

A COMPARATIVE ANALYSIS OF MACROECONOMIC IMPACTS, MARKET PSYCHOLOGY, AND STRATEGIC IMPLICATIONS OF DIGITALISE REDENOMINATION IN INDONESIA

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Abstract. *Economic stability and banking efficiency, responding to the strategic discourse of the Indonesian Ministry of Finance as outlined in Minister of Finance Regulation (PMK) Number 70 of 2025. The main objective of this study is to analyse the determinants of redenomination success through a synthesis of the economic theories of Signalling, Menu Costs, and Money Illusion, as well as to fill the research gap related to the integration of this policy with Central Bank Digital Currency (CBDC). Using a systematic Narrative Review methodology, this study synthesises data from eight countries with extreme results: Turkey, Brazil, and Poland (successful); Ghana and Sierra Leone (mixed/risk); and Zimbabwe, Venezuela, and North Korea (total failure). The analysis shows that redenomination only succeeds in improving banking technical efficiency and lowering inflation expectations when implemented after macroeconomic stabilisation, not as a crisis solution. The main finding of this study is the empirical validation that "virtual" transition mechanisms, such as the Unit of Real Value (URV) in Brazil, can be adopted through the concept of "Digitalise Redenomination" using the Digital Rupiah in Indonesia to mitigate money illusion and menu costs.*

Keywords: *Banking Efficiency, Digitalise Redenomination, Redenomination, Signaling Theory.*

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Abstrak. Stabilitas ekonomi dan efisiensi perbankan, sebagai respons terhadap diskursus strategis Kementerian Keuangan Indonesia yang tertuang dalam Peraturan Menteri Keuangan (PMK) Nomor 70 Tahun 2025. Tujuan utama studi ini adalah menganalisis faktor-faktor penentu keberhasilan redenominasi melalui sintesis teori-teori ekonomi tentang Signalling, Menu Costs, dan Money Illusion, serta mengisi kesenjangan penelitian terkait integrasi kebijakan ini dengan Mata Uang Digital Bank Sentral (CBDC). Menggunakan metodologi Narrative Review sistematis, studi ini mensintesis data dari delapan negara dengan hasil ekstrem: Turki, Brasil, dan Polandia (sukses); Ghana dan Sierra Leone (campuran/berisiko); serta Zimbabwe, Venezuela, dan Korea Utara (gagal total). Analisis menunjukkan bahwa redenominasi hanya berhasil meningkatkan efisiensi teknis perbankan dan menurunkan ekspektasi inflasi jika diterapkan setelah stabilisasi makroekonomi, bukan sebagai solusi krisis. Temuan utama studi ini adalah validasi empiris bahwa mekanisme transisi “virtual”, seperti Unit of Real Value (URV) di Brasil, dapat diadopsi melalui konsep “Digitalise Redenomination” menggunakan Digital Rupiah di Indonesia untuk mengurangi ilusi uang dan biaya menu.

Kata Kunci: Efisiensi Perbankan, Digitalisasi Redenominasi, Redenominasi, Teori Sinyal.

INTRODUCTION

Money, in its most fundamental social and economic construction, is not merely a medium of exchange that facilitates trade, but rather an institution of trust that binds the social contract between the state and its citizens. When the nominal value of money loses its anchor to economic reality due to persistent inflation or uncontrolled hyperinflation, this foundation of trust begins to crack, creating cognitive distortions and transactional inefficiencies that paralyse real economic activity. In modern economic history, the phenomenon of currency erosion has forced monetary authorities around the world to take the radical step of redenomination an administrative and legal process of changing the nominal value of a currency by removing a number of zeros without changing its intrinsic value or real purchasing power (Mosley, 2005). Although theoretically often considered a neutral policy or merely an accounting "cosmetic surgery," empirical evidence from various countries shows that redenomination has a much more profound impact, operating

at the complex intersection of fiscal credibility, mass psychology, and institutional stability.

The background to this phenomenon is becoming increasingly relevant for Indonesia, given that the Ministry of Finance under Minister Purbaya Yudhi Sadewa has issued Minister of Finance Regulation (PMK) Number 70 of 2025 concerning the Ministry of Finance's Strategic Plan for 2025-2029. In this regulation, the completion of the Draft Law (RUU) on the Change in the Value of the Rupiah (Redenomination) is targeted for completion in 2027 as part of financial sector reform. This urgency is driven by the fact that the Rupiah currently has the second-largest denomination in the world, which creates a massive computational burden on the banking information technology system, inefficiencies in accounting records, and a perception of an uncompetitive exchange rate in the global arena (Lianto & Suryaputra, 2012). However, extreme divergence in outcomes at the global level from the successes of Turkey and Brazil to the catastrophic failures in Zimbabwe and Venezuela calls for caution in designing this policy.

A review of previous literature reveals that the success of this policy is highly dependent on how economic agents respond to the policy signal. *Signalling- s Theory* argues that the government uses redenomination as *a costly signal* to demonstrate its commitment to a new low-inflation regime. If this signal is believed by economic agents acting under *Rational Expectations*, inflation expectations will fall, creating price stability. However, if the government's fiscal track record is poor, the market will ignore the signal, as has happened in cases of repeated failures in Latin America and Africa. On the other hand, the *Money Illusion* theory highlights a cognitive bias in which people tend to focus on nominal rather than absolute values, which can trigger suboptimal consumption patterns after redenomination (Dzokoto et al., 2010). Furthermore, the *Menu Costs* theory provides an efficiency justification, arguing that the costs of reprinting price lists and managing physical cash are deadweight losses that must be eliminated to improve the technical efficiency of banking (Tambalotti et al., 2006).

Although many studies have discussed the macroeconomic impact of redenomination, there is a significant *research gap* regarding the interaction between these classical theories and the realities of the contemporary digital economy. There is not much literature that comprehensively compares "successful" cases with "disastrous"

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cases in a framework that also considers the role of *Central Bank Digital Currency* (CBDC) as a distinguishing variable. This study aims to fill this gap by comparatively analysing the experiences of eight countries and synthesising them with the concept of "Digitalise Redenomination." Thus, this study is expected to provide a strong academic foundation for Indonesia's future redenomination strategy, answering the fundamental question of what prerequisites must be met for redenomination to be a catalyst for progress, rather than a trigger for economic decline.

METHODOLOGY

Accordance with the guidelines of Snyder (Snyder, 2019) and Green et al. (Green et al., 2006), this method was chosen for its ability to synthesise heterogeneous literature ranging from quantitative econometric studies to qualitative policy analysis in order to build a holistic theoretical bridge. The narrative approach allows for in-depth interpretation of the unique historical, political, and social contexts in each case study country, which are often determining variables for policy success but are overlooked in purely statistical meta-analyses.

Secondary data was collected through literature searches on reputable academic databases (Scopus, ScienceDirect, Google Scholar) and official documents from monetary authorities (Bank Indonesia, IMF, World Bank). Search keywords included "*currency redenomination*," "*banking efficiency*," "*money illusion*," "*CBDC*," "*signalling theory*," and "*redenomination impact*." Inclusion criteria covered journal articles discussing the economic impact, banking efficiency, and behavioural aspects of currency changes in developing and developed countries.

Data analysis techniques were conducted through comparative thematic synthesis. Findings from eight countries (Turkey, Brazil, Poland, Ghana, Sierra Leone, Zimbabwe, Venezuela, North Korea) were classified based on policy outcomes (successful, mixed, failed). The analysis was then conducted by mapping each case into the main economic theory framework: *Signalling Theory* for credibility, *Menu Costs* for operational efficiency, and *Money Illusion* for behavioural impact. The validity of the findings was reinforced by triangulating data sources between government reports and independent analyses from international institutions.

RESULT AND DISCUSSION

Result

Based on a synthesis of historical and economic data, this study maps eight countries into a comparative matrix to identify patterns of causality between policy mechanisms and economic outcomes. The following table presents a comprehensive summary of these findings.

Table 1. Comprehensive Comparison of the Impact of Currency Redenomination in 8 Countries

Country (Year)	Zero Reduction Ratio	Key Mechanism & Economic Context	Long-Term Outcomes	Key Determinants (Economic Theory)
Turkey (2005)	6 Zeros (1 Million: 1)	Implemented after inflation fell to single digits. Supported by banking reforms and strict fiscal discipline after the 2001 crisis.	Success: Inflation stabilised, investor confidence recovered, and payment system efficiency improved.	<i>Signalling Theory:</i> Credible signals because fundamentals are strong (CBRT, 2005)
Brazil (1994)	Variable (via URV)	Used the Unit of Real Value (URV) as a transitional virtual currency to stabilise relative prices before physical money was issued.	Success: Ended inertial hyperinflation; <i>the Real</i> has been a stable currency to this day.	<i>Rational Expectations:</i> Breaking inflation expectations through value transparency (Bacha, 2003)
Poland (1995)	4 Zeros (10,000:1)	The final stage of the transition to a market economy. Implemented when inflation was still in double digits but trending downward, with the goal of EU accession.	Success: Full integration into the European economy, sustained decline in inflation.	<i>Inflation Targeting:</i> Redenomination as a nominal anchor (Mondschean & Opiela, 2000)
Ghana (2007)	4 Zeros (10,000:1)	Massive educational campaign "The Value is the Same". Initially	Mixed: Transaction efficiency was achieved, but exchange rates	<i>Money Illusion:</i> Initial euphoria eroded by weak

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Country (Year)	Zero Reduction Ratio	Key Mechanism & Economic Context	Long-Term Outcomes	Key Determinants (Economic Theory)
		successful from a technical standpoint.	became volatile again due to long-term fiscal indiscipline.	fundamentals (Dzokoto et al., 2010)
Sierra Leone (2022)	3 Zeros (1,000: 1)	Implemented amid global turmoil (Ukraine war, food inflation). Shortage of physical cash supply.	Risk/Failure: Inflation surged >50%, social unrest, and currency depreciation continued.	<i>Menu Costs:</i> Transition costs exacerbate the economic burden during a crisis (World Bank, 2023)
North Korea (2009)	2 Zeros (100:1)	Confiscatory: Limits the amount of old money that can be exchanged. Targets the wealth of private market traders.	Disaster: Loss of citizens' savings, market collapse, total <i>dollarisation</i> (yuanization) of the economy.	<i>Institutional Theory:</i> Violations of property rights destroy <i>trust</i> (Haggard & Noland, 2010)
Zimbabwe (2008)	10, 12 Zeros (Repeated)	Implemented amid active hyperinflation without stopping money printing to cover deficits.	Total Failure: Currency rejected by the market, switching to a multi-foreign currency system.	<i>Quantity Theory of Money:</i> Excess money supply negates the effects of redenomination (Hanke, 2008)
Venezuela (2018)	5, 6 Zeros (Repeated)	Cosmetic efforts amid sanctions and the collapse of oil production.	Failure: Hyperinflation persists, and currency loses its store of value function.	<i>Rational Expectations:</i> The public anticipates inflation, and prices adjust immediately (Iyer & Rodríguez, 2021)

Analysis of the above data reveals that the success of redenomination does not depend on "how many zeros are removed," but rather on the credibility of the institution carrying it out. From the perspective of *Signalling Theory*, Turkey and Poland were successful because redenomination was carried out as a "seal of victory" after

stabilisation. The signal sent by the government was that the crisis period had ended permanently. Economic agents responded to this signal by lowering their inflation expectations, which effectively stabilised prices. In contrast, in Zimbabwe and Venezuela, redenomination was carried out as *a desperate measure* in the midst of a crisis. Because it was not accompanied by a halt to money printing (monetisation of the deficit), rational markets interpreted this policy as a "weak signal." As a result, inflation expectations remained high, and prices quickly adjusted to the new nominal value, rendering the new currency obsolete within weeks.

Discussion

1. Microeconomic Efficiency and Menu Costs

From a microeconomic efficiency perspective, the *Menu Costs* theory has proven to be relevant but has two sides to it. In successful countries, nominal simplification significantly reduces banking and business operating costs, from IT data *storage* costs and cash counting time to physical space in ATMs. However, the case of Sierra Leone (World Bank, 2023) shows the dangers of "menu costs" at the wrong time. When redenomination is carried out during a period of high global inflation, the costs of adjusting prices and systems become an additional heavy burden for businesses. The shortage of small-denomination cash in Sierra Leone also triggered aggressive *rounding up* of prices by merchants, which in turn fueled supply-side inflation. This result confirms that logistical readiness and macroeconomic *timing* are crucial independent variables.

2. Money Illusion and Psychological Dynamics

The psychological aspect described by the *Money Illusion* theory is most clearly seen in the comparison between Brazil and Ghana. Brazil successfully managed the money illusion through the *Unit of Real Value* (URV) mechanism. By accustoming the public to using a stable virtual unit of account before issuing physical money, Brazil successfully "reprogrammed" the public's memory of inflation. In contrast, in Ghana, despite an education campaign, the money illusion led to changes in consumption behaviour where the public felt "richer" because nominal prices appeared small, contributing to demand-side inflationary pressure. The case of North Korea adds a dark institutional dimension: when redenomination is used as a tool for

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confiscating wealth (by limiting exchange), it violates the basic function of money as *a store of value*, resulting in a total loss of confidence and permanent *dollarisation*.

3. Proposal: Digital Redenomination via CBDC and Its Implementation

These findings provide a strong foundation for the proposed concept of "*Digitalise Redenomination*" for Indonesia. Recent analyses show that integrating redenomination with *Central Bank Digital Currency* (CBDC) or Digital Rupiah could be an optimal hybrid solution. In this context, the Digital Rupiah can function like the URV in Brazil but in a modern form as a stable and efficient anchor of value. The implementation of digital redenomination (through non-cash payment systems and CBDC) can minimise physical *menu costs* because it does not require large-scale printing of currency in the initial stages. In addition, transparency and audit trails in the CBDC *blockchain* system can increase policy credibility and prevent market speculation that often occurs in conventional redenomination. This synergy also addresses the challenge of banking technical efficiency; with a more concise denomination, the data processing burden on the national payment infrastructure (BI-RTGS, SKNBI) will be significantly reduced, increasing the speed and security of transactions in the digital economy era.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study concludes that currency redenomination is a high-risk economic intervention that only provides benefits if carried out on a solid macroeconomic foundation. Comparative analysis proves that: (1) Stability is a Prerequisite, Not a Result: Redenomination was successful in Turkey and Poland because inflation was already under control *before* the policy was executed; (2) Market Psychology is Crucial: Transition mechanisms such as Brazil's URV proved effective in mitigating *Money Illusion* and expectation *shocks*; and (3) Institutional Failure is Fatal: Without central bank independence and property rights guarantees (as in the cases of North Korea and Zimbabwe), redenomination only accelerates monetary collapse.

Recommendation

For the Indonesian government and Bank Indonesia, it is recommended to:

1. Adopting a Hybrid Model: Implement redenomination through the Digital Rupiah channel (*Digitalise Redenomination*) as a transitional phase to familiarise the public with the new valuation without causing logistical shocks to cash.
2. Wait for Global Momentum: Avoid implementing the policy amid high global uncertainty (learn from Sierra Leone), and ensure domestic inflation remains stable within the long-term target range (2-3%).
3. Strict Dual Pricing Regulations: Strictly enforce and monitor dual pricing requirements (old and new Rupiah) for at least 1-2 years to prevent inflation due to price *rounding up*.

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