit conditions. Second, transmission is found to be more effective in countries with smaller financial systems relative to GDP, as these tend to be less complex and more exposed to changes in monetary policy. Third, banks with riskier portfolios react more quickly to rate changes as they adjust their balance sheets more actively, which reinforces the sensitivity of credit to the monetary environment. Finally, when bank liabilities are relatively low cost, intermediation margins are higher, allowing banks to adjust interest rates with less friction.

In a complementary angle, Kho's (2023) study explores the role of bank concentration as a source of heterogeneity in the response of financial markets to monetary policy. Through an analysis of 13 eurozone countries during the period 2003–2023, and using the Herfindahl-Hirschman index (HHI) as a measure of concentration, Kho finds that in markets where the banking sector is more concentrated, financial institutions tend to delay the transfer of interest

rate hikes to deposits and loans. This slowness is due to the market power wielded by large banks, which allows them to maintain more stable margins even in an environment of changing rates. However, the same study shows that these banks react more quickly when rates fall, indicating an asymmetry in monetary transmission. This structure limits the central bank's ability to influence the cost of business credit, generating inefficiencies, especially in the investment channel.

For their part, De Santis and Surico (2013) analyze the sensitivity of business investment to the interest rate in terms of the fragmentation of the financial system. Using a panel approach for eurozone countries, the authors show that economies with more fragmented banking systems, such as Germany or Italy, have greater investment elasticity in the face of rate variations. On the other hand, countries with more concentrated structures, such as France or Spain, tend to show a more muffled response. This difference is not only related to banking competition, but also to the willingness of banks to adjust their credit portfolios in the face of changes in the monetary environment.

In parallel to these academic studies, various reports by the European Central Bank have repeatedly pointed out that the structural strength of the banking system is a critical element to ensure adequate monetary transmission. In particular, following the 2008 financial crisis and the euro crisis, the ECB has identified that weak bank balance sheets, regulatory pressure on capital and the accumulation of toxic assets have significantly reduced banks' ability to respond to monetary stimulus, both in terms of rate cuts and liquidity provision.

In short, the transmission of monetary policy is not a uniform or homogeneous process, but is strongly conditioned by the particularities of the banking system of each country. As numerous empirical studies have shown, factors such as the profitability of banks, the structure of the financial sector, the level of bank concentration or the health of balance sheets have a decisive influence on the speed, intensity and efficiency with which changes in interest rates or monetary conditions are passed on to private investment. In countries where banks are strongly structured, profitable, and operate in more competitive markets, monetary transmission tends to be more direct and efficient, facilitating a faster adjustment in the cost and availability of credit for firms. On the contrary, in economies where banks operate under structural tensions, with less competition or with a strong dependence on market power, transmission is weakened, generating slower or even asymmetrical responses.

This implies that monetary policies, even within the same monetary union such as the euro area, can have very different effects depending on the banking environment of each country, which complicates the design of uniform measures and poses significant challenges in terms of macroeconomic efficiency. Moreover, these differences not only affect investment

in aggregate terms, but also accentuate the divergence between sectors and regions, amplifying structural inequalities within the economic space. An in-depth understanding of how these factors interact allows us to refine the analysis and improve the interpretation of the real effects of central bank decisions on the productive fabric.

4.2. Private investment response to interest rates changes

4.2.1. The role of credit and liquidity in investment financing

Private investment, also called private sector investment, refers to spending by companies and individuals, excluding the public sector, on capital goods such as machinery, equipment, facilities, and technology with the aim of increasing productive capacity and making profits in the future. In macroeconomic terms, it is considered a fundamental component of gross fixed capital formation and economic growth, different from public investment, which is that made by administrations and governments.

Traditionally, this concept is modelled as an increasing function of income and decreasing of the real interest rate, reflecting the idea that higher incomes boost economic activity and productive projects, while higher rates raise the cost of financing such projects and decrease their economic viability.

This link is based on the theory of the cost of use of capital, as illustrated by Jorgenson's (1963) models, according to which a rise in the real interest rate raises the cost of maintaining productive capital, thus reducing the optimal level of investment. As a result, central banks, by modifying official interest rates, manage to influence business decisions: a low rate environment stimulates investment, while a contractionary policy incurs the opposite effect.

However, this theoretical relationship may be attenuated in practice due to the presence of financial constraints, uncertainty, market rigidities and structural differences between firms, as will be developed later in the section on heterogeneity. Even so, the basic investment function provides the conceptual scaffolding necessary to interpret the mechanisms by which monetary policy affects the real economy.

The theoretical foundation that explains how monetary policy affects private investment is based on different approaches, including the acceleration model, the theory of the cost of use of capital and the relationship between expectations and interest rates.

The acceleration model is based on the premise that investment is directly linked to the growth of aggregate demand. According to this approach, firms decide to invest when they anticipate an increase in production, so that investment is induced by variations in economic activity. This is the basis of the so-called induced investment, which responds to increases in income or the level of production. In contrast, there is also autonomous investment, which does not depend on the economic cycle, but on structural factors such as technological innovations, strategic decisions or public policies, and which tends to be more stable.

On the other hand, the theory of the cost of use of capital, formulated by Jorgenson (1963), establishes a more explicit relationship between the real interest rate and investment decisions. According to this theory, companies compare the expected return on a new investment project with its cost of use, which includes the real interest rate (adjusted for inflation), depreciation costs, capital goods prices, and potential tax advantages. When the marginal return on capital exceeds this cost, the investment is considered profitable. Therefore, a rise in real interest rates makes the use of capital more expensive and discourages investment, while a fall acts in the opposite direction.

However, this link is not automatic. A key element is the role of future return expectations. In contexts of uncertainty or low confidence, a drop in interest rates may not translate into more investment if companies do not expect a sustained recovery in demand or if they foresee high risks. From the Keynesian perspective, investment is strongly influenced by what Keynes called the "animal spirits," that is, the subjective perception of future opportunities. Thus, monetary policy can modify the financial cost of investment, but the final effect will also depend on business expectations and general confidence in the economic environment.

In short, economic theory establishes a robust relationship between real interest rates and investment, mediated by factors such as the type of investment (autonomous or induced), the cost of using capital and profitability expectations. On this basis, the most recent empirical models and studies have enriched this theoretical vision, incorporating elements such as business heterogeneity or debt structure, which will be explored in the following sections.

4.2.2. Sectoral differences and heterogeneity

In this regard, recent empirical evidence underlines that firms' response to monetary policy depends on their specific characteristics, especially in relation to their funding structure and leverage levels. In this regard, Alder, Coimbra and Szczerbowicz (2024) show that companies that are more dependent on bank credit tend to significantly reduce their investment after a tightening of conventional monetary policy, while those that are financed mainly through debt issuances in bond markets are more vulnerable to liquidity tensions in those same markets. This finding indicates that the monetary transmission channel varies substantially according to the type of financing predominant in the company, which implies that different types of monetary shocks such as an increase in the official interest rate or a loss of liquidity in the sovereign debt market affect the productive fabric unevenly according to its financial structure.

In recent years, the economic literature has delved into how business heterogeneity conditions the transmission of monetary policy. The work of González, Nuño Barrau, Thaler & Albrizio (2024) represents a substantial advance over traditional aggregate models, as they argue that variations in productivity and financial restriction among firms are decisive in the way monetary policy decisions translate into investment and productive efficiency.

The authors develop a dynamic stochastic general equilibrium model (DSGE) with financial frictions and microeconomic heterogeneity. It incorporates firms that differ in their marginal capital productivity (MPK), their net worth, and their probability of default. These characteristics directly condition their access to external financing, given that productive firms with limited collateral face severe credit restrictions, while less efficient firms with collateralizable assets have easier access to credit. This imbalance generates an inefficient allocation of capital, where capital often does not reach the most productive firms.

In this context, an expansionary monetary policy, for example, a reduction in real interest rates, eases the financial constraints that limit the most dynamic companies. As a result, these firms increase investment at a significantly higher rate than the less efficient ones, restoring in part the aggregate efficiency of the economic system. The model predicts that firms with higher productivity are much more responsive to monetary stimulus, reconfiguring the distribution of capital in favor of a more productive allocation.

To theoretically validate this mechanism, the authors rely on microeconomic data from Spanish non-financial companies, using detailed information on investment, equity, debt and operational performance. A relevant analytical novelty is the estimation of the probability of

default (distance to default) using a Merton-type structure. In addition, they implement robust econometric techniques, such as panel models with fixed effects and interactions between monetary shocks and individual characteristics of firms, making it possible to identify differential impacts by level of productivity or financial fragility.

The empirical results confirm that firms in the top productivity quintile increase their investment in response to expansionary shocks up to three or four times more than those in the bottom quintile. This finding demonstrates that financial constraints limit the investment capacity of the most efficient firms, but that monetary policy can unlock that hidden potential. However, the authors warn that an excessively accommodative and prolonged policy can favor the survival of companies with low productivity and high indebtedness (zombie companies), which deteriorates the general efficiency of the production system.

In summary, this study illustrates that monetary policy not only influences aggregate demand, but also has significant effects on the distribution of capital among firms, a condition that directly impacts the total efficiency of the economy. This perspective requires rethinking the role of the central bank and the optimal design of monetary policy in economies with great structural heterogeneity.

Beyond differences between individual firms, responses to monetary policy also vary substantially at the sectoral level. This dimension has been studied in depth by Jansen, Kishan, and Vacaflares (2013), who analyze the sectoral effects of monetary shocks using data from publicly traded U.S. companies. His work, entitled *Sectoral Effects of Monetary Policy* (2024), is a key contribution to understanding how monetary policy is transmitted to different economic sectors, introducing an empirical approach that combines sensitivity to interest rates with structural characteristics such as the size of companies or their financial position.

The study uses a database that includes more than 2,700 companies in the U.S. market, classified into eight major economic sectors: durable goods, non-durable goods, construction, mining, manufacturing, services, retail and wholesale trade. Using a structural VAR model and using the unanticipated component of interest rate movements (monetary shock) as a monetary policy indicator, the authors examine the effect of a restrictive monetary policy on the change in firms' real net sales, controlling for common sectoral shocks and individual characteristics.

The results show a remarkable sectoral heterogeneity in monetary transmission. For example, the retail sector is the most sensitive, with a drop in sales of up to 2% after a restrictive shock, especially among smaller companies. This high elasticity can be attributed to the nature of their products (current consumer goods), their dependence on credit to finance

inventories and their limited capacity to pass on financial costs to the consumer. The durable goods sector also responds strongly, at around -1.5% , given that this type of product tends to be financed by credit and its demand is highly sensitive to financial costs.

In the case of construction, the drop is also significant. Construction companies experienced a contraction of close to 1.3% , due to the fact that external financing represents a substantial part of the production process and that consumers quickly adjust their decisions to buy housing in the face of the increase in mortgage credit prices. Sectors such as services and manufacturing also show important reactions, although more moderate, partly due to their greater internal heterogeneity: in services, for example, labor-intensive and highly leveraged activities coexist.

A particularly interesting case is that of the mining sector, which presents a countercyclical reaction to restrictive shocks, with a slight increase in sales. The authors interpret this result as reflecting lower exposure to bank credit, together with the influence of external factors such as global demand for raw materials and the evolution of oil prices, which can cushion or even reverse the impact of domestic monetary policy.

In addition to heterogeneity across sectors, the study introduces the dimension of firm size as a critical modifier within each sector. For example, in the manufacturing industry, companies in the first quartile in size show an average fall of -1.08% in net sales, while large companies (top quartile) barely suffer a variation of -0.02% , without statistical significance. This difference is consistently repeated in other sectors such as construction, services and durable goods, confirming that small firms are more vulnerable to rate hikes due to their lower access to alternative external financing, greater exposure to credit conditions and more limited bargaining power with financial providers.

This empirical analysis reinforces what has been previously developed on business heterogeneity: while the BIS study (2023) focused on microeconomic variables such as productivity, debt ratio and collateral availability, the work of Jansen et al. (2013) broadens the perspective by incorporating structural and sectoral differences in the transmission of monetary policy. In this way, it is confirmed that not all companies or all sectors face the same adjustment mechanisms in the face of changes in the cost of money.

In short, the impact of monetary policy cannot be fully understood without taking into account the diversity of economic, productive and financial structures that characterize both companies and sectors. However, this heterogeneity is not limited to the internal sphere of countries, but also manifests itself at the global level. The world's major economic powers apply substantially different institutional frameworks, strategies, and monetary policy tools,

influenced by their economic history, their level of development, and their political model. Understanding how major central banks such as the Federal Reserve in the United States, the European Central Bank or the People's Bank of China act is essential to grasp the complexity of the international monetary environment and how it conditions investment, stability and growth on a global scale.

4.3. Case studies USA- EU-CHINA

4.3.1. The U.S. Federal Reserve: History and Case Analysis

The U.S. Federal Reserve, commonly known as the Fed, is the world's most influential central bank and an essential pillar of the U.S. economic system. Its creation in 1913 through the Federal Reserve Act responded to the need to provide the country with a more stable financial system, after repeated banking crises in the nineteenth and early twentieth centuries. The Fed is organized as a decentralized system composed of a Board of Governors located in Washington D.C. and twelve regional banks distributed throughout the country, which operate with a certain degree of autonomy, but under the coordination of the Federal Open Market Committee (FOMC), the body in charge of designing and executing monetary policy.

The Fed operates under a dual mandate, established by Congress, which simultaneously pursues the maximum level of sustainable employment and price stability, the latter defined as inflation close to 2% per year. To achieve these objectives, the institution has a set of instruments that have evolved and adapted over time. The most important of these is the control of the federal funds rate, which is the rate at which banks lend each other overnight reserves. Through open market operations, mainly the purchase and sale of Treasury bonds, the Fed manages to adjust the supply of bank reserves and, therefore, maintain the effective rate around the target decided by the FOMC.

In addition to the reference interest rate, the Fed uses other tools such as the discount rate, the interest rate it charges to entities that go to its emergency window, or the payment of interest on the reserves that commercial banks keep with the Fed, a mechanism that since 2008 has become a crucial lever for influencing short-term rates. In addition to these conventional measures, there are others of a non-traditional nature, such as quantitative easing (QE), which consists of the massive acquisition of financial assets, in particular, Treasury bonds and mortgage-backed securities to inject liquidity into the system, reduce long-

term interest rates and stimulate investment and consumption. This tool was essential during and after the Great Recession, as well as in the response to the crisis generated by the COVID-19 pandemic. Its counterpart, quantitative tightening (QT), has gained prominence in phases of stimulus withdrawal, and consists of letting acquired assets mature without reinvestment or even actively selling them, which reduces the size of the Fed's balance sheet, drains liquidity from the system and tends to raise long-term interest rates. thus contributing to controlling inflationary pressures.

The Fed's monetary policy is transmitted to the real economy through different channels. The most direct is the interest rate channel, through which changes in the federal funds rate are passed on to the cost of credit for households and businesses. By reducing rates, the cost of financing decreases and the relative attractiveness of new investments increases, encouraging the expansion of capital expenditure by companies. At the same time, the bank credit channel operates: an expansive monetary policy improves banks' liquidity and their willingness to lend, which has a particular impact on small and medium-sized enterprises, which are more dependent on the banking system than on the capital market. The asset price channel is also relevant: a fall in rates tends to raise the price of bonds, shares or real estate, thus increasing wealth and facilitating new investments. Finally, the channel of expectations stands out. Through the explicit communication of its future objectives, forward guidance, the Fed manages to anchor the expectations of the market and economic agents, modifying their behavior even before rates effectively change.

Overall, the Fed's operation is characterized by remarkable technical capability, a high degree of political independence, and carefully calibrated strategic communication. All this contributes to its monetary policy being one of the most studied and influential globally, with direct implications not only on national private investment, but also on international capital flows, the decisions of other monetary authorities and the stability of the global financial system.

Great Depression

From 1929 to 1933, the U.S. economy suffered an unprecedented contraction that would mark its history: the Great Depression. According to Friedman and Schwartz (1963), the monetary base fell by 35% in those years, which transformed a conventional recession into a prolonged depression. His interpretation was clear: if the Federal Reserve had responded more actively, injecting liquidity and preventing bank collapse, the economic impact would have been much smaller.

At the dawn of the crisis, the Fed initiated a restrictive monetary policy as early as 1928, raising interest rates for fear of speculation, which caused an early contraction of credit even before the stock market crash of October 1929. Moreover, its adherence to parity with the gold standard limited its ability to respond: when speculative attacks on the dollar increased in 1931, the Fed raised rates further to defend gold reserves, intensifying deflation and exacerbating economic contraction.

The failure of thousands of banks without decisive intervention by the Fed triggered waves of financial panic and strong public distrust. Between 1929 and 1933, approximately 40% of U.S. banks closed their doors, which was reflected in the massive decrease in money deposited and available for loans. Although expansive measures were attempted at times, such as in 1931 and 1932, they were insufficient and too late to reverse the deterioration.

Subsequent economic models, such as the one developed by Christiano, Motto, and Rostagno (2003), empirically confirmed that, if a more accommodative monetary policy had been applied in those years, the intensity of the depression would have been significantly lower.

The impact of this combination of deflation, rising unemployment (which reached 23% in 1932), paralysis of consumption and investment, is characterized as an "L" shaped recovery, where after the initial collapse there was not a rapid economic rebound, but a long and persistent stagnation.

During the Great Depression, private investment in the United States experienced an unprecedented drop, both in volume and in its role within the economic system. Between 1929 and 1933, gross private investment fell by more than 80%, and its weight in GDP plummeted from around 14% to just 1.5%, according to estimates by the Bureau of Economic Analysis. This contraction, more severe than that of consumption, shows the extreme sensitivity of investment to the macroeconomic, financial and institutional conditions of the moment.

The collapse of investment is explained by a combination of factors, all interrelated. One of the most relevant was the behavior of real interest rates. Although the Federal Reserve cut nominal rates, the strong deflation that characterized the early years of the crisis led to a substantial increase in the real interest rate. This phenomenon, extensively analyzed by Jorgenson (1963) in his theory of the cost of use of capital, implies that firms faced higher opportunity costs when undertaking new investments. In other words, keeping capital tied up in productive projects was becoming less and less attractive compared to maintaining liquidity, especially in a context of generalized price falls.

Added to this was the collapse of the banking system. The Fed's inaction in the face of successive waves of bank failures – more than 9,000 banks closed between 1930 and 1933 – drastically reduced the supply of available credit, particularly for small and medium-sized enterprises. As Friedman and Schwartz (1963) have explained, the contraction of the monetary base and the failure to act as lender of last resort exacerbated the crisis, aggravating the financial constraints faced by firms, which further paralyzed investment.

At the same time, business expectations about future profitability deteriorated drastically. In an environment marked by falling consumption, rising unemployment and the global contraction in demand, induced investment – that which responds directly to the economic cycle – almost completely disappeared, while autonomous investment, more linked to innovation or capital replacement, also came to a standstill in the face of enormous uncertainty. The preference for liquidity skyrocketed and risk aversion became a constant. Institutional conditions did not help either: the maintenance of the gold standard until 1933 limited the state's ability to act countercyclically and generated an environment of instability in which expectations could not be recovered.

This collapse did not affect all sectors equally. The most capital-intensive, such as construction or heavy industry, were the hardest hit. Residential construction, for example, completely collapsed: in 1933 only 93,000 homes were built compared to the more than 900,000 that had been built in 1925, according to Field (1992). On the other hand, some sectors such as radio or certain services maintained a minimum level of investment, although without the capacity to compensate for the general collapse.

The recovery of investment was slow and did not consolidate until the entry of the United States into World War II. Beginning in 1933, with the exit from the gold standard and the passage of key reforms such as the Glass-Steagall Act and the creation of the FDIC, a gradual restoration of confidence in the financial system began. The New Deal contributed to this recovery, but it did so mainly through the boost of public spending and state investment, rather than by directly reviving private investment. The complementarity between the two forms of investment allowed for some stabilization, although it was not enough to reach previous levels until well into the 1940s.

Great inflation of 1970

During the 1970s, the United States experienced one of the most severe inflationary episodes of the 20th century, known as the Great Inflation. This phenomenon had structural, monetary and external roots, and was characterized by a sustained and accelerated increase

in the general price level, which in some years exceeded 10%. One of the main causes was the decoupling between the growth of the money supply and the real growth of the economy, largely promoted by the expansionary policies of the Federal Reserve during the late 60s and early 70s. Added to this were two strong supply shocks caused by the oil crisis of 1973 and 1979, driven by OPEC decisions that drastically raised crude oil prices, leading to a simultaneous increase in inflation and unemployment, a phenomenon called stagflation.

The Federal Reserve, under the chairmanship of Arthur Burns and then G. William Miller, initially adopted an ambiguous stance on inflation, prioritizing growth and employment, which led to an expansion of credit and spending, and weakened the credibility of the central bank. This complacent attitude was reflected in their reluctance to raise interest rates forcefully. In 1979, however, Paul Volcker took over as chairman of the Fed and marked a turning point. Under his leadership, the Federal Reserve implemented a drastically contractionary monetary policy, focused on controlling monetary aggregates and not directly on interest rates, which in the short term soared above 20%. This strategy sought to anchor inflationary expectations, even at the cost of causing a sharp recession in the early 1980s. Volcker's policy, known for its harshness, managed to control inflation, but not before imposing a high cost in terms of production and employment.

From the point of view of private investment, the 1970s were a very adverse environment. On the one hand, strong inflation eroded the expected real return on investments, increasing uncertainty about future returns. On the other hand, the late monetary response generated a climate of distrust and financial volatility, especially in the second half of the decade. Firms were reluctant to make long-term investments when they could not predict with certainty the behaviour of real prices, wages or interest rates.

When Volcker imposed his contractionary policy in the late 1970s, the credit crunch hit particularly the firms most dependent on bank financing, and led to a temporary collapse in productive investment, particularly in capital-intensive sectors such as manufacturing and construction. In general, investment remained stagnant for much of the decade, with falls in real terms, until inflation began to moderate and some stability was restored in the economic environment towards the mid-1980s.

The case of this decade serves as a clear example of how monetary policy, both by action and by omission, can drastically condition the behavior of private investment, whether through financing costs, the availability of credit or, above all, expectations. In addition, it demonstrates how the loss of credibility of a monetary authority and the delay in correcting imbalances can aggravate future stabilization costs.

Mortgage crisis 2007

The global financial crisis of 2007–2009 marked a turning point in contemporary monetary policy, both in terms of the magnitude of the economic disruption and the exceptional responses it required. Its origin lies in the accumulation of risks in the U.S. mortgage market, where for years the granting of loans to borrowers with low solvency was extended, while complex financial innovations such as credit derivatives and mortgage securitizations (MBS) were developed. The resulting housing bubble became the core of a financial spiral that burst with the bankruptcy of Lehman Brothers in September 2008, collapsing confidence in the markets and triggering a severe global recession.

Faced with the seriousness of the collapse of the financial system, the Federal Reserve, then led by Ben Bernanke, reacted with a battery of extraordinary measures. First, interest rates were aggressively lowered from 5.25% in September 2007 to the target range of 0–0.25% in December 2008. However, once the effective lower bound was reached, conventional monetary policy lost its ability to act, forcing the Fed to adopt non-traditional tools.

Among the most relevant measures is the start of quantitative easing (QE) programs, which began at the end of 2008 with the massive purchase of financial assets, mainly Treasury securities and mortgage-backed securities (MBS), in order to reduce long-term interest rates, ease tensions in the credit markets and stimulate private spending. The Fed complemented these actions with forward guidance, explicitly communicating its commitment to maintaining an expansionary stance for an extended period. In addition, several liquidity provision programs were implemented for the financial system, such as the Term Auction Facility or the Commercial Paper Funding Facility, aimed at guaranteeing the functioning of short-term financing markets.

These actions had a significant impact on financial conditions, but the transmission to the real economy, and particularly to private investment, was not immediate. During the toughest years of the crisis, private fixed investment suffered a sharp contraction. According to data from the Bureau of Economic Analysis (BEA), between 2008 and 2009 non-residential fixed investment fell by more than 25% in real terms. This decline reflected not only the tightening of credit conditions, but also high macroeconomic uncertainty, reduced profitability expectations, and a sharp deterioration in business confidence.

Studies such as that of Campello, Graham and Harvey (2010), which surveyed more than a thousand CFOs during the peak of the crisis, confirm that about 60% of companies severely restricted their investment plans, and more than 80% reported difficulties in accessing external financing. Smaller companies with higher leverage were the most affected, as they could not easily access alternative sources of capital.

As financial markets stabilized and monetary policy gained traction, signs of recovery began to be seen in business investment. Research such as that of Gagnon et al. (2011) or Krishnamurthy and Vissing-Jorgensen (2011) shows that QE managed to reduce the returns on longer-duration financial assets, which facilitated the issuance of corporate debt, especially by large companies with access to capital markets. Although the recovery was uneven across sectors, there was a notable improvement in investment in areas such as technology, advanced manufacturing and business services.

Crisis Covid-19

Following the outbreak of the COVID-19 pandemic in March 2020, the U.S. Federal Reserve responded with an unprecedented monetary stimulus package. Aware of the risk of financial paralysis and extreme economic contraction, the monetary authorities opted for highly expansive measures. Within weeks, benchmark interest rates were reduced to the 0–0.25% range, quantitative easing, a monthly volume of \$120 billion in Treasuries and mortgage-backed securities (MBS) were reactivated, and numerous liquidity and emergency credit programs were implemented. such as the Main Street Lending Program and the Paycheck Protection Program Liquidity Facility. All this was accompanied by explicitly accommodative forward guidance, in which the Fed committed to keeping rates low for a long period of time (Board of Governors of the Federal Reserve System, 2020).

This extraordinarily accommodative monetary environment created the conditions for a rapid recovery in credit and investor appetite, at least in certain sectors. During the first months of the crisis, private investment suffered a sharp contraction due to high uncertainty and the disruption of global value chains. However, thanks to monetary and fiscal stimuli such as the CARES Act approved by Congress, many companies managed to stabilize their cash flows and reactivate their investment plans. Especially in technology, healthcare or digital sectors, investment recovered quickly. Studies such as that of Dingel, Patterson, and Vavra (2021) show how those companies with a greater capacity to adapt to remote work or with digital business models increased their investment even above pre-crisis levels.

In addition, the prolonged period of negative real interest rates and high liquidity created an environment in which institutional and corporate investors sought higher returns on riskier assets. This not only affected the stock market and the corporate debt market, but also real estate, venture capital and mergers and acquisitions. In this context, private investment boomed that, while partially supported by the economic recovery, also reflected certain elements of financial exuberance fueled by the monetary environment (Acharya & Steffen, 2020).

However, this expansive phase was not sustainable indefinitely. From mid-2021, inflationary pressures began to accumulate, initially attributed to supply bottlenecks, but later reinforced by a stronger recovery in demand. In June 2022, year-on-year inflation (CPI) reached 9.1%, the highest level in four decades. Faced with this scenario, the Federal Reserve abandoned its accommodative approach and adopted a policy of accelerated tightening. Since March 2022, a series of rate hikes have been initiated, taking the benchmark rate to the range of 5.25–5.50% in 2023. At the same time, the Fed stopped reinvesting part of the maturities of its asset portfolio, which marked the beginning of an active reduction of its balance sheet (quantitative tightening) (Federal Reserve Bank of New York, 2023).

This change in the monetary regime had a clear and differentiated impact on private investment. On the one hand, companies that are more leveraged or dependent on bank credit began to reduce their investment levels, especially in sectors such as construction, heavy manufacturing or energy-intensive industries. On the other hand, large technology corporations and companies with large profit margins and access to internal financing maintained their investment programs, taking advantage of strategic opportunities in a context of less competition for capital. On this point, studies such as the one by Davis and Liu (2023), published in *American Economic Review: Insights*, highlight how the rise in rates had a more pronounced effect on those companies with low pricing power and a high sensitivity to the cost of capital.

In sectors such as commercial real estate, investment fell sharply due to the double pressure of rising financing costs and structural change in the patterns of use of workspace. On the other hand, residential real estate showed greater resilience, partly due to the low accumulated supply and persistent fiscal support in certain states. This sectoral contrast shows that monetary tightening, although widespread in its application, has very different effects depending on the asset structure, level of indebtedness and business model of the companies concerned (IMF, 2023).

Overall, the post-COVID-19 period constitutes a unique natural experiment to observe the limits and collateral effects of ultra-expansionary monetary policies and their subsequent reversal. The Fed's monetary policy allowed for a rapid recovery in investment after the initial shock of the pandemic, but it also fueled certain dynamics of overinvestment or reallocation of capital towards high-risk sectors. The subsequent monetary normalization has revealed vulnerabilities in more fragile segments of the productive fabric, and has shown, once again, that private investment does not react homogeneously, but is deeply conditioned by the financial and operational structure of companies, as well as by the characteristics of the sector in which they operate (Borio, 2022; Gopinath, 2023).

4.3.2. Bank of China. History and Case Analysis

The People's Bank of China (PBoC) was founded in 1948, just before the proclamation of the People's Republic of China, through the merger of several regional banks controlled by the Communist Party during the civil war. Its creation responded to the objective of establishing a centralized institution capable of coordinating the transition to a socialist economy, and since its inception it has been a key instrument of the state apparatus for macroeconomic and monetary control (Yao, 2002).

Unlike other central banks with explicit mandates of price stability and institutional independence, the PBoC operates within a logic of political subordination to the State Council, which implies that its decisions are strongly coordinated with the overall strategy of the Chinese Communist Party. Although the bank has gained some degree of technical autonomy since the 1990s, its ability to act independently remains limited compared to the Federal Reserve or the European Central Bank (Goodfriend & Prasad, 2007).

The legal framework governing its operation was established in the Law on the People's Bank of China (1995), which was subsequently amended in 2003. This legislation formally granted it the status of a central bank, with responsibilities for issuing currency, formulating monetary policy, regulating the financial system, managing foreign reserves, and the stability of the yuan. Despite these advances, supervision of the banking system was transferred in 2003 to the China Banking Regulatory Commission, which restricted its direct scope of action (Zhou, 2005).

In operational terms, PBoC employs a combination of quantitative and qualitative instruments. Traditionally, it has relied more on administrative mechanisms, such as the reserve requirement ratio, direct credit limits, or guidance window orders, than on typical advanced economy instruments such as benchmark interest rates or market expectations management. In fact, for decades, the rate system in China was subject to controls, and only recently has it been partially liberalized, especially in the interbank and corporate debt segment (Liao & Tapsoba, 2014).

Since the 2000s, with the modernization of China's financial system and its increasing international integration, the PBoC has been incorporating more sophisticated tools, such as open market operations, mechanisms for providing liquidity through repos, and a more flexible policy framework. However, the interest rate channel is still weak, due to the high presence of state-owned enterprises, credit segmentation, and limited banking competition, which distorts monetary transmission to private investment (Zhang et al., 2017).

In addition, the Chinese central bank plays an atypical role compared to its Western peers: instead of acting only as a macroeconomic stabilizer, it also pursues structural development objectives, such as supporting regional growth, financing infrastructure or boosting strategic sectors (Fan et al., 2011). These priorities are reflected in its specific instruments, such as special credit lines or financing programs aimed at small and medium-sized enterprises, technological innovation or energy transformation.

The PBoC also plays a central role in the management of the exchange rate and the internationalization of the yuan. Although China maintains a semi-flexible exchange rate regime, the bank actively intervenes in the foreign exchange market to avoid excessive volatility and ensure external competitiveness, especially during periods of balance of payments pressure (Subacchi, 2017). This implies that monetary policy does not always conform to traditional domestic criteria, but also responds to external conditions.

Asian Crisis 1997-1998

In mid-1997, a number of Southeast Asian countries, Thailand, Indonesia, Malaysia, South Korea, and the Philippines, faced a severe financial crisis marked by collapses in their exchange rate systems, bank failures, and stock market crashes. The crisis was precipitated by a growth model that was overly dependent on short-term external borrowing, coupled with rigid exchange rates and partially liberalized financial markets. When speculative attacks on the Thai baht began, a domino effect was unleashed in the region.

China, however, managed to resist direct contagion. Unlike its neighbors, it maintained a fixed exchange rate regime between the yuan and the dollar, capital controls, and a financial system with little exposure to speculative foreign capital. The PBoC's strategic decision not to devalue the yuan, despite pressures, was key not only to preserving internal stability, but also to avoiding a regional devaluation war. This position was widely recognized as responsible and stabilizing by organizations such as the IMF (Zhou, 1998).

In response to the external crisis, China adopted a combination of expansionary monetary and fiscal policies. The People's Bank of China cut interest rates several times between 1996 and 1999, and a substantial fiscal package targeting infrastructure and domestic consumption was implemented, with the intention of maintaining aggregate demand while export growth slowed. According to studies by the Asian Development Bank (ADB, 2000), this response helped China maintain GDP growth of more than 7% during the toughest years of the regional crisis.

At the same time, the government strengthened its control over the banking system. Although financial liberalization was avoided, the foundations for institutional modernization began to be laid. The role of the four large state-owned banks was strengthened, and priority was given to credit aimed at strategic sectors.

The impact of the crisis on private investment in China was mixed and sectorally differentiated. Although the economy did not fall into recession, the more uncertain global environment and the fall in exports in some sectors generated a certain slowdown in the growth of private investment, especially in companies oriented to foreign trade.

According to an analysis by the China Development Research Foundation (2002), private investment in export manufactures, such as textiles and assembly electronics, slowed markedly in 1998. By contrast, more domestically-oriented sectors, such as construction, energy, and telecommunications, continued to receive support from bank lending and benefited from expansionary fiscal policy.

Importantly, the credit structure continued to favor state-owned enterprises, which limited the expansion capacity of purely private investment. Many SMEs continued to face restrictions on access to formal credit, forcing some of them to resort to informal channels or slow down their growth (Allen et al., 2005).

China's entry into the World Trade Organization

China's entry into the World Trade Organization (WTO) in December 2001 marked a turning point in its full integration into the global economy. This accession was not merely symbolic: it implied a deep commitment on the part of the country to reform its institutional and commercial structures, modernize its regulatory framework, and open up key sectors to international competition. The People's Bank of China, although it did not operate with the independence that characterizes Western central banks, played a central role in this process. His mandate during these years focused on ensuring monetary stability and sustaining an exchange rate regime linked to the US dollar, which facilitated a predictable and controlled environment for investors (Lardy, 2002).

In parallel, the Chinese financial system began to undergo progressive reforms that allowed for a more efficient allocation of capital, albeit under strong state supervision. The major commercial banks, still dominated by the state, began to direct an increasing share of credit to non-state enterprises, especially to the emerging private sector in coastal regions. This partial liberalization of financial flows coincided with the creation of Special Economic

Zones, where taxation was favorable, regulations were more flexible, and access to foreign currency was partially liberalized (Brandt & Rawski, 2008).

The immediate effect of this institutional transformation was a notable boom in private investment. The theoretical framework that relates the real interest rate to investment is particularly relevant here, since the PBoC kept rates artificially low through direct controls, which reduced the cost of using capital and encouraged credit expansion. At the same time, access to cheap imported inputs, following the drastic reduction in tariffs following WTO entry, increased the expected productivity of many industrial sectors, thus reinforcing profitability expectations. This environment led to a massive expansion of Gross Fixed Capital Formation, which went from 35% to 44% of GDP between 2000 and 2008, one of the highest in the world (World Bank, 2023).

It was not only an increase in the volume of investment, but a structural change in its composition. Domestic private companies began to dominate sectors such as light manufacturing, electronics, consumer durables, and construction. Foreign direct investment, meanwhile, multiplied during the same period, attracting capital to export, logistics, and heavy industry sectors (UNCTAD, 2022). In economic terms, China can be said to have become a world-class investment platform, where the combination of low financing costs, sustained return expectations and institutional stability reinforced the classic acceleration model.

This investment boom was not without imbalances. Many studies warn that some credit flowed to sectors with declining returns or to inflationary projects in second-tier cities (Herr & Priewe, 2009). However, even considering these distortions, the structural push towards private investment was deep, systemic, and long-lasting. In the long term, this process contributed not only to sustaining GDP growth above 9% per year for almost a decade, but also to consolidating a competitive business fabric, with the capacity for innovation and global orientation (Huang, 2008).

Crisis 2008

The global financial crisis that began in 2008, with its epicenter in the mortgage and banking markets of the United States and Europe, posed a significant threat to the Chinese economic model, which is heavily dependent on the export sector. The fall in external demand, especially from developed economies, led to an immediate collapse in Chinese exports: between September 2008 and February 2009, they fell by more than 25% year-on-year (World Bank, 2010). This external shock put at risk the stability of millions of industrial jobs, especially in coastal regions, and sparked domestic concerns about possible economic stagnation.

Against this backdrop, the People's Bank of China, in coordination with the State Council, implemented one of the world's most ambitious stimulus plans: a fiscal package of 4 trillion yuan (approximately 586 billion U.S. dollars, or 13 percent of GDP), launched in November 2008. This plan was financed mainly through the expansion of bank credit, promoted by the PBoC itself through an aggressive easing of monetary conditions. In parallel, benchmark interest rates and reserve requirement ratios were cut, allowing state-owned banks to significantly increase the volume of lending to the private sector and SOEs (Zhang et al., 2015).

The stimulus was mainly channeled towards infrastructure, transport, energy, housing and strategic sectors, although it also indirectly benefited many private companies that participated as subcontractors or suppliers. In fact, in 2009 bank credit growth exceeded 30% year-on-year, and Gross Fixed Capital Formation grew by more than 25%, despite the global recession (NBSC, 2010). Unlike Western economies, which faced a credit crunch, China maintained an environment of expansionary liquidity, with a countercyclical strategy based on directed credit.

In theoretical terms, Chinese policy was aligned with a logic of autonomous investment induced by the State, but with significant effects on private investment, especially in construction, manufacturing of intermediate goods and production materials. The low cost of financing, the immediate availability of public contracts and the perception of strong institutional support generated a rapid business response. The type of investment was predominantly induced, in the sense that it reacted directly to the opportunities created by public policy (Li et al., 2011).

Unlike in the United States or Europe, where the financial channel had deteriorated severely, China's highly centralized banking system with strong state participation was able to act quickly and effectively as a transmitter of stimulus. This institutional architecture, although criticized in normal times for inefficiencies, proved to be an asset during a crisis, allowing a massive mobilization of credit without the typical resistance of private banks to risk scenarios (Walter & Howie, 2011).

However, this strategy also generated collateral effects. Overinvestment in certain sectors led to industrial overcapacity, local housing bubbles, and a deterioration in credit quality. In the long run, many investments were unprofitable and increased the volume of corporate debt, especially in local governments and public companies. Even so, the stimulus fulfilled its objective of avoiding a recession: China was one of the few large economies to grow in 2009 (8.7% of GDP), consolidating its role as the engine of the global economy (IMF, 2010).

Crisis Covid-19

The outbreak of the COVID-19 pandemic in 2020 represented one of the most intense macroeconomic challenges for China since the economic opening in the 80s. Unlike previous crises with financial or external origins, this situation stemmed from a simultaneous supply and demand shock, amplified by the strict lockdown measures implemented in Wuhan and other industrial provinces.

The People's Bank of China's first reaction was notably more restrained in terms of aggregate magnitude than that of other advanced economies, such as the United States or the Eurozone. The PBoC opted for a more surgical and structural strategy, focusing on liquidity injections through targeted lending facilities and moderate reductions in interest rates. In mid-2020, the interest rate on the prime rate for one-year loans was reduced to 3.85%, and the reserve requirement ratio was lowered to free up liquidity for banks (PBoC, 2020).

Unlike the massive and uniform stimulus of 2008, the package implemented after COVID-19 was smaller, around 4.5% of GDP, but focused on critical sectors: health, logistics, advanced manufacturing and SMEs. The directed credit was channeled through state banks and local cooperatives, with tax and monetary incentives to encourage investment in certain strategic industries. This selective approach sought to avoid a new cycle of overinvestment or bubbles, such as those that emerged after the 2008 crisis (Lardy, 2021).

Despite the fall in GDP in the first quarter of 2020, -6.8% year-on-year, the recovery was faster than in many Western economies. Gross Fixed Capital Formation began to rebound from the second half of the year, led by sectors such as digital infrastructure, green energy and high-tech manufacturing. Private investment in knowledge-intensive industries was particularly stimulated by targeted financing programmes, in line with the government's objective of "dual circulation": to strengthen domestic demand without losing external competitiveness (Naughton, 2020).

However, this recovery was uneven. The real estate sector, historically one of the main recipients of private investment in China, entered a phase of severe correction between 2021 and 2022, due to new restrictions on the borrowing of developers and the liquidity crisis of companies such as Evergrande. This real estate contraction partially counterbalanced the dynamism of other sectors, introducing significant heterogeneity in the evolution of private investment.

4.3.3. Japan. History and Case Analysis

Japan is an advanced economy with a strong export orientation, a high level of technological development, and an institutional structure deeply influenced by its history of state planning and public-private collaboration. After World War II, the country adopted a development model focused on intensive industrialization, led by large business conglomerates called Keiretsu, and guided by institutions such as the Ministry of International Trade and Industry (MITI) and the Bank of Japan (BoJ), under a technocratic and strongly coordinated approach. Although economic liberalization has been progressive since the 1980s, the legacy of this vertical coordination between the state, banks, and companies continues to shape the functioning of the country (Johnson, 1982; Schaede, 2008).

In institutional terms, the Bank of Japan is the country's central bank, established in 1882 and formally independent since the reform of the Bank of Japan Act of 1998. Its main objective is to maintain price stability, although in practice its mandate has been informally extended to include financial stability and macroeconomic stimulus, especially during the last three decades of stagnation (Bank of Japan, 2023). Unlike other central banks, the BoJ has operated for long periods under zero or even negative interest rate conditions, in response to the structural deflationary pressures that have characterized Japan since the 1990s. These pressures are the result of several interrelated factors: an aging population, a low birth rate, a chronic excess of private savings, and weak domestic demand (Shirakawa, 2012; IMF, 2020).

The BoJ has therefore pioneered unconventional monetary policies such as Quantitative Easing, yield curve control, and negative interest rates, not as one-off tools, but as part of the standard operating repertoire. Through these tools, the central bank has sought to keep real interest rates low or negative, stimulate credit and reactivate business investment, although with limited results. This policy has led the BoJ to expand its balance sheet to unprecedented levels, in 2020 it exceeded 100% of Japanese GDP, and to become one of the largest holders of the country's financial assets, including sovereign bonds, ETFs, and even corporate bonds (Bank of Japan, 2022; BIS, 2021).

What distinguishes Japan on the international scene is that these monetary policies have operated within an economic and political system in which institutional consensus is strong and risk aversion is structural. The Japanese political framework, historically dominated by the Liberal Party, has favoured a strategy of stability and continuity, where reforms are implemented slowly and with broad technical and social support. This stability has allowed the

BoJ to take extraordinary measures without facing the political resistance that other central banks would encounter in more polarized democracies. At the same time, this same institutional stability has limited the capacity to generate profound structural changes in the economy, such as those that would be necessary to reinvigorate private investment or reverse demographic aging (Ito, 2007; Aoki, 2016)

The Lost Decade 1990-2000

During the 1980s, Japan experienced rapid economic growth driven by massive credit expansion and financial liberalization. This resulted in a huge bubble in the stock and real estate markets. By the end of the decade, asset prices were completely disconnected from economic fundamentals. The Nikkei 225 was above 38,000 points in 1989 and the price of land in Tokyo had increased more than fivefold in a decade.

The Bank of Japan, which had maintained accommodative policies during the growth years, began tightening monetary policy in 1989 to curb asset inflation. It raised the official interest rate from 2.5% to 6% in less than a year. This decision precipitated the bursting of the bubble: the stock and real estate markets collapsed and the Japanese banking system, highly exposed to loans backed by overvalued assets, began to accumulate a mountain of bad loans.

The BoJ's initial reaction was slow. Not only did it take time to reduce interest rates, which did not fall below 1% until 1995, but it did not introduce significant fiscal stimulus until the financial crisis was already deep. This lack of timely response is pointed out by authors such as Bayoumi (2001) and Ito & Mishkin (2006) as a key monetary policy error.

As early as the second half of the 1990s, the BoJ began implementing unconventional policies for the first time in the modern history of a central bank. In 1999, it implemented the zero-interest rate policy for the first time. In 2001, it implemented an early form of quantitative easing by buying government bonds and increasing bank reserves. The objective was to combat deflation, which had persistently set in, and to reactivate the economy. However, the transmission of monetary policy was very limited. As Eggertsson & Krugman (2012) argue, in a "liquidity trap" environment, banks do not channel money into productive investment, even though there is abundant liquidity.

Private investment in Japan plummeted as a direct result of collapsing asset prices, a weakening banking system, and deep macroeconomic uncertainty. According to data from the World Bank (2024), gross fixed capital formation fell by more than 20% between 1991 and 1995.

In sectoral terms, real estate and construction companies were the most affected, given their direct exposure to the asset bubble. Manufacturing, meanwhile, suffered a sharp drop in exports due to the strengthening yen, but some held up better thanks to their accumulated capital.

A key element was the systemic banking crisis. As Hoshi and Kashyap (2004) point out, the Japanese banking system entered a spiral of prolonged fragility. Banks, on the verge of bankruptcy from non-performing loans, became extremely reluctant to lend, even to solvent companies. Induced investment, normally sensitive to interest rates, became almost desensitized by the credit crunch.

Business behavior also reflected structural change. Many firms shifted from expansion strategies to prioritizing deleveraging and financial consolidation. In the words of Koo (2003), Japan experienced a "balance sheet recession", where even with very low interest rates, companies preferred to reduce debt rather than invest.

This period marked the beginning of a decade characterized by persistent stagnation of private investment and a limited role for monetary policy as an engine of growth.

Abenomics 2013-2020

After decades of economic stagnation and deflationary pressures, Japan embarked on an ambitious program of economic reform with Shinzō Abe coming to power in late 2012. Its strategy, known as Abenomics, was based on three pillars: an expansionary monetary policy, aggressive fiscal stimulus, and far-reaching structural reforms. Of these three dimensions, monetary policy was undoubtedly the most visible and disruptive. In April 2013, Abe appointed Haruhiko Kuroda as governor of the Bank of Japan, who implemented a policy of quantitative and qualitative easing with the aim of doubling the monetary base in two years and breaking with the deflationary expectations that weighed on growth (Kuroda, 2013).

This strategy resulted in a series of measures unprecedented in the country's monetary history. The BoJ began massively buying Japanese government bonds, assets linked to the real estate market and indirect shares in the stock market through ETFs. In 2016, the bank also adopted negative interest rates on part of bank reserves, and implemented a Yield Curve Control (YCC) policy, committing to keep the yield on 10-year bonds close to 0% (Bank of Japan, 2016). These policies led the BoJ to become the country's main holder of public debt and one of the most relevant players in domestic financial markets.

However, despite the magnitude of these interventions, the effects on inflation and investment were more limited than expected. The 2% inflation target was not achieved on a

sustained basis, and price expectations remained anchored at low levels, partly due to structural factors such as population ageing and weak domestic demand (Berger, Morinaga & Sekine, 2019).

The response of private investment to this context of ultra-expansive policies was mixed. In aggregate terms, there was some revival in business investment, especially in export sectors benefiting from the BoJ-induced depreciation of the yen, and in companies with direct access to financial markets. In fact, according to data from the Japanese Ministry of Finance, non-residential fixed investment increased steadily between 2013 and 2018, from 12.8% to 14.3% of GDP (MOF, 2019).

However, this growth was uneven. While large corporations accumulated profits and made both domestic and international investments, small and medium-sized enterprises more oriented to the domestic market did not experience an equivalent increase in investment. These companies, more vulnerable to structural uncertainty and less favored by financial market conditions, maintained a more conservative attitude. As Arslanalp and Botman (2015) explain, many SMEs continued to face problems of profitability and access to credit, limiting their ability to expand even in an environment of negative rates.

In addition, a recurring phenomenon was the accumulation of liquidity by companies, which chose to strengthen their balance sheets instead of expanding investment, an attitude consistent with Richard Koo's (2015) diagnosis of the persistence of a "balance sheet recession". Against this backdrop, the monetary impulse failed to fully activate the private investment channel, especially in an environment where long-term expectations for the Japanese economy remained moderately negative.

Crisis Covid-19

The outbreak of the COVID-19 pandemic in 2020 represented a new challenge for global economic policy, and Japan was no exception. The country entered a recession even before the health crisis was fully extended, due to the impact of Typhoon Hagibis and the increase in consumption tax in October 2019. With the arrival of the virus, the BoJ reacted quickly, intensifying its already extraordinarily expansionary monetary stimulus framework.

In March 2020, the BoJ substantially increased its purchases of financial assets, including government bonds, commercial paper, corporate bonds, and shares in exchange-traded funds. Although policy rates remained unchanged as they had been in negative territory since 2016, the bank reinforced its commitment to Yield Curve Control (YCC), keeping 10-year bond yields around 0% (Bank of Japan, 2020a). In addition, a special program was launched

to provide funds to financial institutions to support credit to companies affected by the pandemic, especially small and medium-sized enterprises (BoJ, 2020).

In addition to these measures, the Japanese government complemented monetary action with massive fiscal packages that accounted for more than 40% of GDP, including direct transfers, loan guarantees, and subsidies. This coordinated approach between fiscal and monetary policy reflected the need to compensate for the fall in demand, preserve employment and avoid a wave of bankruptcies in a highly fragmented and ageing business fabric.

From the point of view of private investment, the outlook was uneven. On the one hand, large exporting companies, such as those in the technology and automotive sectors, managed to maintain some activity thanks to the recovery in global demand, especially from China and the United States. On the other hand, the service sector and small businesses oriented to domestic consumption were hit hard by health restrictions and the retraction of household spending. According to data from the Ministry of Economy, Trade and Industry (METI), investment in non-financial fixed assets decreased by 11% year-on-year in 2020, being more pronounced in sectors such as transport, hospitality and personal services (METI, 2021).

Despite the abundant credit facilitated by the BoJ's policies, many companies chose to accumulate liquidity as a precautionary measure. This behavior of "defensive saving" is reminiscent of the pattern observed in the balance sheet recession of previous decades (Koo, 2020), which shows that ultra-expansionary monetary policy does not necessarily translate into greater private investment if economic expectations remain depressed or uncertain.

In this regard, several studies underline that financial conditions were extremely lax, but that the transmission channel to investment was limited by low aggregate demand and low business confidence. The 2021 BIS report notes that Japan maintained more favorable credit conditions than other advanced economies during the pandemic, but that this failed to prevent a sharp contraction in private investment (BIS, 2021).

4.3.4. Europe and the ECB. History and Case Analysis

The creation of the European Central Bank (ECB) in 1998 and the launch of the euro in 1999 marked a milestone in European economic integration. For the first time, a monetary area composed of countries with very diverse productive, fiscal and labour structures adopted a common monetary policy, managed by an independent central authority. The ECB was conceived as an institution with a single and very clear mandate: to maintain price stability in the euro area, understood as year-on-year inflation below, but close to, 2% in the medium term (European Central Bank [ECB], 2003).

During its first years, the ECB adopted a strongly conservative stance, with a monetary policy marked by containment and a strategy focused on controlling inflation. The operational framework was based on a system of intermediate objectives and monetary policy signals that included monetary analysis, M3 aggregates, and economic analysis, growth, exchange rate, prices, a legacy of the German Bundesbank model (Issing, 2008). In this period, official interest rates remained relatively stable, ranging between 2% and 4.75%, depending on occasional inflationary or recessionary pressures, such as after the 9/11 attacks or the bursting of the Dotcom bubble.

In terms of the effects on private investment, this environment of monetary and exchange rate stability helped to create relatively favourable conditions for long-term business planning. The elimination of exchange rate risk among eurozone countries and the fall in sovereign risk premiums created a climate of confidence that boosted capital flows within the region (Lane, 2006). However, this process was not homogeneous. While countries such as Spain, Ireland and Greece experienced a boom in credit and investment, others such as Germany and Finland experienced a phase of adjustment or consolidation.

Once the institutional and operational framework of the European Central Bank (ECB) has been defined, it is essential to incorporate an academic perspective that complements its analysis. The specialized literature has been structuring a solid body of knowledge that allows us to understand the transmission mechanisms, the heterogeneous effects between countries and the structural challenges that accompany European monetary policy.

A first central axis is constituted by the mechanisms for transmitting monetary policy, especially through channels such as interest rates, the supply of credit, the banking system and financial markets. Research coincides in pointing out that these mechanisms present notable differences between Member States, as a result of disparate banking structures and

diverse institutional frameworks (Rant et al., 2024; Wierzbowska, 2021). This phenomenon directly conditions the effectiveness of the ECB's decisions, especially when unconventional measures such as asset purchases are adopted (Kanga, 2023; Peersman, 2011).

Another of the most debated focuses is the heterogeneity of monetary effects. Studies have shown that euro area countries respond unevenly to ECB policies, whether in terms of growth, inflation or employment. This is largely due to structural factors such as debt levels, flexible labor markets or dependence on private credit (Durkalić & Zhiyu, 2023; Bárcena-Martín et al., 2025).

The role of unconventional monetary policies, such as quantitative easing (QE) and bond-buying programs, deserves special attention. These measures have been implemented with greater force since the 2008 crisis and intensified during the COVID-19 pandemic. Although they have contributed to stabilizing financial markets and reducing financing costs, the literature casts doubt on their sustained effectiveness in terms of reviving growth and employment, especially in peripheral countries (Kiseľáková et al., 2020; Hutchinson & me, 2020).

On the other hand, the interaction between monetary and fiscal policies has been the subject of numerous critical evaluations. Although the ECB maintains a centralized monetary policy, fiscal policies remain a national competence, which has often generated lack of coordination or even contradictions in the global economic approach (Hounaida, 2014; Semmler & Zhang, 2004). In times of crisis, this lack of synchrony can amplify the negative effects or dilute the effectiveness of the measures adopted.

Finally, recent studies highlight the crucial role of the ECB during crisis episodes, such as the sovereign debt crisis or the COVID-19 pandemic. Its ability to act as a stabilizer of the financial system has been key, although the literature also highlights the remaining challenges in terms of credibility, institutional governance, and real convergence between economies (Barida, 2024; Neri & Ropele, 2015; Scharpf, 2011).

2008 Financial Crisis

After the outbreak of the international financial crisis in 2008, the eurozone faced a rapid transmission of the shock originating in the United States. Although the epicenter was the collapse of the U.S. subprime mortgage market and the bankruptcy of Lehman Brothers, the exposure of many European banks to toxic assets, coupled with the lack of initial coordination, compounded the impact on the continent. The eurozone's banking structure, highly dependent on wholesale funding and with weakened balance sheets, suffered a sudden

credit crunch. As Pisani-Ferry (2014) and Lane (2012) point out, financial contagion highlighted the vulnerabilities of a monetary union without fiscal union, with fragmented financial markets and an incomplete institutional architecture.

In response to the economic deterioration, the European Central Bank (ECB) rapidly lowered interest rates from 4.25% in July 2008 to 1% in May 2009. However, the ECB initially showed a more conservative attitude than the US Federal Reserve, limiting itself to offering liquidity through auctions and maintaining a reluctance to adopt quantitative easing policies. This caution responded both to the ECB's institutional mandate, focused on price stability, and to the differences in the financial structure of the euro area, where bank intermediation is much more prevalent than in economies such as the United States, which is more oriented to the capital market (Gros, 2012).

The environment became even more complex when, from 2010, the sovereign debt crisis emerged. The case of Greece exposed the unsustainability of the public finances of several member states, and the reaction of the markets was swift: the risk premiums of countries such as Ireland, Portugal, Spain and Italy soared, threatening the stability of the monetary union. Conventional monetary policy became less effective in the face of the increasing fragmentation of the European financial market: banks in northern Europe maintained access to cheap credit, while those in the south faced prohibitive costs or outright shortages of financing (Lane, 2012).

It was in this context that the ECB intensified the use of unconventional measures. In 2011 and 2012, it launched two rounds of long-term refinancing operations for more than one trillion euros, injecting three-year liquidity into banks at very low rates. However, these measures have not fully restored credit in the hardest-hit economies. The pressure continued to escalate until the key moment in July 2012, when ECB President Mario Draghi delivered his famous speech in London promising to do "whatever it takes" to preserve the euro. This message, reinforced by the subsequent announcement of the OMT (Outright Monetary Transactions) program, calmed the financial markets and marked a turning point in the crisis.

Despite the gradual recovery of financial stability, private investment remained depressed for years in several countries. In Germany and other members of the European core, where bank balance sheets were stronger, the transmission of ECB measures was more effective, and investment began to recover relatively soon. On the other hand, in countries such as Greece, Spain and Italy, the weakness of the banking system, fiscal austerity policies and uncertainty about sovereign solvency strongly restricted business investment. As Constâncio (2014) explains, the crisis demonstrated that a homogeneous monetary policy can have profoundly heterogeneous effects in a union with large structural asymmetries.

In addition, numerous studies identified the persistence of credit barriers in peripheral countries even after financial stabilization. For example, the ECB's (2013, 2014) reports on the Access to Finance Survey (SAFE) showed that SMEs in Spain and Greece continued to face significantly greater difficulties in obtaining bank financing, which limited their ability to invest. This fragmentation not only reflected economic differences, but also perceptions of sovereign risk that were transferred to the risk premium of companies depending on their country of origin.

2014-2019

After overcoming the most critical stresses of the euro crisis, the ECB faced a new challenge: the economic recovery was slow, uneven across countries, and inflation remained well below the 2% target. The threat of a "Japanification" of the eurozone, characterized by low growth, near-zero inflation and low dynamism in investment, began to gain prominence in ECB speeches and European economic analysis (Rostagno et al., 2021). In this context, the ECB took a decisive step towards the adoption of quantitative easing (QE) measures, following in the footsteps of other central banks such as the Federal Reserve and the Bank of England.

In March 2015, the ECB launched its Public Sector Asset Purchase Programme (PSPP) within the broader framework of the Asset Purchase Programme (APP). This also included the purchase of corporate bonds, securitizations and mortgage bonds. The objective was twofold: to reduce long-term interest rates and to encourage both credit and private investment, while raising inflation expectations. This policy marked a historic shift in the ECB's strategy, as it involved intervening directly in the sovereign debt markets, something it had avoided until then for fear of violating the Maastricht Treaty.

During this stage, the ECB also intensified the use of negative interest rates. In June 2014, the rate applied to the deposit facility was in negative territory for the first time (-0.10%), reaching -0.50% in 2019. The objective was twofold: to encourage bank credit by penalizing excess reserves in the ECB and to put downward pressure on the euro's exchange rate to improve external competitiveness. These unconventional policies, not without controversy, caused disparate effects depending on the banking and business structure of each country.

With regard to private investment, the low interest rate environment, together with asset purchases, favored a significant reduction in the cost of financing. However, as documented by ECB studies (Altavilla et al., 2019), the transmission of these policies was uneven between countries. In core economies, where bank balance sheets were stronger, credit conditions improved rapidly, stimulating business investment, especially in industrial and export sectors.

On the other hand, in peripheral countries, the effects were slower and conditioned by factors such as residual financial fragmentation, high levels of corporate debt or weak aggregate demand.

Moreover, as Blattner and Joyce (2020) point out, the impact of QE on investment was not only a matter of interest rates, but also of expectations. The ECB's expansionary measures helped to reduce macroeconomic uncertainty, stabilize financial markets and increase business confidence. However, the most visible effect of QE was in financial markets, especially asset prices, rather than in the real economy, fueling criticism of the redistributive effectiveness of these measures.

Crisis Covid-19

The outbreak of the COVID-19 pandemic in early 2020 plunged the eurozone into an unprecedented economic crisis, characterized by a sharp contraction in GDP, a collapse in aggregate demand and high uncertainty about the operational continuity of many companies. Faced with this scenario, the ECB responded quickly, significantly expanding its battery of unconventional policies. The most relevant action was the creation of the Pandemic Emergency Purchase Programme (PEPP), announced on 18 March 2020, which allowed the ECB to acquire public and private assets for an initial volume of €750,000 million, later expanded to €1.85 trillion. This programme was a notable change from previous interventions, both in terms of its size and the flexibility with which it was implemented (European Central Bank, 2021).

The PEPP was specifically designed to avoid financial fragmentation within the eurozone, allowing temporary deviations from the national capital key in debt purchases, which particularly favored countries such as Italy and Spain. This made it possible to stabilize sovereign spreads, ensure the homogeneous transmission of monetary policy and avoid a repeat of the collapse observed in the euro crisis. Unlike the PSPP (2015), the PEPP also incorporated private sector debt, especially corporate bonds, which helped to sustain corporate financing at a critical time.

At the same time, the ECB strengthened its bank liquidity policy, through TLTRO (Targeted Longer-Term Refinancing Operations) operations at ultra-low rates, which even offered negative remuneration if banks met certain thresholds for granting credit. In this way, financial institutions were encouraged to maintain the flow of credit to the private sector, especially to SMEs, which were the most vulnerable to disruption of activity.

As for private investment, the effects were mixed. In the short term, investment decisions were paralyzed in most sectors due to the lockdown, falling demand and high uncertainty. However, the ECB's action, together with national fiscal packages and the European Next Generation EU fund, helped to stabilize business expectations and prevent a massive destruction of productive capacity. As an OECD report (2021) points out, these joint policies were key to preserving the productive fabric and facilitating a rapid subsequent recovery, especially in sectors with greater elasticity of demand and digital adaptability.

In this sense, investment in technology, telecommunications, digital services and health sectors showed a much faster recovery than traditional sectors such as tourism, transport or construction. In addition, the ECB's policies had an indirect impact on financial markets and on the cost of financing large companies, especially those with access to capital markets, which were able to refinance at historically low rates (Arce, Gimeno & Mayordomo, 2021). However, the banking channel remained the main funding mechanism in southern European countries, reinforcing the importance of TLTROs and PEPPs in these jurisdictions.

4.3.5. Asymmetries within the EU

One of the main structural challenges of the euro area lies in the application of a single monetary policy to deeply heterogeneous economies. This dissonance generates unequal effects on key variables such as private investment. Although the European Central Bank (ECB) establishes a single interest rate and homogeneous liquidity conditions, the transmission of these policies depends on the specific economic, fiscal and financial structures of each Member State (De Grauwe, 2012).

The first major source of heterogeneity is in the state of the banking system. In economies such as Germany, banks maintain high capitalization ratios, low exposure to troubled assets, and smooth access to the interbank market, allowing the ECB's expansionary policies to be transferred relatively effectively to corporate credit. Thus, German companies, especially those in the industrial and export sectors, have been able to finance investment projects with favourable conditions, especially after the start of quantitative easing programmes in 2015 (Altavilla, Carboni & Motto, 2015).

By contrast, countries such as Italy have shown a much weaker transmission of monetary policy. After the sovereign debt crisis, the Italian banking system was burdened with a high burden of non-performing loans, which generated credit reluctance even in a context of low rates and abundant liquidity (Borio & Gambacorta, 2017). This had a direct impact on private investment: uncertainty about future profitability, together with credit that was made

more expensive in practice due to risk premiums, led to a persistent fall in gross capital formation, especially in small and medium-sized enterprises (European Investment Bank, 2020).

The case of Greece is even more extreme. During the years following the 2009 crisis, the country experienced a severe contraction of GDP, a massive flight of deposits, and a collapse of the banking system, which led to capital controls, institutional intervention, and a de facto suspension of the monetary transmission channel (Lane, 2012). Although the ECB lowered rates and launched long-term refinancing operations, risk perception and financial segmentation prevented private investment from recovering (Gros, 2013). Companies without access to external financing saw their projects paralyzed, and investment plummeted to historically low levels, particularly in the productive sectors most dependent on credit.

These differences are partly explained by the absence of compensatory mechanisms at the fiscal or structural level within the euro area. In a functioning monetary union, federal fiscal policy would act as an automatic stabilizer in the face of asymmetric shocks. In the eurozone, however, the rules of the Stability and Growth Pact limited the national response capacity, especially in countries with structural public debt problems such as Italy or Greece. This has generated a vicious circle of low investment, low growth, and persistent financial fragility, which even extremely expansionary monetary policies have not been able to fully reverse (Constâncio, 2014; European Commission, 2022).

The data clearly show this divergence. According to Eurostat (2023), while Germany has maintained private business investment rates above 20% of GDP in several periods, Italy has oscillated between 16-17%, and Greece has fallen below 12% after the crisis. Even more telling is access to finance: the EIB Investment Survey (2021) shows that 59% of Greek and 48% of Italian companies considered access to credit as a significant obstacle to investing, compared to 19% in Germany.

4.3.6. The case of Spain

Since the democratic transition in the mid-1970s, monetary policy in Spain has undergone profound structural transformations, which have had an uneven and changing impact on private investment, reflecting both the evolution of institutions and the structural characteristics of the Spanish economy.

During the Transition period (1975–1985), Spain had a closed economy, with strong fiscal and monetary imbalances, high inflation and an underdeveloped financial system. The Bank of Spain acted as a direct financier of the public deficit, which fueled a strongly inflationary monetary policy (Tortella & García Ruiz, 2013). In this context, private investment was low and volatile, particularly in capital goods, due to macroeconomic instability, political risk, and the lack of institutional credibility.

Spain's entry into the European Economic Community in 1986 was a decisive turning point. A period of financial liberalization, institutional modernization and monetary discipline began, which led to the independence of the Bank of Spain in 1994. This transformation allowed for further price stabilization, a gradual reduction in interest rates, and a more predictable environment for investors. Private investment expanded significantly during the second half of the 1990s, favored by confidence in the process of convergence towards the euro, especially in the industrial and infrastructure sectors (Bank of Spain, 1999).

With the entry into the euro in 1999, Spain adopted a common monetary policy, which implied the loss of control over its exchange rate and its autonomous monetary policy. During the early years of the eurozone (1999–2007), the low interest rates set by the ECB, suitable for Germany and France, proved too lax for the Spanish cycle, which was in full expansion. This led to an explosive increase in credit and overinvestment in low-productivity sectors, especially real estate, which absorbed a substantial portion of private investment (De Grauwe, 2010). The result was an unbalanced growth pattern, sustained by construction and external financing, with no significant improvements in productivity or innovation.

The global financial crisis of 2008 revealed the fragility of this model. The collapse of the real estate sector and the subsequent banking crisis led to a collapse in private investment, especially among SMEs and startups, due to credit fragmentation and deteriorating confidence. Despite the fact that the ECB maintained an expansionary monetary policy, transmission was weak in peripheral countries such as Spain, whose banks were highly indebted and risk-averse. Credit to the private sector contracted continuously between 2009 and 2013, accentuating the fall in investment (Bank of Spain, 2014).

From 2014 onwards, and within the framework of the ECB's quantitative easing program, Spain experienced a gradual recovery in investment, although this was concentrated in large exporting companies and sectors more open to international capital. SMEs, which make up the bulk of the productive fabric, continued to face structural credit restrictions and difficulties in financing R+D projects, which limited the transformation of the production model (EIB, 2018).

The COVID-19 crisis in 2020 marked a new turning point. While interest rates were already at historic lows, the ECB's extraordinary measures (such as TLTROs and PEPP) made it possible to sustain liquidity flows. However, private investment contracted sharply again in the face of uncertainty and falling demand. The subsequent recovery, supported in part by the European Next Generation EU funds, shows a greater orientation towards green and digital sectors, but still faces structural barriers such as low productivity, dual labour market and low investment in human capital (IMF, 2022; European Commission, 2023).

5. Economic debates and controversies

One of the most persistent debates in the field of economic policy revolves around the role of the state in the economy and the sustainability of Keynesian strategies over time. From the Keynesian perspective, the market alone does not guarantee full employment or sufficient effective demand, especially in times of crisis. Recent economic history has provided numerous examples to support this view: the Great Depression of 1929, the global financial crisis of 2008, and even the COVID-19 pandemic have shown how the withdrawal of the private sector can leave the economy at a standstill, requiring decisive intervention by the public sector (Eggertsson et al., 2016; DeLong & Summers, 2012).

Keynesian economists argue that, in contexts of a negative output gap and liquidity trap, expansionary fiscal policy, through increased public spending or tax cuts, becomes the most effective tool for reactivating economic activity. In these situations, the fiscal multiplier tends to be high, and public borrowing may be more sustainable due to low interest rates (Blanchard, 2019). In addition, in times of strong uncertainty, the State plays the role of an automatic stabilizer, temporarily replacing retracted private investment.

However, from the classical liberal or monetarist point of view, these interventions pose several risks. First, the difficulty of implementing truly countercyclical policies: what starts as a temporary stimulus can turn into structural spending that is difficult to reverse, fueling chronic deficits and fiscal sustainability problems. In addition, the efficiency of public spending is often questionable, and the accumulation of debt in periods of prosperity reduces room for manoeuvre in the face of future crises (Buchanan & Wagner, 1977; Barro, 1979).

Beyond fiscal sustainability, liberals also warn of the risk of excessive economic dependence on state stimulus, which can lead to distortions in resource allocation, loss of incentives in the private sector, and expectations of "permanent bailouts," especially in financial markets (Rogoff, 2010). In this theoretical framework, the role of the State should be limited to guaranteeing stable institutions, private property, low inflation and predictable frameworks, while economic dynamism should arise from entrepreneurship and private investment.

The tension between the two visions is not merely theoretical. In practice, many modern economies, even those with conservative governments, have implemented Keynesian expansionary policies in times of need, recognizing their short-term effectiveness. But it is also

true that, once the crisis is over, there is often a lack of political will to roll back such policies, which fuels liberal criticism of their sustainability.

Another relevant axis of controversy in the field of monetary policy is the independence of central banks. In theory, its autonomy from political power seeks to ensure that monetary decisions are made with a horizon of price stability and inflation control, free of electoral pressures or short-term partisan interests. This idea, strongly influenced by the monetarist tradition (Friedman, 1968), is based on the principle that a monetary policy subject to the political cycle can lead to persistent inflation, misallocation of resources and loss of international credibility.

The institutional architecture of that independence, however, varies significantly between countries. In some cases, such as in the case of the European Central Bank (ECB), mandates are constitutionally shielded and their presidents are chosen through complex procedures that require consensus between different member states. In others, such as the U.S. Federal Reserve, members of the board of governors are appointed by the U.S. president upon Senate confirmation, introducing a more visible dimension of political control, although long, staggered terms seek to preserve some continuity. In central banks in emerging countries, formal independence often contrasts with a reality where government pressures can influence key monetary policy decisions.

This institutional design has not escaped the debate. Proponents argue that independent central banks have contributed significantly to macroeconomic stability since the 1990s, especially by avoiding runaway inflation and keeping expectations anchored. In addition, their credibility is seen as a crucial asset in managing both economic cycles and crisis episodes.

Its critics, however, raise growing objections. From a more democratic or institutionalist perspective, it questions the extent to which it is legitimate for unelected institutions, led by technocrats, to make decisions that directly affect the employment, investment and living conditions of millions of people. Especially after the 2008 financial crisis and the subsequent pandemic, central banks have taken on much broader functions, such as the massive purchase of financial assets or the provision of liquidity to entire sectors, which position them de facto as quasi-fiscal actors, without corresponding political accountability (Tooze, 2021).

Also from a Keynesian perspective, it has been suggested that closer coordination between monetary and fiscal policy could improve the effectiveness of both, especially in contexts of low growth, contained inflation and the need for public investment. But this is in

tension with the institutional design in force in many countries, which sharply separates the two spheres under the argument of avoiding interference.

Should the strict independence of central banks then be maintained? Or adapt to a new economic and political environment, where they are required to act beyond the control of inflation? As in other aspects of the economic debate, there is no single answer. The dilemma reflects opposing visions on the role of the State, the balance between technical efficiency and democratic legitimacy, and the distribution of economic power.

6. Conclusions

This paper has tried to answer a fundamental question, but often neglected in public debate, that is, to understand how monetary policies affect private investment. The answer, far from being simple or unique, is deeply nuanced. At the aggregate level, monetary policy influences investment through known channels, the cost of credit, expectations, liquidity conditions, but its real impact ultimately depends on the financial, sectoral and institutional structure of each economy.

In contexts of low interest rates and expansionary monetary conditions, many companies see their financial constraints eased, which encourages new investments, especially in those with high productivity, but little access to credit. However, as has been shown, these same policies can have counterproductive effects if they are excessively prolonged or not accompanied by structural reforms: they can perpetuate inefficient firms, distort capital allocation, and generate asset bubbles. In this sense, monetary policy acts like a scalpel: effective if it is applied precisely, but risky if it becomes the only instrument of stabilization.

At the sectoral and territorial level, the analysis has shown that not all companies or regions respond in the same way. Heterogeneity in the financing structure, dependence on bank credit or sensitivity to interest rates generates asymmetric effects, even within the same monetary union. This has been evident in the case of Europe, where a common monetary policy has had divergent impacts between countries with very different production structures. In economies such as Spain, with a high proportion of SMEs and bank dependence, monetary policy takes on a more decisive, although also more fragile, role in investment dynamics.

From the theoretical level, the work has recovered the tensions between the Keynesian approach, which justifies an active and discretionary intervention to stabilize the economy, and monetarism, which defends clear and predictable rules to avoid distortions. Both approaches provide valid elements, and in practice, contemporary monetary policy combines instruments from both worlds. There is, therefore, no universal recipe or a closed regulatory model.

What does seem clear is that understanding how monetary policy operates on private investment, and how this relationship varies depending on the context, is crucial to anticipate the effects of central bank decisions. Moreover, it is necessary knowledge for citizens to understand where the economy is headed, even when the tools that drive it are handled from technical and often opaque spheres.

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8. List of tools and resources

ChatGPT

Used for optimising wording, improving text structure and checking spelling and grammar throughout the document. Also used to clarify complex economic concepts and suggest more precise vocabulary in both English and Spanish.

Commands: “Check the following text for spelling and grammar errors”, “Rewrite the following paragraph for better clarity”, “Summarise the following text”, “Explain the following concept in simpler terms”.

When using AI-supported writing tools as described above, I always worked in a controlling manner, reviewing, editing, and verifying all AI-generated outputs.

Microsoft Word

Used for drafting, editing, and formatting the entire document. This included applying citation styles, creating the bibliography, structuring headings and subheadings, and inserting tables and figures. Word’s built-in spell-check and track changes functions were also used to ensure accuracy and maintain a clear revision history of the text.

Google Chrome

Used as the main web browser to conduct online searches for academic and official economic information, particularly on monetary policy frameworks in different countries. It facilitated direct access to institutional websites such as the European Central Bank, the Federal Reserve, and the Bank of Japan, as well as relevant statistical portals and news outlets.

Google Scholar

Used to search for, access, and reference peer-reviewed academic articles, working papers, and books related to the topic of monetary policy. It was particularly useful for identifying highly cited authors and key literature in the field, as well as finding alternative access points (open-access versions) for otherwise paywalled documents.

Almena – Biblioteca de la Universidad de Valladolid

Used to log in to the university's digital library system and gain access to licensed academic databases, journals, and e-books not freely available on the internet. This resource allowed the consultation of complete works from publishers such as Oxford University Press, Cambridge University Press, and Elsevier, as well as specialised economic and financial databases relevant to the research.