EXCHANGE-RATE VOLATILITY AS A FINANCIAL-SECURITY RISK

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Why the price of money in other money matters
to everyone, not just traders and economists
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Abstract. Exchange-rate volatility, the variability of a currency's value in either direction, is usually discussed as a macroeconomic or trading problem. This article treats it as a financial-security risk that operates at the level of households, firms, banks and the state. Drawing on the academic literature and on documents from the IMF, the World Bank and national central banks, it argues that volatility becomes dangerous when it meets specific vulnerabilities: currency mismatches, thin reserves, financial dollarization and weak institutional credibility. Short case evidence from Turkey, Sri Lanka, Lebanon and Uzbekistan illustrates the argument but does not test it. The article closes with policy implications and a statement of its limitations.

Keywords: exchange-rate volatility, currency mismatch, financial dollarization, pass-through, financial stability

1. Introduction: volatility is variability, not only decline

An exchange rate is the price of one currency in terms of another. Public debate often treats a falling currency as the only danger, but that framing is too narrow. Volatility, meaning the degree to which the rate fluctuates around its path, can hurt in both directions. A sharp fall raises import prices and the local-currency value of foreign debt. A sharp rise can erode exporters' competitiveness, reduce the local-currency value of remittances and foreign-currency earnings, and increase the burden on borrowers whose loans are denominated in the appreciating currency (Beer, Ongena and Peter, 2010; Corden and Neary, 1982).

What links the two cases is unpredictability. Wages, loans, supply contracts and public budgets all rest on the assumption that money will keep roughly the same meaning over the life of the promise. Volatility weakens that assumption, and the cost falls most heavily on those who cannot hedge it.

The argument of this article is that volatility turns into a security risk when it interacts with vulnerabilities, not on its own. Sections 2 to 7 set out the concepts and the channels through which volatility reaches households, firms, banks and governments. Section 8 reviews four recent episodes. Sections 9 to 11 discuss policy implications and limitations.

2. Terminology

The literature and the press use several overlapping terms. This article keeps them apart, as the table shows.

Term	Meaning	Typical regime
Volatility	Variability of exchange-rate changes in either direction, commonly measured as the standard deviation of log changes over a window, or by option-implied volatility	Any

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Depreciation / appreciation	A market-driven fall / rise in a currency's value	Floating or managed float
Devaluation / revaluation	A deliberate official change in the parity or central rate	Peg or administered rate
Misalignment	A persistent gap between the actual rate and a level consistent with fundamentals	Any
Overshooting	A move beyond the new long-run level before settling back (Dornbusch, 1976)	Floating

In what follows, "depreciation" and "appreciation" refer to market-driven moves, "devaluation" to official adjustments only, and "volatility" to variability regardless of direction. A currency that loses two percent a year in a steady way is depreciating but not highly volatile. A currency that jumps up and down is volatile even if its average change is small.

Exchange rates respond to interest-rate differentials, inflation expectations, trade balances, capital flows, commodity prices and political news. Dornbusch (1976) showed that when goods prices adjust slowly, the exchange rate can overshoot its long-run level after a monetary shock. Overshooting is a theoretical reason why movements can be larger than fundamentals alone would suggest.

3. Why volatility is a security issue

Financial security can be read at three connected levels. Personal security concerns whether families can protect savings, afford essentials and repay debts. Institutional security concerns whether firms and banks can keep operating after a sudden move. National security concerns whether a state can finance necessary imports, service its debts and preserve confidence in its money.

The levels reinforce each other. If households lose confidence in the local currency and shift savings into foreign assets, banks lose local-currency deposits and the currency comes under further pressure. Firms with foreign-currency debt then face higher repayment burdens, some loans become non-performing, credit tightens and tax revenue falls. Krugman (1999) formalized this balance-sheet mechanism, in which a depreciation lowers the net worth of firms with foreign-currency liabilities and depresses investment. The result is a feedback loop that can turn a price movement into a threat to financial stability.

4. Households

Prices. Depreciation raises the local price of imported goods, a process known as exchange-rate pass-through. Pass-through into import prices is typically incomplete and differs across countries and industries (Campa and Goldberg, 2005; Burstein and Gopinath, 2014). Pass-through into consumer prices tends to be larger where inflation is already high (Choudhri and Hakura, 2006). Because lower-income households spend a larger share of their budgets on food and energy, consistent with Engel's law, the same price shock is likely to weigh more heavily on them.

Savings. If wages and savings are held in a currency that keeps losing value, purchasing power erodes. A common response is to save in foreign currency or in real assets. The response is rational for the individual, but it shrinks local-currency deposits and contributes to financial dollarization (Section 6).

Debt. Borrowing in foreign currency can look cheap when the foreign interest rate is lower. Beer, Ongena and Peter (2010) show that Austrian households borrowed in Swiss francs and Japanese yen largely because of the interest-rate differential, which effectively made them carry traders without necessarily intending to be. Households that borrowed in Swiss francs faced a heavier burden in local-

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currency terms when the franc appreciated. The Swiss National Bank's decision on 15 January 2015 to discontinue its minimum euro exchange rate is a well-known example of a sudden appreciation (Swiss National Bank, 2015).

Income. In economies that receive large remittances, the exchange rate determines how far transfers stretch in local terms. A sharp appreciation of the local currency reduces that purchasing power, while a sharp depreciation raises it but may accompany higher prices. Volatility in either direction complicates household budgeting.

5. Firms

Firms face three distinct risks.

Transaction risk arises when a price is agreed in one currency and paid later. If the rate moves in the interval, the margin on a fixed-price contract can disappear.

Balance-sheet risk arises from a currency mismatch: revenues in local currency and debts in foreign currency. Krugman (1999) treats it as central to modern currency crises. In the Asian crisis of 1997 and 1998, heavy short-term foreign-currency borrowing by firms and banks amplified the effects of the collapse of the Thai baht peg (Radelet and Sachs, 1998).

Competitiveness risk is more complicated than the textbook suggests. A depreciation is often expected to help exporters, but many exporters rely on imported inputs. Gopinath et al. (2020) document the "dominant currency paradigm": because much of world trade is invoiced in US dollars, dollar movements affect prices and trade volumes in ways that older models based on producer- or local-currency pricing did not predict. On the other side, a sustained appreciation can reduce the competitiveness of tradable sectors, a mechanism associated with the Dutch disease literature (Corden and Neary, 1982).

The effect of volatility on aggregate trade and investment is empirically contested. Clark et al. (2004) review the evidence on trade flows and find that the results are mixed, and the relationship appears to depend on the availability of hedging instruments and on the structure of the economy. Large firms can hedge with forwards, options and swaps. Small and medium-sized firms often cannot, because hedging is costly, requires expertise and may not exist for their currency.

6. Banks and financial dollarization

Banks face currency risk directly, through open foreign-exchange positions, and indirectly, through the credit risk of unhedged borrowers. A bank that lends in dollars to a borrower who earns local currency removes its own currency exposure but takes on credit risk that rises when the currency depreciates.

Financial dollarization, the widespread use of foreign currency for deposits and loans inside a country, is considered a vulnerability for this reason (Ize and Levy Yeyati, 2003). Levy Yeyati (2006) reviews the evidence on its consequences and finds that it can raise a country's exposure to shocks, although the effects depend on the institutional context. Dollarization can also constrain the central bank's ability to act as a lender of last resort in the currency that people actually use.

A related problem is "original sin", the inability of many emerging economies to borrow abroad in their own currency (Eichengreen, Hausmann and Panizza, 2005). A country with original sin carries currency exposure regardless of how carefully it manages its own policies. The development of local-currency bond markets is one route to reducing it.

7. The state, exchange-rate regimes and global conditions

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Public debt in foreign currency becomes more costly to service when the local currency depreciates, and imports of fuel, food and medicine require foreign exchange. Central banks that sell reserves to defend a currency can exhaust them faster than expected.

The policy trilemma states that a country cannot simultaneously maintain a fixed exchange rate, free capital mobility and an independent monetary policy (Obstfeld, Shambaugh and Taylor, 2005). Pegged regimes can anchor expectations but can also accumulate hidden pressure. When the peg loses credibility, the adjustment is often abrupt, as in the collapse of the Exchange Rate Mechanism parities in 1992 and 1993 (Buiter, Corsetti and Pesenti, 1998) and in Argentina's crisis of 2001 (Mussa, 2002).

Floating avoids the cliff edge but allows more day-to-day movement. Calvo and Reinhart (2002) found that many countries that officially float in practice limit exchange-rate variability, a pattern they call "fear of floating", partly because of foreign-currency liabilities.

Currency risk also has an external component. Rey (2013) argues that a global financial cycle in capital flows, credit and asset prices comoves with global risk sentiment and is shaped by US monetary conditions, and Miranda-Agrippino and Rey (2020) provide evidence that US monetary policy shocks affect a global factor in asset prices. For emerging markets, part of the exchange-rate risk is therefore imported. Carry trades add to it: investors borrow in low-interest currencies to hold high-interest ones, and returns are negatively skewed, with occasional abrupt unwinding (Brunnermeier, Nagel and Pedersen, 2009).

8. Recent episodes

The cases below are illustrative. Each had several causes, and the evidence cited does not isolate volatility as the sole driver.

Turkey (2018). The IMF's 2019 Article IV press release describes imbalances that left the economy exposed to a shift in market sentiment, which triggered a sizeable lira depreciation and a recession in late 2018, and notes that corporate and bank balance sheets were stressed by the depreciation, higher interest rates and lower growth (IMF, 2019b). The Congressional Research Service (2018) noted at the time that the depreciation raised the lira value of foreign-currency debt.

Sri Lanka (2022). The Central Bank of Sri Lanka (2023) reported that usable reserves were exhausted by April 2022 and that a shortage of foreign-exchange liquidity constrained imports of essential goods. The Ministry of Finance (2022) likewise described usable reserves as near zero. The case shows the national-security channel: a lack of foreign exchange directly affects the supply of necessities.

Lebanon (since 2019). The World Bank (2021) estimated that the average exchange rate depreciated by 129 percent in 2020 within a multiple-rate system. By February 2023 the pound had lost more than 98 percent of its pre-crisis value, and a dollarized cash economy estimated at US$9.9 billion, or 45.7 percent of GDP in 2022, had emerged after a loss of confidence in the banking sector and the currency (World Bank, 2023).

Uzbekistan (2017). In September 2017 Uzbekistan liberalized its foreign-exchange market and unified its exchange rates. Before the reform, IMF staff welcomed the plan, argued that unification would let the central bank pursue a stability-oriented monetary policy, and noted that ample reserves allowed the reform to proceed from a position of strength (IMF, 2017a). After it, the IMF reported that the liberalization, together with looser fiscal and monetary policy, contributed to inflation of close to 20 percent in early 2018, and that international reserves were equivalent to 19 months of imports at end-2017 (IMF, 2018). The IMF later reported a nominal depreciation of 60 percent in 2017, a broadly stable

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rate and real appreciation in 2018, and a current account deficit of 7 percent of GDP in 2018 as more liberal trade and expansionary credit policies pulled in imports (IMF, 2019a). The episode suggests that a managed move from a restricted to a market-determined rate can carry short-term costs, and that reserves, monetary tightening and communication influence how large they are.

9. Why exposure differs across countries

The literature points to several characteristics that make an economy more vulnerable to a given exchange-rate shock:

- **Import dependence**, especially for food and energy, which raises pass-through to consumer prices.
- **Foreign-currency debt** held by the public sector, firms and households (Krugman, 1999; Eichengreen, Hausmann and Panizza, 2005).
- **Thin reserves**, which limit the capacity to absorb shocks, as in Sri Lanka in 2022.
- **Financial dollarization**, which links balance sheets to the exchange rate (Ize and Levy Yeyati, 2003).
- **Exposure to the global financial cycle** (Rey, 2013).
- **Low institutional credibility**, which accelerates flight from the local currency, as the Lebanese case shows.

10. Policy implications

The following points follow from the literature reviewed and are not recommendations tailored to any one country.

Governments and central banks. Credibility of the monetary framework supports stable expectations. Reserves buy time but cannot defend a rate that markets judge to be misaligned. Developing local-currency bond markets addresses original sin. Limits on foreign-currency lending to unhedged borrowers, a macroprudential tool, can reduce balance-sheet risk before a shock. Calvo and Reinhart (2002) suggest that the degree of flexibility chosen should reflect the balance-sheet exposure that the economy actually carries.

Firms. Matching the currency of borrowing to the currency of revenue, using hedging instruments where available, diversifying suppliers and markets, and holding liquidity buffers all reduce exposure. Smaller firms can benefit from shorter payment terms and from invoicing in more stable currencies.

Households. The literature suggests caution about borrowing in a currency in which one does not earn (Beer, Ongena and Peter, 2010), and about holding all savings in a single currency. This is general information, not personal financial advice.

Communication. Clear and timely communication by authorities, including about uncertainty, can limit rumour-driven runs. Financial literacy helps households judge currency-related claims.

11. Scope, approach and limitations

This article is a conceptual and narrative review. It draws on peer-reviewed economics literature and on official documents from international institutions and central banks. The case selection is illustrative rather than systematic, no new data are analysed, and the cases are not compared using a common measure of volatility.

As a result, the article cannot establish how much of any national outcome is attributable to volatility rather than to underlying policy or global conditions. A version intended for an empirical journal would need an explicit literature-search protocol, a defined volatility measure (for example realized volatility computed from daily rates, or implied volatility), a data source, and an identification

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strategy. One possible design is a panel regression of inflation, banking stress or crisis incidence on volatility interacted with the share of foreign-currency debt, with controls for reserves, the exchange-rate regime and global financial conditions. Event studies around devaluations and appreciations could complement it.

12. Conclusion

Exchange-rate volatility reaches ordinary economic life through prices, savings, debts, wages and public finances. The literature and recent episodes suggest that the damage depends less on movement itself than on the vulnerabilities it meets: currency mismatches, thin reserves, financial dollarization and weak credibility. Flexible rates can also act as a shock absorber, so the goal is not to suppress movement but to reduce the gap between the risk an economy carries and its capacity to bear it. Protecting the ability of households, firms and states to plan with money that keeps its meaning is, in this sense, a core element of financial security.

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