

THE ROLE OF MONETARY POLICY IN PROMOTING GREEN FINANCE IN VIET NAM

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ABSTRACT

In the context of increasing climate-related risks and the global transition toward low-carbon development, green finance plays a crucial role in directing capital flows toward sustainable sectors. In Viet Nam, achieving net-zero emissions by 2050 requires not only the expansion of green financial instruments but also the effective alignment of macroeconomic policies with long-term sustainability objectives. While existing studies primarily focus on fiscal policy and environmental regulation, the role of monetary policy in promoting green finance remains insufficiently explored, particularly in bank-based financial systems. This paper argues that the role of monetary policy in promoting green finance should be understood through its influence on the monetary transmission mechanism, especially its impact on credit allocation and risk pricing. The study develops a conceptual framework in which the degree of climate risk internalization determines how monetary policy affects the distribution of credit between green and carbon-intensive sectors. The analysis shows that when climate risk is not fully incorporated into financial decision-making, monetary transmission may reinforce distortions in credit allocation, thereby constraining the development of green finance. Conversely, stronger integration of climate risk activates the risk channel and supports a gradual reallocation of credit toward sustainable activities. Drawing on international experience and the case of Viet Nam, the paper highlights that the key challenge is not expanding the mandate of monetary policy, but restructuring the transmission mechanism to reflect long-term climate risks. This approach provides a mechanism-based perspective on how monetary policy can indirectly support the development of green finance in emerging, bank-dependent economies.

Keywords: Monetary policy, climate risk, transmission mechanism, risk channel, credit allocation, green finance.

1. INTRODUCTION

In recent years, climate change has increasingly been recognized not only as an environmental issue but also as a systemic source of financial risk [2], [3]. Climate-related risks, including both physical risks arising from extreme weather events and transition risks associated with the shift toward a low-carbon economy, have profound implications for financial stability. These risks can affect asset valuation, increase credit risk, and disrupt financial intermediation, thereby influencing the effectiveness of macroeconomic policies, particularly monetary policy.

At the same time, green finance has emerged as a critical mechanism for directing capital flows toward environmentally sustainable and low-emission activities [1]. In the context of Viet Nam, the government's commitment to achieving net-zero emissions by 2050 requires a substantial expansion of green credit and other sustainable financial instruments. However,

despite the growing importance of green finance, existing studies have largely focused on fiscal policy measures, carbon pricing mechanisms, and environmental regulatory frameworks. The role of monetary policy in this process remains relatively underexplored [4].

This gap becomes particularly relevant when climate risks are not fully internalized within the financial system. In such a context, the monetary transmission mechanism may lead to distortions in credit allocation, as capital continues to flow toward carbon-intensive sectors due to mispriced long-term risks.

In this study, we argue that the role of monetary policy in promoting green finance should be understood as an indirect mechanism that shapes credit allocation through the monetary transmission process.

2. LITERATURE REVIEW

The relationship between monetary policy and the real economy has traditionally been analyzed through the lens of the monetary transmission mechanism. Early contributions by Mishkin [5] and the Bank of England [6] identify several key channels through which monetary policy affects economic activity, including the interest rate channel, the credit channel, and the expectations channel. In bank-based financial systems, the credit channel plays a particularly important role, as banks act as the primary intermediaries that transmit policy signals to borrowers. This line of research highlights that the effectiveness of monetary policy depends not only on policy instruments but also on the behavior of financial intermediaries and the structure of the financial system.

Building on this foundation, a growing body of literature has examined the role of financial frictions and risk in shaping the transmission mechanism. Studies on bank lending behavior emphasize that credit allocation is influenced by risk perceptions, balance sheet constraints, and regulatory frameworks. In this context, changes in risk assessment can alter the distribution of credit across sectors, thereby affecting both macroeconomic outcomes and financial stability. However, most of this literature has focused on conventional sources of risk, such as default risk and liquidity risk, without explicitly incorporating environmental or climate-related factors.

In parallel, the literature on climate finance has expanded rapidly in response to increasing awareness of climate-related risks. Research by Bolton et al. [2] and the Network for Greening the Financial System (NGFS) [3] demonstrates that climate risks can have significant implications for asset pricing, bank balance sheets, and systemic stability. These studies distinguish between physical risks, which arise from climate-related disasters, and transition risks, which result from policy, technological, and market changes associated with the shift toward a low-carbon economy. Importantly, they show that the failure to internalize climate risk can lead to the mispricing of assets and the accumulation of climate-related financial vulnerabilities.

More recently, an emerging strand of literature has begun to explore the role of central banks in addressing climate-related challenges. This includes discussions on whether and how monetary policy frameworks should incorporate climate considerations. Two broad approaches can be identified. The first approach focuses on integrating climate risk into existing policy frameworks, including collateral policies, asset purchase programs, and supervisory practices. This risk-based approach aims to improve market functioning by ensuring that risk is properly priced. The second approach advocates a more proactive role for central banks, using targeted instruments such as green refinancing facilities or credit guidance to support environmentally sustainable investments [4].

Despite these developments, the existing literature exhibits several important limitations. First, much of the research remains descriptive or policy-oriented, focusing on institutional design rather than the underlying mechanisms through which monetary policy interacts with climate risk. Second, there is a lack of a unified analytical framework that explicitly links climate risk to the monetary transmission mechanism. In particular, the role of the risk channel and bank behavior in mediating this relationship has not been systematically examined. Third, the implications of these interactions for credit allocation, especially in bank-based economies, remain insufficiently understood.

These gaps are particularly relevant for emerging economies such as Viet Nam, where the financial system is heavily reliant on bank credit and where climate risks are likely to have significant macro-financial implications. In such contexts, the way in which banks internalize climate risk can play a decisive role in determining the effectiveness of monetary policy and the allocation of financial resources.

Against this backdrop, this paper contributes to the literature by developing a mechanism-based framework that integrates climate risk into the monetary transmission process. The analysis emphasizes the role of risk pricing and bank behavior in shaping credit allocation between green and carbon-intensive sectors. By doing so, it provides a conceptual link between monetary policy and the development of green finance, not through direct policy mandates, but through the restructuring of the transmission mechanism under climate risk.

Thus, the main gap in the literature is not the lack of studies on either monetary policy or green finance, but the absence of a mechanism-based approach that connects these two fields through the monetary transmission process, particularly via the risk channel and bank behavior.

3. THEORETICAL FRAMEWORK

3.1. Monetary transmission in bank-based economies

The monetary transmission mechanism describes the process through which monetary policy affects real economic activity and financial conditions. In standard macroeconomic frameworks, this mechanism operates through several channels, including the interest rate channel, the credit channel, the asset price channel, and the expectations channel. While these channels coexist, their relative importance depends on the structure of the financial system [5], [6].

In bank-based economies, where financial intermediation is dominated by the banking sector, the credit channel plays a central role. Banks act as key intermediaries that translate policy signals into lending decisions, thereby influencing investment and consumption. As a result, the effectiveness of monetary policy is closely tied to bank behavior, balance sheet conditions, and lending standards.

From this perspective, monetary transmission is not merely a macroeconomic adjustment process driven by changes in interest rates. Rather, it is a mediated process in which financial intermediaries actively shape the allocation of credit across sectors. This implies that any factor affecting bank risk assessment or portfolio decisions can significantly alter the transmission of monetary policy.

This structural role of banks provides the foundation for analyzing how climate risk interacts with the transmission mechanism.

3.2. Climate risk as a financial risk factor

Climate risk introduces a new dimension into the analysis of financial intermediation and monetary transmission. Unlike traditional risk factors, climate risk encompasses both physical

risks, such as natural disasters, and transition risks associated with policy and technological changes. These risks can affect firms' expected cash flows, asset values, and default probabilities.

When climate risk is not fully incorporated into financial decision-making, asset prices may not accurately reflect long-term risks. This mispricing can lead to an over-allocation of credit to carbon-intensive sectors, thereby creating structural distortions in the financial system. In this sense, the failure to internalize climate risk represents a form of risk-pricing inefficiency rather than merely an environmental externality.

Conversely, when climate risk is properly internalized, it alters the relative risk-return profile of different sectors. This leads to a reallocation of credit toward less risky, more sustainable activities. Therefore, the extent to which climate risk is incorporated into financial decisions becomes a key determinant of how the financial system responds to policy signals.

These characteristics suggest that climate risk should be incorporated directly into the transmission framework.

3.3. Monetary transmission under climate risk

Building on the previous sections, the monetary transmission mechanism under climate risk can be understood as a system in which policy effects are mediated through financial intermediaries and credit allocation.

To better illustrate this mechanism, Figure 1 presents an integrated framework that links monetary policy, climate risk, bank behavior, and credit allocation within a unified transmission mechanism.

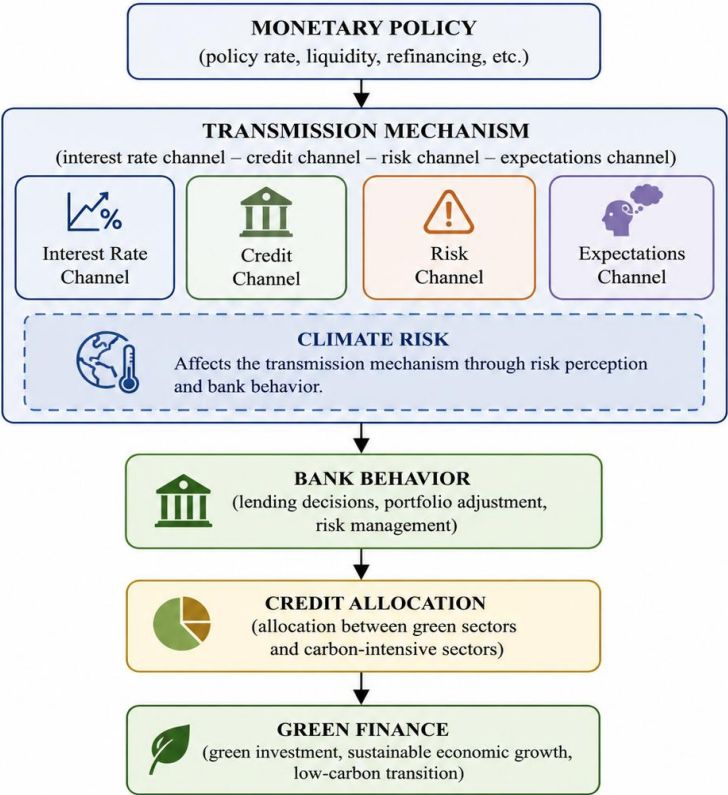


Figure 1. Monetary transmission mechanism under Climate risk.

Source: Author's own elaboration based on standard monetary transmission theory [5], [6] and climate finance literature [1], [2].

As shown in Figure 1, monetary policy affects the economy through the transmission mechanism, which determines how credit is allocated across sectors. Rather than directly influencing the real economy, policy signals are transmitted through financial intermediaries, particularly banks, whose lending decisions shape the distribution of credit between green and carbon-intensive activities.

In this framework, climate risk is embedded within the transmission mechanism by affecting both the risk channel and bank behavior. Through this channel, climate risk affects both the pricing of assets and the behavior of banks in adjusting their lending portfolios. As a result, the effectiveness of monetary policy depends on how climate risk is internalized within the financial system.

When climate risk is not adequately incorporated, the transmission mechanism may reinforce distortions in credit allocation, allowing capital to continue flowing toward carbon-intensive sectors. Conversely, when climate risk is properly reflected in financial decision-making, the transmission mechanism can support a gradual reallocation of credit toward more sustainable activities.

3.4. The role of the risk channel and bank behavior

A central contribution of this framework is to highlight the interaction between the risk channel and bank behavior as the core mechanism through which monetary policy influences green finance.

The risk channel operates by translating information about climate risk into risk premia, lending standards, and asset prices. When banks incorporate climate risk into their credit assessments, they adjust interest rates, collateral requirements, and loan allocation accordingly. This process affects the relative cost of capital across sectors.

At the same time, banks actively manage their portfolios in response to both policy signals and risk considerations. Portfolio rebalancing decisions determine how credit is distributed between green and brown sectors. These decisions are influenced by regulatory requirements, profitability considerations, and risk management practices.

The interaction between these two elements: risk pricing and bank behavior - forms the core transmission mechanism under climate risk. Without the activation of the risk channel, changes in monetary policy are unlikely to produce meaningful shifts in credit allocation toward sustainable activities.

3.5. A simple model of bank lending under climate risk

To formalize the above intuition, consider a simplified model in which a representative bank allocates total credit L between two sectors: a green sector L_g and a carbon-intensive (brown) sector L_b , such that:

$$L = L_g + L_b$$

The bank maximizes expected profit:

$$\Pi = (r_g - c - \theta_g)L_g + (r_b - c - \theta_b)L_b$$

where r_g and r_b denote lending rates, c is the cost of funds influenced by monetary policy, and θ_g, θ_b represent expected losses associated with each sector.

Climate risk is incorporated into the model through the expected loss of the carbon-intensive sector:

$$\theta_b = \theta_b^0 + \phi$$

where $\phi \geq 0$ captures the degree of climate risk internalization.

When ϕ is high, the expected loss of brown assets increases, making them less attractive relative to green assets. As a result, the bank reallocates credit toward the green sector. Conversely, when $\phi \approx 0$, climate risk is not reflected in lending decisions, leading to potential overexposure to carbon-intensive activities.

Monetary policy affects this allocation through two channels. First, it influences the overall cost of funds c , thereby affecting total lending. Second, it interacts with ϕ by shaping how risk is priced within the financial system. Policies that enhance risk internalization effectively increase ϕ , strengthening the risk channel.

This model provides a simple representation of how climate risk modifies the transmission mechanism and influences credit allocation.

3.6. Policy configurations and transmission outcomes

The framework also allows for the interpretation of different policy approaches as alternative configurations of the transmission mechanism.

A risk-based approach, as observed in the European Central Bank, aims to increase ϕ by improving risk pricing through supervisory measures, collateral frameworks, and asset purchases. In this case, credit reallocation occurs through market mechanisms.

In contrast, a credit-guided approach, such as that implemented by the People's Bank of China, directly influences credit allocation through targeted instruments, effectively bypassing the need for full risk internalization.

These two approaches illustrate that the transmission mechanism is not fixed but can be shaped by policy design [7], [8]. The key distinction lies in whether policy operates by strengthening the risk channel or by directly intervening in the credit channel.

3.7. Implications for green finance

From the perspective of this framework, green finance should be understood as an outcome of the transmission mechanism rather than a direct policy objective. The development of green finance depends on whether the financial system can effectively internalize climate risk and translate it into credit allocation decisions.

The role of monetary policy in promoting green finance is therefore indirect, operating through the restructuring of the transmission mechanism under climate risk, particularly via the activation of the risk channel and changes in bank behavior.

4. INTERNATIONAL EXPERIENCE AND THE CASE OF VIET NAM

4.1. Risk-based approach: the case of the European Central Bank

In recent years, the European Central Bank (ECB) has adopted a risk-based approach to integrating climate considerations into monetary policy and financial supervision. The central premise of this approach is that climate risk should be treated as a financial risk and therefore incorporated into existing policy frameworks rather than addressed through the expansion of policy mandates.

In practice, this approach has been implemented through several channels. First, the ECB has adjusted its collateral framework by incorporating climate-related risk considerations into eligibility criteria and haircuts. Second, climate risk has been gradually integrated into asset purchase programs, influencing the composition of central bank balance sheets. Third, supervisory tools such as climate stress testing and disclosure requirements have been introduced to enhance risk transparency and resilience in the banking system.

From the perspective of the theoretical framework developed in this paper, the ECB's approach can be interpreted as an attempt to increase the degree of climate risk internalization, denoted by ϕ . By improving risk pricing and information disclosure, these measures aim to ensure that climate risk is reflected in lending conditions and asset valuations. As ϕ increases, the risk channel becomes more effective, leading to a gradual reallocation of credit away from carbon-intensive sectors and toward greener activities.

Importantly, this process occurs primarily through market-based mechanisms rather than direct intervention in credit allocation. As a result, the ECB's approach emphasizes consistency with the traditional mandate of monetary policy, while indirectly supporting the development of green finance through improved transmission dynamics.

4.2. Credit-guided approach: the case of the People's Bank of China

In contrast to the ECB, the People's Bank of China (PBoC) has adopted a more interventionist approach, using monetary policy as a tool to directly influence credit allocation [8]. This approach reflects the structural characteristics of China's financial system, where state influence over the banking sector allows for more targeted policy implementation.

Key instruments include green refinancing facilities, preferential interest rates for environmentally friendly projects, and explicit credit guidance to financial institutions. These measures reduce the cost of capital for green investments and incentivize banks to expand lending to targeted sectors.

From the perspective of the model, the Chinese approach can be interpreted as partially bypassing the need for full climate risk internalization. Instead of relying on an increase in ϕ to adjust credit allocation, policy directly influences the distribution of credit through administrative or quasi-administrative measures. In this sense, the credit channel is activated independently of the risk channel.

While this approach can produce faster and more visible shifts in credit allocation, it also raises concerns about potential distortions. Direct intervention may lead to inefficiencies if credit is allocated based on policy priorities rather than underlying risk-return considerations. Therefore, the effectiveness of this approach depends on the alignment between policy objectives and economic fundamentals.

4.3. Comparing transmission configurations

The comparison between the ECB and China highlights two distinct configurations of the monetary transmission mechanism under climate risk.

The ECB's risk-based approach operates by strengthening the risk channel. It relies on market mechanisms to reprice risk and adjust credit allocation gradually. This approach is consistent with a framework in which monetary policy remains neutral with respect to sectoral allocation, while ensuring that risks are properly reflected in financial decisions.

In contrast, the Chinese approach operates by directly influencing the credit channel. It allows for more rapid adjustments in credit allocation but may introduce distortions if not carefully calibrated. In this configuration, the role of risk pricing is secondary to policy-driven credit allocation.

These differences illustrate that the monetary transmission mechanism is not a fixed structure but can be shaped by policy design. The key distinction lies in whether policy acts by increasing ϕ through improved risk internalization, or by directly reallocating credit independently of ϕ .

4.4. The Vietnamese context: structural characteristics

Viet Nam's financial system is characterized by a high dependence on bank credit, with banks serving as the primary channel for financial intermediation. In such a system, the credit channel dominates the transmission mechanism, while the role of capital markets and asset price signals remains relatively limited.

This structural feature implies that the effectiveness of monetary policy depends heavily on bank behavior and lending practices. It also means that any distortion in risk pricing can have system-wide implications for credit allocation.

At the same time, Viet Nam faces increasing exposure to climate-related risks, both physical and transitional. These risks are likely to affect key sectors of the economy, including agriculture, manufacturing, and energy. However, the integration of climate risk into the financial system remains at an early stage.

4.5. Green finance and climate risk integration in Viet Nam

Despite growing policy attention, the development of green finance in Viet Nam remains limited [9]. According to data released by the State Bank of Viet Nam [9], green credit accounts for approximately 4.5% of total outstanding loans at end-2023, indicating that the scale of green finance is still relatively small compared to the overall credit market.

Furthermore, the green bond market remains underdeveloped, with limited issuance and weak price signals. As a result, the asset price channel plays only a minor role in directing capital toward sustainable activities.

More importantly, climate risk is not yet fully incorporated into bank lending decisions. Risk assessment frameworks, disclosure practices, and data availability remain insufficient to capture the long-term implications of climate change. Consequently, lending conditions do not adequately reflect differences in climate-related risk across sectors.

In terms of the theoretical model, this situation can be characterized by a low level of climate risk internalization, that is, $\phi \approx 0$. Under this condition, the risk channel is effectively inactive, and the transmission mechanism is unable to correct distortions in credit allocation.

4.6. Transmission gaps in Viet Nam

Based on the above analysis, three main gaps in the monetary transmission mechanism can be identified.

First, there is a risk-pricing gap, as climate risk is not adequately reflected in lending rates and credit conditions. This prevents the risk channel from functioning effectively.

Second, there is a policy instrument gap, as existing monetary tools are not specifically designed to influence credit allocation in line with climate objectives.

Third, there is a market development gap, as the limited size of green financial markets weakens the asset price channel and reduces the role of market-based signals.

These gaps are interrelated and collectively contribute to the persistence of inefficient credit allocation. In terms of the model, they reflect a situation in which ϕ remains low, preventing the transmission mechanism from responding to climate-related risks.

4.7. Comparative assessment and implications

Positioning Viet Nam within the spectrum defined by the ECB and China reveals that it currently lies between the two models without fully benefiting from either.

On the one hand, Viet Nam has not yet developed the institutional and market conditions necessary to implement a fully risk-based approach. On the other hand, it has not adopted sufficiently strong policy instruments to directly guide credit allocation.

As a result, the transmission mechanism remains only partially effective in addressing climate-related challenges. The risk channel is underdeveloped, and the credit channel is not actively leveraged to support green finance.

The main challenge for Viet Nam is not the lack of policy objectives, but the absence of an effective mechanism to internalize climate risk and translate it into credit allocation decisions.

5. POLICY IMPLICATIONS

5.1. A mechanism-based approach to monetary policy and green finance

The analysis presented in this paper suggests that the role of monetary policy in promoting green finance should be understood through the restructuring of the monetary transmission mechanism, rather than through the expansion of policy mandates. In particular, policy effectiveness depends on whether climate risk is adequately internalized within the financial system and reflected in credit allocation decisions.

From this perspective, the primary objective of policy is to increase the degree of climate risk internalization, denoted by ϕ , thereby activating the risk channel. When ϕ increases, banks adjust lending conditions and portfolio allocation in response to risk, leading to a gradual reallocation of credit toward more sustainable sectors.

This implies that the key policy challenge is not to directly promote green finance as an independent objective, but to ensure that financial decisions reflect long-term risks. In other words, green finance should emerge as an outcome of a well-functioning transmission mechanism under climate risk.

Effective policy is not about intervening more, but about ensuring that risk is priced correctly.

5.2. Integrating climate risk into financial supervision

A necessary condition for activating the risk channel is the integration of climate risk into financial supervision and risk management practices. This includes the development of climate stress testing frameworks, the introduction of mandatory disclosure requirements, and the incorporation of climate-related factors into credit risk assessment models.

These measures enhance the ability of financial institutions to identify, measure, and manage climate-related risks. As a result, they contribute directly to increasing ϕ , allowing risk considerations to influence lending decisions.

In the Vietnamese context, strengthening supervisory frameworks is particularly important, given the current lack of standardized methodologies and data for assessing climate risk. Without such improvements, the risk channel cannot function effectively, regardless of other policy interventions.

Without proper risk integration, other policy tools will have limited and potentially short-lived effects.

5.3. Conditional monetary instruments and the credit channel

While improving risk pricing is essential, it may not be sufficient in the short term, especially in financial systems where ϕ remains low. In such cases, targeted monetary instruments can play a complementary role by directly influencing the credit channel.

Examples include green refinancing facilities, preferential interest rates for sustainable projects, and conditional liquidity support linked to environmental criteria. These instruments reduce the cost of capital for green investments and provide incentives for banks to adjust their lending behavior.

However, these tools should be designed carefully to avoid creating new distortions. In particular, they should not replace market-based risk pricing, but rather serve as transitional mechanisms that support the development of green finance while the risk channel is being strengthened.

From the perspective of the model, this approach resembles the credit-guided strategy observed in China, where policy can influence credit allocation even when ϕ is not fully internalized.

Credit-based interventions can accelerate change, but cannot substitute for a properly functioning risk channel in the long run.

5.4. Developing green financial markets and the asset price channel

The development of green financial markets is another key element in strengthening the transmission mechanism. In particular, expanding the green bond market and improving the standardization of green financial instruments can enhance price discovery and liquidity.

A more developed market for green assets allows risk to be reflected in asset prices, thereby reinforcing the risk channel. In terms of the model, this contributes indirectly to increasing ϕ , as market signals provide additional information for risk assessment.

In Viet Nam, the limited size of the green bond market constrains the role of the asset price channel. Therefore, policies aimed at market development - such as establishing green taxonomies, improving disclosure standards, and encouraging institutional participation are essential.

Without credible price signals, the risk channel cannot operate effectively at the system level.

5.5. Managing expectations and policy communication

In addition to direct policy tools, expectations play an important role in shaping financial behavior. Clear and consistent policy communication can influence how market participants perceive future risks and opportunities.

By signaling a long-term commitment to sustainable finance, central banks and regulators can encourage banks and investors to incorporate climate considerations into their decision-making processes. This can lead to a gradual adjustment of lending and investment behavior, even before formal policy measures take full effect.

From the model perspective, the expectations channel supports the increase in ϕ by affecting forward-looking risk assessments. When expectations shift, the transmission mechanism can adjust more rapidly.

Changes in expectations can amplify the impact of policy by accelerating the internalization of climate risk.

5.6. Data infrastructure and institutional capacity

A fundamental constraint in integrating climate risk into the financial system is the lack of reliable data. Without adequate data on emissions, climate exposure, and environmental performance, it is difficult for financial institutions to assess risk accurately.

Developing a comprehensive data infrastructure, including standardized taxonomies and reporting frameworks, is therefore essential. This enables both regulators and market participants to measure and price climate risk more effectively.

In terms of the model, data availability is a prerequisite for increasing ϕ . Without data, risk cannot be quantified, and the transmission mechanism cannot be adjusted.

Data is not merely a technical requirement, but a structural condition for the functioning of the transmission mechanism under climate risk.

5.7. A phased implementation strategy

Given the current state of Viet Nam's financial system, a phased approach to policy implementation is necessary.

In the short term, priority should be given to building foundational elements, such as developing taxonomies, improving data collection, and initiating pilot programs for climate risk assessment.

In the medium term, policy tools can be expanded to include targeted monetary instruments and enhanced supervisory frameworks.

In the long term, the objective should be to establish a fully integrated transmission mechanism in which climate risk is systematically reflected in financial decisions.

From a dynamic perspective, this process can be understood as a gradual increase in ϕ , moving from a state of minimal risk internalization to one in which the risk channel plays a central role.

Policy sequencing is not only about timing, but about progressively strengthening the internalization of climate risk within the financial system.

5.8. Illustrative case: green credit in Viet Nam

According to data released by the State Bank of Viet Nam [9], green credit has been primarily directed toward renewable energy and sustainable agriculture, approximately 4.5% of total outstanding loans at end-2023.

This example reflects a situation in which the degree of climate risk internalization remains low, thereby limiting the effectiveness of the risk channel. Consequently, the monetary transmission mechanism is unable to induce a substantial reallocation of credit toward green sectors, consistent with the theoretical framework developed in this paper.

6. CONCLUSION

This paper has examined the role of monetary policy in promoting green finance from a mechanism-based perspective, focusing on how climate risk reshapes the monetary transmission process. By developing an integrated analytical framework linking monetary policy, climate risk, bank behavior, and credit allocation, the study highlights that climate risk is not merely an external factor but a structural element that can alter the effectiveness of monetary transmission.

The analysis shows that when climate risk is not adequately internalized, the transmission mechanism may reinforce distortions in credit allocation, as financial institutions continue to allocate resources toward carbon-intensive sectors based on mispriced short-term returns. In contrast, when climate risk is incorporated into financial decision-making, the risk channel becomes active, leading to adjustments in lending behavior and a gradual reallocation of credit toward sustainable activities.

From a theoretical standpoint, this difference can be captured by the degree of climate risk internalization, denoted by ϕ . A higher level of ϕ implies that risk is more accurately reflected in lending conditions and asset prices, thereby enhancing the responsiveness of the financial system to policy signals. In this sense, the effectiveness of monetary policy under climate risk depends critically on the activation of the risk channel and the behavior of financial intermediaries.

The comparison of international experiences further illustrates that central banks can influence green finance through different configurations of the transmission mechanism. While the European Central Bank focuses on increasing ϕ through improved risk pricing and supervision, the People's Bank of China relies on direct interventions in the credit channel to achieve faster reallocation of financial resources. These approaches highlight the trade-off between market-based adjustments and policy-driven allocation.

In the case of Viet Nam, the analysis suggests that climate risk remains weakly integrated into the financial system, corresponding to a situation in which $\phi \approx 0$. As a result, the risk channel is underdeveloped, and the monetary transmission mechanism is not yet capable of effectively supporting the development of green finance. This finding implies that the main challenge is not the absence of policy objectives, but the lack of an effective mechanism to translate those objectives into financial decisions.

From a policy perspective, the paper argues that efforts to promote green finance should focus on restructuring the transmission mechanism rather than expanding the formal mandate of monetary policy. This involves strengthening risk pricing, enhancing supervisory frameworks, developing green financial markets, and improving data infrastructure. Together, these measures can increase ϕ and enable the financial system to internalize climate risk more effectively.

Ultimately, the role of monetary policy in promoting green finance lies not in direct intervention, but in shaping the conditions under which financial markets allocate capital in the presence of climate risk.

Finally, this study opens several avenues for future research. Empirical work using bank-level data could test the relationship between climate risk, credit allocation, and monetary transmission. In addition, macro-financial models incorporating climate risk could provide further insights into the dynamic interactions between policy, risk, and financial stability.

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