

Early Warning Protective Measurement for the link exchange rate system in Hong Kong

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ABSTRACT

This comprehensive analysis investigates the mechanisms of early warning systems embedded within Hong Kong's Linked Exchange Rate System (LERS), a currency peg anchored by a currency board arrangement to sustain the Hong Kong dollar's exchange rate parity with the US dollar. The study delves into the operational framework of the currency board, elucidates the role of convertibility undertakings in maintaining monetary discipline, and explores the policy tools such as interest rate adjustments employed to preempt currency mismatches and speculative attacks. Furthermore, it examines the institutional oversight structures—including the Exchange Fund Advisory Committee and the Monetary Authority—that are tasked with monitoring systemic risks and implementing macroprudential safeguards. The discussion extends to strategic enhancements of the early warning system, emphasizing the integration of real-time market signals, financial market indicators, and advanced econometric models facilitated by modern technological innovations to improve predictive accuracy and policy responsiveness.

Keywords: Early Warning, Warning Mechanism, Self-correction in LERS, link exchange rate system.

Introduction:

Hong Kong's linked exchange rate system was severely attacked during the 1997 to 1998 Asian financial crisis, which led to an economic slowdown, a sharp decline in property prices, and a significant drop in overall economic activity, with GDP falling to a negative 5 percent in 1998. Therefore, in order to protect the linked exchange rate system—an essential task for maintaining Hong Kong's economic strength, stability, and long-term growth is important [1].

The linked exchange rate system, which maintains the Hong Kong dollar's parity against the US dollar within a narrow band, experienced substantial volatility and pressure during the 1997-

1998 Asian financial crisis. This period was characterized by sharp capital outflows, liquidity shortages, and a loss of market confidence, leading to a marked deterioration in external and internal economic conditions. The crisis precipitated an economic contraction, evidenced by a GDP decline of approximately 5 to nearly 6% in 1998, alongside a precipitous decline in property prices due to reduced demand and financial instability. The situation underscored the systemic importance of the linked exchange rate regime as a cornerstone of Hong Kong's monetary stability and financial integrity. Preserving this peg is essential to maintain investor confidence, prevent speculative attacks, and uphold macroeconomic stability, thereby supporting sustainable economic growth and resilience against external shocks [1][2].

Surrounding:

Since 1983, Hong Kong's Linked Exchange Rate System has pegged the Hong Kong dollar (HKD) to the US dollar (USD) using a robust currency board framework. It ensures exchange rate stability within a tight band through automatic tools and active interventions by the Hong Kong Monetary Authority (HKMA) [1]. In a volatile global financial landscape with fluctuating capital flows, prompt identification and handling of exchange rate risks are crucial [2][3].

Hong Kong has operated a Linked Exchange Rate System (LERS) for over 40 years, which pegs the Hong Kong dollar (HKD) to the US dollar (USD) within a tightly controlled fixed exchange rate regime underpinned by a currency board arrangement. This system ensures exchange rate stability by maintaining the HKD within a narrow trading band around a central parity, achieved through a combination of automatic monetary policy mechanisms and active foreign exchange interventions conducted by the Hong Kong Monetary Authority (HKMA). These interventions include buying and selling US dollars to stabilize the currency amid fluctuating market pressures. In the context of rapid global financial market dynamics and variable capital mobility, swift detection and mitigation of exchange rate risks are pivotal for maintaining monetary and financial stability, ensuring orderly market functioning, and preserving the region's economic stability. [1][2][3][4].

Discussion:

The Link Exchange Rate System (LERS) is based on a traditional currency board setup, which requires that the entire monetary base is fully backed by US dollar reserves. Under this system, certificates of indebtedness issued to authorized note-issuing banks must be completely supported by holdings in the Exchange Fund denominated in US dollars [5]. This arrangement establishes a fixed and reliable link between the Hong Kong dollar and the US dollar, where any change in the domestic money supply is transparently and directly connected to changes in foreign exchange reserves. The mechanism promotes monetary stability and discipline, aligning

Hong Kong's monetary policy with the currency peg, and shows a commitment to maintaining exchange rate credibility through strict reserve backing and independent monetary control limited by reserve requirements.

The Hong Kong Monetary Authority (HKMA) implements a dual exchange rate system, which functions as a managed float within a specified convertibility band. This system allows it to intervene in the foreign exchange market by buying or selling Hong Kong dollars (HKD) to maintain the currency's stability within a predetermined range, specifically between HK\$7.75 and HK\$7.85 per US dollar (USD) [6]. The primary objective of this mechanism is to balance between exchange rate stability and market flexibility, preventing excessive volatility while allowing for some degree of market-driven adjustments. But due to the 1997 to 1998 Asian financial crisis, the LERS system has been seriously attacked by speculators.

So, how can our Hong Kong linkage exchange rate system maintain its stability and resilience against speculative attacks, and what monitoring motions, macroeconomic indicators, and proactive policy tools do we possess to effectively prevent, detect, and anticipate potential future assaults or destabilizing maneuvers?

The joint exchange rate mechanism takes into account not just the HKD-USD peg but also the interactions with regional currencies and global economic factors. Sudden shifts in capital flows or regional financial stresses can pose collective risks to the exchange rate system. In particular, a sharp and rapid outflow of capital might lead to the collapse of the Link exchange rate system.

That mean, the (LERS) mechanism encompasses a comprehensive framework that considers not only the Hong Kong Dollar (HKD) to US Dollar (USD) peg but also its intricate interactions with regional currency baskets and global macroeconomic variables. Fluctuations in capital flows, particularly abrupt and sizeable outflows, combined with regional financial market stressors, can generate systemic vulnerabilities within the exchange rate regime. Specifically, a rapid and large-scale capital exodus could compromise the stability of the linked exchange rate system (the 'Link'), potentially precipitating its deanchoring and leading to speculative attacks or excessive pressure on foreign reserves, thereby threatening monetary sovereignty and financial stability.

In addition, there is a thread in the current currency board regime, the primary mechanism for macroeconomic equilibrium adjustment shifts from exchange rate flexibility to interest rate adjustments. When capital inflows or outflows occur, they directly impact the monetary base due to the currency board's commitment to maintaining a fixed exchange rate. This implies that the central bank's liabilities are fully backed by foreign currency reserves, limiting conventional monetary policy autonomy. Consequently, fluctuations in capital flows induce changes in the

domestic interest rates, which serve as the primary automatic stabilizers. Elevated interest rates tend to attract foreign investment and mitigate capital outflows, thereby aiding in the re-establishment of external balance. Conversely, large capital outflow may hurdle the link exchange rate system in HK, which may dampen capital inflows, countering imbalances.

To address the aforementioned problem, this research paper proposes seven methods for constructing an early warning signal, which may offer assistance in the event of a near-future attack.

Suggestion:

(1) Early Interest rate warning signal

This signal, indicative of the interest rate channel, acts as a proactive warning mechanism signaling potential vulnerabilities or speculative attacks targeting the currency board arrangement. Such a warning becomes particularly salient when external agents, notably currency speculators, undertake actions aimed at destabilizing the fixed exchange rate policy. The prominence of this indicator underscores its utility in macroprudential surveillance, enabling policymakers and financial stability authorities to detect early signs of external speculative pressures that could undermine the credibility and sustainability of the currency board system, thereby prompting pre-emptive policy interventions.

(2) The HKMA's Currency Board Sub-Committee monitors

The Hong Kong Monetary Authority's Currency Board Sub-Committee functions as a specialized oversight body responsible for the surveillance of macroeconomic stability related to the currency peg. It conducts a comprehensive analysis of monetary conditions to identify signs of potential market disequilibrium or emergent systemic risks. The committee employs advanced econometric tools and market intelligence to provide early warning signals of exchange rate pressures, including abnormal volatility in foreign exchange markets and atypical capital flow dynamics. Its primary role is to ensure the integrity of the currency board arrangement by proactively assessing vulnerabilities that could threaten exchange rate stability, thereby safeguarding monetary and financial stability in Hong Kong. The committee's vigilant monitoring encompasses a detailed scrutiny of currency market volatility, liquidity conditions, and large-scale capital movements, integrating macro-financial indicators to inform policy advisories and contingency planning.

(3) Establish an early breakfast meeting before the financial market opens

Scheduled day-to-day committee meeting dedicated to a comprehensive review and analysis of

the current conditions affecting the Hong Kong dollar link exchange rate regime. This forum serves as a platform for policymakers, economists, and financial specialists to discuss macroeconomic implications, evaluate the stability of the peg, and consider adjustments in response to evolving monetary and fiscal conditions. Such recurring deliberations are crucial for maintaining the integrity of the exchange rate system and ensuring its alignment with broader economic objectives.

(4) Enhancing Early Warning Mechanisms

To augment early warning mechanisms, Hong Kong could incorporate advanced real-time data analytics pertaining to capital flow dynamics, market volatility indices, and macroprudential policy indicators. The deployment of sophisticated machine learning models may enhance predictive accuracy regarding systemic stress points, enabling preemptive policy interventions before such stresses breach the thresholds of the convertibility zone. This integration of quantitative analytics and predictive modeling would strengthen Hong Kong's capacity to mitigate financial stability risks through timely, data-driven decision-making.

(5) Coordination with global and regional monetary authorities.

Enhancing coordination with international and regional monetary authorities could substantially reinforce the resilience of the joint exchange rate regime. This approach would facilitate extensive information sharing, enabling a more nuanced understanding of macroeconomic developments and external shocks. Additionally, synchronized policy responses would optimize the effectiveness of interventions, minimize market volatility, and strengthen overall financial stability in the region.

(6) Real-time data exchange, Analysis

By fostering robust collaboration frameworks, authorities can establish mechanisms for real-time data exchange, joint analysis, and coordinated policy actions, thereby mitigating the risks associated with currency misalignments and speculative attacks. Such strategic alignment is crucial for maintaining equilibrium in the international monetary system, especially amidst heightened global financial integration and volatility.

(7) Increase the Capacity & transparency to operate within this bounded corridor

Increasing the HKMA's capacity to operate within this bounded corridor enables it to execute strategic interventions aimed at correcting speculative attacks, mitigating currency misalignments, and fostering a stable macroeconomic environment conducive to sustainable economic growth. This approach exemplifies a form of monetary policy coordination that

combines elements of direct market intervention with a credible commitment to exchange rate stability, thereby anchoring inflation expectations and promoting financial stability.

conclusion

The early warning signal mechanism and the self-correction system in the currency board system are essential, especially it can avoid being attacked by the speculator, in advance. Additionally, the core self-correcting mechanism for external and internal imbalances in a currency board system substitutes traditional exchange rate adjustments with monetary policy passivity and interest rate responsiveness.

This research paper proposes seven methods for leveraging and protecting the link exchange rate system through the early warning scheme. With accordance to the HK Linked Exchange Rate System, our innovative key early warning tools built on a currency board framework managed by the HKMA will have early advantage to protect the system in the buy-time manner. While these mechanisms will prove robust in the near future, they could be improved by integrating advanced forecasting technologies and increasing international collaboration to better tackle evolving joint exchange rate issues. Hope this research article may benefit the citizens and mankind.

References

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