



# Interest Rate Normalization in a World with High Indebtedness

Sigga Benediktsdottir<sup>1</sup> · Soha Ahmed<sup>2</sup>

Accepted: 19 January 2023 / Published online: 3 May 2023  
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**Abstract** Global debt has grown to record levels. Government debt, corporate debt and household debt around the world rose to a high of 350% of world gross domestic product in 2022. The systemic risk that has built up during the extended period of low interest rates threatens to materialize now as rates rise worldwide. For countries in which external liabilities are high, debt service costs will increase, and refinancing may become prohibitively expensive. External liabilities and their term structures provide insight into which emerging and developing countries may be most vulnerable in the next months.

**Keywords** Capital flows · Liability flows · External debt · Systemic risk · Monetary policy

**JEL** E40 · F30 · F39 · E58

## Introduction

Central banks in major economies are normalizing interest rates after a long period of accommodative monetary policy. The main motivation for the interest rate normalization is to combat the sharpest inflation increase in decades. In some instances, policy rates have already risen, or are expected to rise, beyond the long-run equilibrium monetary policy rates for the first time since the Global Financial Crisis (GFC). Interest rate normalization in major economies played an important role in multiple financial crises, including the Asian Financial Crisis, Mexican banking crisis, more often called the peso crisis, and the Latin America debt crisis. This crisis is relevant now as global

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**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s11293-023-09763-y>.

✉ Sigga Benediktsdottir  
sigridur.benediktsdottir@yale.edu

<sup>1</sup> Jackson School of Global Affairs, Yale University, New Haven, CT 06511, USA

<sup>2</sup> Economics Department, Yale University, New Haven, CT 06511, USA

debt has risen to record levels. Government debt, corporate debt, and household debt around the world, rose to over \$300 trillion in 2022. This is a record 350% of world gross domestic product (GDP) (Institute of International Finance, 2022). In comparison, global debt was around 270% of GDP at the onset of the global financial crisis. Much of these liabilities are funded from abroad, frequently in dollars. A buildup of risk threatens to materialize now as interest rates rise worldwide. For countries where external liability is high, debt service costs will increase and refinancing will become, in some cases, prohibitively expensive. Additionally, exchange rate movements threaten to amplify risk, as the dollar strengthens due to higher interest rates in the United States (U.S.) and investors flee to safety as debt sustainability becomes their focus.

The last time major central banks increased policy rates to combat high inflation was in the late 1970s and early 1980s. Several financial crises, particularly in Latin America, happened as a direct or indirect consequence of those rate increases. This paper looks at some of those crises, considers the lessons learned and then tries to evaluate which countries may be vulnerable to debt-sustainability-driven financial crises today. The paper starts with a literature overview about systemic risk emanating from capital flows and external debt. Next is a discussion about financial crises in the 1980s and how they can be traced back to interest rate increases in major economies. Lastly, some data on liability flows and external debt levels in emerging markets and developing economies is presented.

## Capital Flows, External Debt, and Systemic Risk

Financial crises and economic contractions have been linked to leverage in the economics literature for a long time. Fisher (1912) emphasized high leverage in his theory of financial crises and later in the 1933 debt deflation theory (Shiller, 2013). Later Minsky and Meyer (1972) and Aliber and Kindleberger (1980) emphasized the role of speculative asset price bubbles, driven by leverage, in creating financial crises. Expansion of this literature to external leverage and capital flows is more recent. However, this branch of the literature developed quickly in recent years, incentivizing economists to look beyond the current account for systemic risks emanating from capital flows. Goldfajn and Valdés (1997) showed that capital inflows are amplified by the intermediating role of banks, which may produce an exaggerated economic cycle that ends in bank runs and financial and currency crashes. Their model highlights how “international interest rate shocks may trigger sudden outflow of capital” (Goldfajn & Valdés 1997, p. 1). Their conclusion is that this amplification mechanism could provide a rationale for capital flow management in the form of a Tobin tax,<sup>1</sup> or intermediation controls to lower the risk of a financial crisis. In 1998, Calvo showed with a simple theoretical model how liability inflows

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<sup>1</sup> An example of such a policy is the macroprudential levy that Korea collected on financial institutions' non-deposit foreign exchange (FX) liabilities, put on in 2011 and lifted at the onset of the coronavirus disease (COVID) health crisis in 2020 (Bruno & Shin, 2014).

(external borrowing) cause non-tradable goods to increase in price relative to tradables. One of the most important and leveraged non-tradable goods in most economies is housing. Reversal of these liability flows, or so-called sudden stops, results in a decline in the price of the non-tradable good and a balance of payments crisis. High leverage in the non-tradable sector will amplify these risks, as asset prices decline. Increased difficulty in refinancing loans will result in defaults that will spread via financial interconnectedness into other sectors of the economy.

Historically, most empirical literature on financial crises used the current account as a measure of net capital flows due to its availability. Linking the current account deficit, i.e., net external borrowing, to the increased probability of banking and financial crises proved to be elusive. Gourinchas and Obstfeld (2012) found that a current account deficit was not statistically significantly negative for emerging market economies (EMEs) prior to banking or default crises or the GFC. Several improvements to the research methodology were needed to locate any empirical evidence that external debt increased systemic risk and, therefore, the likelihood of a crisis. Three will be mentioned here.

**Extreme Capital Flows** It is important to look at extreme moves in capital flows rather than just the small fluctuations around an average. Calvo (1998) and other authors focused on sudden stops, an extreme pull back of international inflows,<sup>2</sup> which could lead to financial and currency crises. Reinhart and Reinhart (2009) coined the term capital-inflow bonanza. They defined a bonanza as when capital inflow episodes grew to the 20th percentile extreme occurrence of all capital inflow periods for individual countries.<sup>3</sup> With a long data series that included 181 countries, they found that, in the wake of an inflow bonanza, there are higher occurrences of banking, sovereign debt and currency crises.<sup>4</sup> They concluded that capital-inflow bonanzas cause increased government spending, amplifying the procyclical fiscal cycle in all but developed economies, linking the rapid inflow to sovereign debt crises. However, asset prices and private leverage were not within their scope.

Caballero (2016) built on this idea asking the question whether surges in capital flows influence the likelihood of a banking crisis, i.e., if the risk increase mechanism is through increased private leverage in addition to the government risk channel found by Reinhart and Reinhart (2009). The question is whether the risk building mechanism is through increased leverage or a domestic lending boom. They found that the odds of a banking crisis increase about 3.7 times to 15.5% following a capital-inflow bonanza. If there is a simultaneous lending boom in the economy, then the odds of a banking crisis increase to over 33%.

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<sup>2</sup> Defined by one or two standard deviation shocks, this makes the risk indicator country-specific.

<sup>3</sup> Like Calvo (1998), a country with higher volume and variation of flows would be in a bonanza at a higher cutoff.

<sup>4</sup> Quote from Reinhart and Reinhart (2009, p. 10): “The heavy inflow episode can persist, often lulling policy makers and investors into treating the bonanza as a permanent phenomenon rather than a temporary shock.”

**Liability and Asset Flows** Forbes and Warnock (2012) went a step further and identified extreme capital flow episodes by who is changing their gross international investment position (i.e., who is buying or selling an asset).<sup>5</sup> The terms used frequently in the literature to describe this buying and selling of assets are liability flows for foreign gross inflows and asset flows for domestic gross outflows. Foreign-driven extreme liability flow episodes are called stops or surges, while domestically driven extreme asset flow episodes are flights and retrenchments. Since investors' motivations for buying or selling foreign assets may differ and can be affected by different shocks, it is not good to lump them together. For example, if risk is perceived to increase worldwide, it is likely that international investors will withdraw funds from foreign countries (a sudden stop). At the same time, domestic investors may retrench their international investments (retrenchment). If those two things occur simultaneously, net capital flow numbers may miss the sudden stop, which could still have dire consequences for financial stability (Calvo, 1998). Forbes and Warnock identified 48 sudden stops during the global financial crisis, while net capital flow data only identified 23 sudden stops. By looking separately at liability and asset flows, Forbes and Warnock (2012) found that surges and sudden stops are mostly driven by global factors, particularly global risk. Their model, though, lacks some domestic variables, most notably indebtedness and the term structure of the external debt that could potentially lead to a sudden stop. Caballero (2016) extended his research on capital-inflow bonanzas to liability-inflow bonanzas and found that the combination of a liability-inflow bonanza and a lending boom increased the likelihood of a crisis substantially.

The composition and term structure of the assets that foreigners invest in also matters when considering systemic risk originating from liability flows. Rodrik and Velasco (1999) showed that short-term external debt to foreign currency reserves is a robust predictor of a financial crisis. In an empirical analysis of emerging market economies, they found that countries with short-term external liabilities over three times their reserves were more likely to experience a sudden stop followed by a prolonged and severe crisis. Rodrik and Velasco (1999) emphasized crisis management and debt restructuring instead of preventative measures as the appropriate policy response. Caballero (2016) looked at the composition of capital flows and the associated likelihood of a crisis. Inflows were split into portfolio-equity flows, debt inflows and foreign direct investment (FDI). He found that a boom in FDI, which is positively correlated with other inflows, does not alone statistically significantly increase the probability of a crisis. This is in line with Rodrik and Velasco (1999) as FDI investment is usually longer term, and it is more difficult to sell long-term assets when a sudden stop is underway. However, both a bonanza in inflows into portfolio equity and debt increase the probability of a crisis. If there is extreme

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<sup>5</sup> The terms gross outflow and inflow may come from literature looking at changes in gross investment position in the balance of payment accounts. Those positions are reported for foreign and domestic investors separately, so they can be used to approximate foreign flows separately from domestic flows (Milesi-Ferretti & Tille, 2011).

inflow into debt and a simultaneous domestic lending boom, the probability of a crisis rises to a whopping 30%. An extreme increase in liability flows into equity increases the probability of a crisis by 11%, even in the absence of a domestic lending boom. The mechanism is likely what Calvo (1998) proposed, an unsustainable increase in the price of non-tradable goods. Foreign investors will participate and amplify the unsustainable increase in asset prices through the equity market, where they will be able to run for the door at the first sign of asset price declines, both amplifying the boom of the asset price bubble and its burst.

These results emphasize the importance of knowing the term, composition of gross external liabilities. This includes the external ownership of marketable securities, and other assets that are highly liquid. This is important irrespective of credit growth within the domestic economy.<sup>6</sup>

The literature looking at why flows fluctuate is also important in order to understand potential risk. Are capital flows pulled into an economy based on a prosperous economic future or are there international factors that are pushing money into countries. Forbes and Warnock (2012) concluded that international factors, in particular global risk, are important in predicting capital flow episodes.<sup>7</sup> They further emphasized that domestic governments should focus on strengthening their resilience, rather than attempting to reduce the volatility of capital flows. This has evolved into a literature on the global financial cycle (Rey, 2015), which focuses heavily on explaining capital flow volatility on the basis of common worldwide shocks. However, Cerutti et al. (2019) found little evidence of the impact of the global financial cycle on variation in most types of capital flows. They focused on the magnitude of the effect of the variable capturing changes in capital flows. Cerutti et al. found that “push factors may be statistically significant but leave most capital flow variation unexplained” (p. 52). More recently Martin et al. (2021) found that both push and pull factors are informative in characterizing capital flows. Moreover, they found that inflow controls and a tighter macroprudential stance lower the likelihood of extreme capital flow episodes. Connected with this literature on capital flows and global push factors is research on the effects of U.S. monetary policy on capital flows to emerging market economies (Banerjee et al. 2016). They found that a “US contractionary monetary policy shock leads to a retrenchment in EME capital flows, a fall in EME GDP, and an exchange rate depreciation” (p. 275). Their theoretical dynamic stochastic general equilibrium (DSGE) model even indicates that responses of asset prices and interest rate spreads in peripheral countries can be larger than in the center country that implements the contractionary policy. This is in line with Calvo et al. (1996) where policy rate increases in the U.S. in 1994 are said to have translated quickly into changes in cross-border capital flows.

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<sup>6</sup> An important implication here is that if risks are accumulating due to liability flows into securities markets, in the absence of increased domestic leverage, this renders policies to curb credit growth as irrelevant. If policy makers want to counter this risk accumulation, it must be done with capital flow management tools directed at foreign investment in those markets.

<sup>7</sup> Forbes and Warnock (2012) found that extreme capital flow movements are less correlated with global factors in the post GFC period. In this paper, as before, the number of domestic variables tested is limited.

To sum up, surges in liability flows may increase systemic risk, which in turn materializes as a sudden stop. Systemic risk is not only dependent on the amount of external liabilities, but also on the liquidity and term structure of the liabilities. Domestic factors, such as credit growth, also matter for the likelihood and severity of a crisis, as do unsustainable asset price values. Capital flow reversals can be triggered by both domestic and foreign factors, and U.S. monetary policy hikes are one of the important factors.

One of the last policy rate increases to fight high and persistent worldwide inflation was in the 1980s. The effective U.S. federal funds rate went over 19% in the early 1980s. Following monetary policy tightening in the U.S., several countries experienced financial crises. The next sections consider some lessons from this period since a lack of liability flow data prevents more formal analysis.

## Lessons from the 1980s Disinflation Period

The last time inflation like now was experienced was in the 1970s. At that time, there were multiple failed attempts to lower inflation, which entrenched high inflation expectations and increased the cost of disinflation. In the early 1980s, the effective federal funds rate rose to over 19%, increasing the cost of borrowing in U.S. dollars exorbitantly. There are no reliable cross-country data on liability flows available from the 1970s and 1980s, but lessons can still be drawn from individual countries' experiences. Following the steep policy rate increases in major economies in the 1980s, there were more financial crisis than during the 1970s in which inflation soared (Fig. 1). A number of these crises are listed in Table 1. Several Latin American countries experienced long contraction periods. Peru and Argentina lost over half their GDP. The fiscal cost of the crisis was 55% of GDP in Argentina and 43% of GDP in Chile. However, this focuses on the materialization of the crisis. What made these countries vulnerable is more interesting.

Mexico experienced a severe and extended financial crisis starting in 1981. Output loss in the first five years of the crisis amounted to 27% of GDP and public debt grew to over 20% in the same period. In the run up to the crisis, foreign public debt grew from 11 to 35% per year (Table 2). Public debt grew by more than 30% between 1974 and 1976, but the government was not the only entity borrowing from abroad. As Oks and Van Wijnberger (1995) put it, there was explosive reliance on international borrowing through commercial bank syndicates in the late 1970s. Private debt inflows grew tenfold from 1970 to 1976, while FDI increased only slightly. Nominal implicit interest rates were 3–6% during the 1970s, but rose fast in 1980, peaking at close to 15% in 1982, which made debt repayment impossible (Oks and Van Wijnberger, 1995). At the same time, oil prices declined amplifying the balance of payments crisis. Private-creditor-funded capital inflows declined at first and then became negative as the crisis prolonged and borrowers were forced to pay down foreign external debt (a sudden stop). Mexican banks could not withstand this shock. In the end, the Mexican government was forced to nationalize all banks.

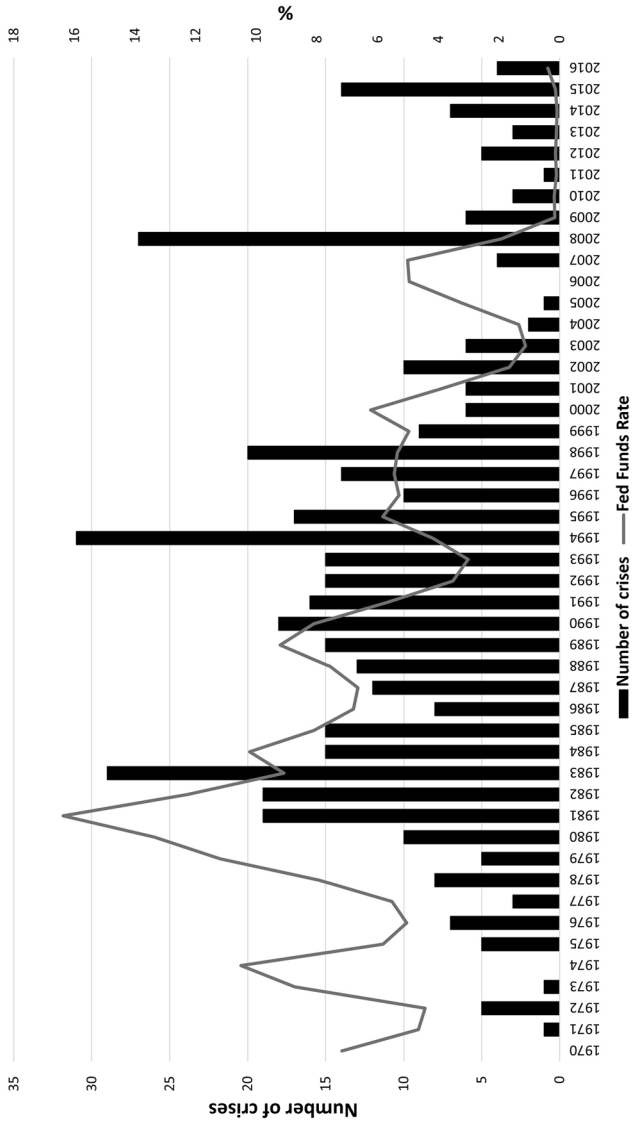


Fig. 1 Effective Fed Funds Rate and Financial Crisis. Sources: FRED database (Federal Reserve Bank of St. Louis, 2022) and Laeven and Valencia (2020)

**Table 1** Financial Crisis

Country	Start	End	Output loss <sup>a</sup>	Fiscal Costs <sup>b</sup> (% of GDP)	Increase in public debt <sup>c</sup>	Liquidity support <sup>d</sup>	Peak NPLs <sup>e</sup>
Argentina	1980	1982 <sup>f</sup>	58.2	55.1	33.1	62.2	9.0
Chile	1981	1985 <sup>g</sup>	8.6	42.9	87.9	52.7	35.6
Colombia	1982	1982	47.0	5.0	16.6	7.7	4.1
Ghana	1982	1983	45.3	6.0	15.5	0.1	35.0
Israel	1983	1986	42.7	30.0	...	...	...
Kenya	1985	1985	23.7	...	11.0	1.9	...
Mexico	1981	1985 <sup>g</sup>	26.6	...	22.6	2.6	...
Morocco	1980	1984 <sup>g</sup>	21.9	...	35.6	8.6	...
Peru	1983	1983 <sup>f</sup>	55.2	...	14.3	9.7	...
Philippines	1983	1986	91.7	3.0	44.8	1.5	19.0
Thailand	1983	1983	24.8	0.7	15.7	2.0	...
Turkey	1982	1984	35.0	2.5	12.3	29.3	...
Uruguay	1981	1985 <sup>g</sup>	38.1	31.2	83.3	18.5	...
Average			39.9	19.6	32.7	16.4	20.5

Source: Financial Soundness Indicators (International Monetary Fund (IMF), 2022a), International Financial Statistics (IMF, 2022b), World Economic Outlook (IMF, 2022c), Laeven and Valencia (2020) and various IMF staff reports

<sup>a</sup>In percent of GDP. Output losses are computed as the cumulative sum of the differences between actual and trend real GDP over the period [T, T + 3], expressed in percent of trend real GDP, with T denoting the starting year of the crisis. The trend is computed by applying an Hodrick-Prescott (HP) filter ( $\lambda = 100$ ) to the GDP series over [T-20, T-1]. No output losses are reported for crises in transition economies that took place during the period of transition to market economies

<sup>b</sup>Fiscal costs refer to outlays directly related to the restructuring of the financial sector

<sup>c</sup>In percent of GDP. For episodes starting in 2007 and later, the increase in public debt is measured as the change in debt projections, over [T-1, T + 3], relative to the pre-crisis debt projections, where T is the starting year of the crisis

<sup>d</sup>Liquidity is measured as the ratio of central bank claims on deposit money banks (line 12 in IFS) and liquidity support from the Treasury to total deposits and liabilities to non-residents. Total deposits are computed as the sum of demand deposits (line 24), other deposits (line 25), and liabilities to non-residents (line 26)

<sup>e</sup>In percent of total loans

<sup>f</sup>Credit data missing. For these countries, end dates are based on GDP growth only

<sup>g</sup>The duration of crises was truncated at 5 years, starting with the first crisis year

Chile and Uruguay had among the largest capital inflow bonanzas in the 1970s in Latin America at 14% and 18% of GDP, respectively (Calvo et al., 1996). Uruguay's private sector balance of payments increased from around \$50 million in 1974 to over \$600 million prior to the sudden stop in 1982. This was mostly credit to the banking sector, which made Uruguay vulnerable to international financial conditions. As interest rates increased and international capital flows reversed, the banking sector deteriorated fast resulting in a financial crisis. The Uruguayan government eventually nationalized most private banks in an attempt to minimize the



**Table 2** Mexico

Year	Public debt growth (%)	Public debt/GDP	Nominal implied interest (%)	Total inflows US\$ millions	Debt flow official	Debt flow private	FDI
1970	7.6	16.6	4.64	1028.96	141.7	571.02	316.24
1971	6.6	16.0	4.60	992.53	85.9	582.48	324.15
1972	2.4	13.7	4.71	895.17	145.1	468.87	281.20
1973	23.8	13.8	5.24	2698.99	172.6	2163.38	363.02
1974	34.7	14.5	6.21	4609.43	325.4	3734.49	549.55
1975	38.1	16.8	6.57	5988.40	380.8	5102.58	505.02
1976	32.7	21.0	6.33	6241.40	300.7	5423.67	517.04
1977	14.3	23.8	6.47	3513.77	301.9	2671.54	540.33
1978	10.9	21.7	7.66	4205.61	257.8	3120.96	826.85
1979	12.6	19.5	9.71	6695.30	283.1	5080.37	1331.83
1980	13.8	17.5	11.68	12686.89	794.9	9736.90	2155.08

Source: Ortiz and Serra-Puche (1986), Oks and Wijnbergen (1995)

cost of the financial crisis. This all resulted in a five-year output loss in Uruguay amounting to almost 40% of GDP (Table 1).

External debt in Chile increased 134% in the period from 1973 to 71% of GDP in the early 1980s. Almost 65% of the external debt was private, of which 80% was owed by private commercial banks (Meller, 1991). A jump in the world interest rates and a sudden stop in foreign inflows, coupled with a decline in the price of copper, hit creditors with external debt hard. Banks and nonbank financial institutions were weakened by high leverage and the Chilean government eventually nationalized around 55% of the financial sector. This included nationalizing the financial sector's external debt. By 1987, over 85% of the external debt was either public or publicly guaranteed.

Many of the countries that were hit hard during the Latin America debt crisis in the early 1980s drew policy lessons from it. Capital flow management was common in the following years to lean against the accumulating systemic risk during capital inflow surges. In the early 1990s, Chile responded to a capital inflow surge by introducing (in 1991) an unremunerated reserve requirement (URR) on foreign borrowing. The objective of the URR was to favor long-term financing over short-term financing and equity flows over debt flows. The initial rule was that 20% of the credit had to be deposited in a non-interest-bearing account at the central bank. The holding period ranged between 90 days and one year, depending on the term of the credit. Research has shown that external maturities did become longer, though there is little evidence that inflows decreased. There is also evidence that monetary policy autonomy may have increased, making it possible for the Chilean Central Bank to have higher policy rates (Edwards, 1998). Uruguay also introduced several measures, including some directed at demand for foreign currency loans from their domestic banking sector. For example, loans in foreign currency to unhedged borrowers carried a risk weight of 125% and loan loss provisions had to be higher based in part on debt service to the income of the borrower (Terrier et al., 2011).

Brazil also employed capital inflow measures as early as 1993 when high interest rate differentials with the U.S. were attracting foreign investors. The Brazilian government taxed foreign investment in the bond market up to 9%. This measure was employed again in 2009 when low rates in major economies incentivized investors to seek yield in Brazil. Chamon and Garcia (2016) concluded that these measures were successful in extending the term of external liabilities, which lowers systemic risk and increases resilience to capital flow reversals.

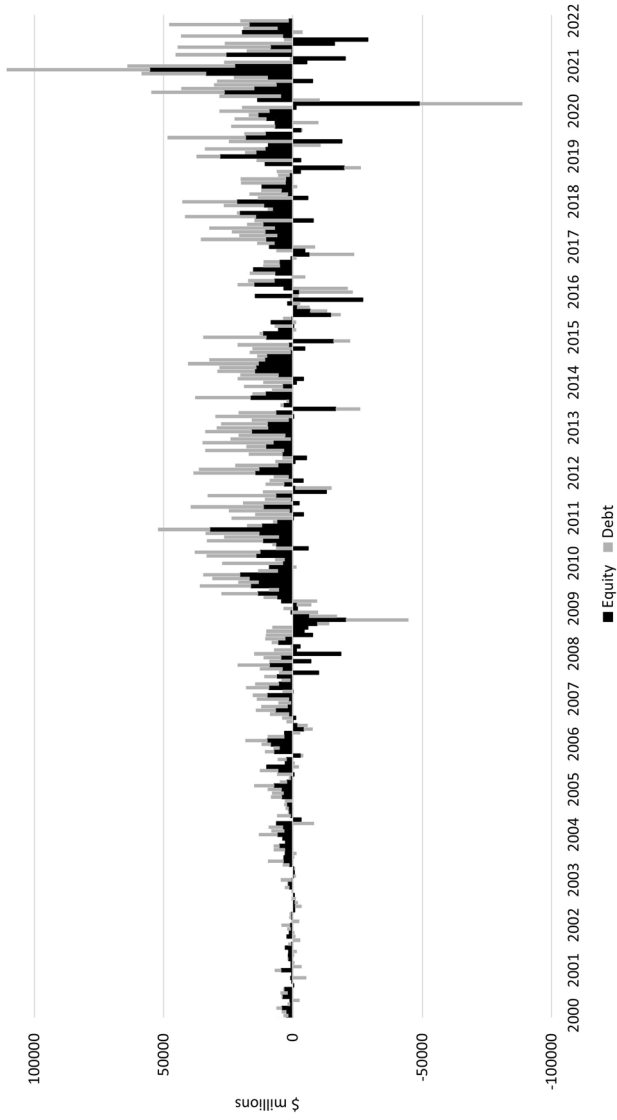
These are just a few specific examples from the past. Lack of data on liability flows and the term structure of external debt makes it difficult to conduct a more in-depth analysis on the likelihood of systemic risk emanating from external liabilities as the world's major economies raise interest rates to fight inflation. Still, after a decade of low-risk perception, low interest rates in major economies and increased international capital flows, systemic risk may be high. The next section explores some data indicators that may help evaluate systemic risk due to liability flows and high external debt in several countries.

## Capital Flows and Indication of Vulnerabilities

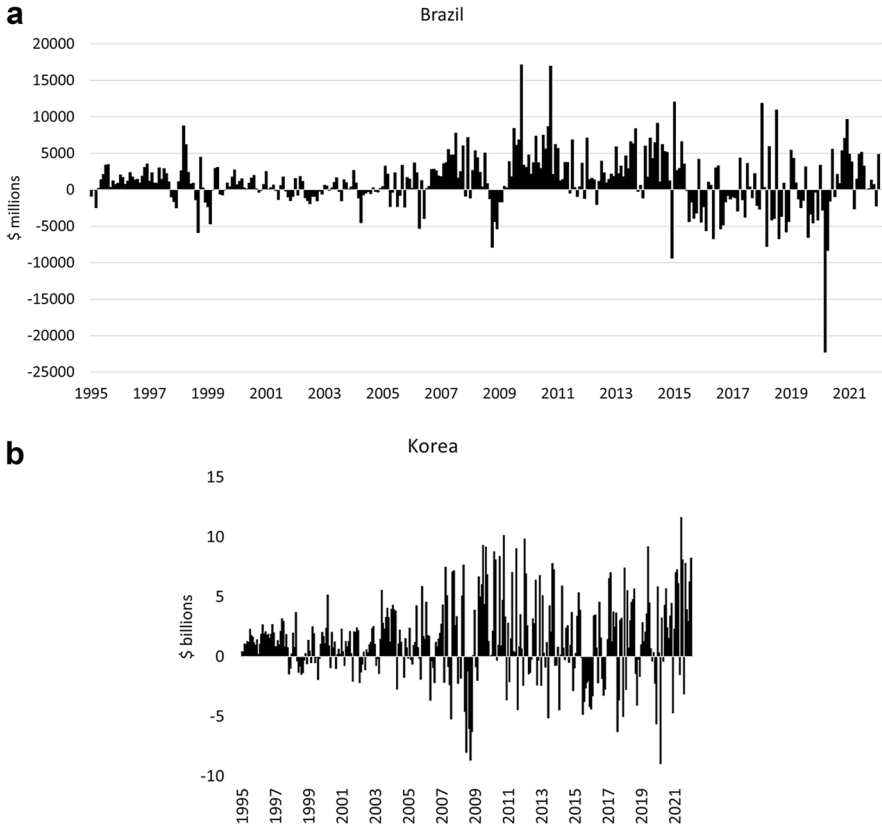
Emerging market debt and equity flows have increased notably over the past decade. These flows are also very volatile (Fig. 2). During the global financial crisis, debt and equity flows reversed course after several years of persistent capital inflow to EMEs. However, this reversal was not long lived. As major economies maintained low interest rates, capital inflows into EMEs increased to a considerably higher volume than in the years leading up to the GFC. There are some data issues, so looking at individual countries where data have been reported consistently is worthwhile. This pattern holds when only looking at South Africa, Brazil, Chile, India, Korea, and Poland. Debt and equity flows picked up substantially following the GFC, with a short-lived reversal during the taper tantrum in 2015 (Fig. 3). The sudden stop at the onset of the COVID-19 health crisis is very noticeable and more extreme than during the GFC, although it was shorter lived.

Koepke and Paetzold (2020) developed the KP dataset, which includes data going back to before the Asian financial crisis for Brazil and Korea. In these data, capital inflow prior to the 1998 crisis and then reversal at the onset of the crisis is visible. The sudden stop and capital flow reversal lasts about six quarters during the GFC, after which inflows into debt and equity pick up to a level not seen before. These data on debt and equity flows indicate high systemic risk and vulnerabilities in EMEs today due to the high volume of debt and equity flows over the past decade, which can reverse rapidly and extremely.

These were net debt and equity flows. As noted earlier, some of the variation in the flows can be driven by domestic investors either investing abroad or retrenching their foreign investment. Therefore, it is also important to look at liability flows only, i.e., foreigners' acquisitions and sales of domestic assets. Avdijev et al. (2022) constructed a quarterly dataset splitting flows into liability and asset flows. In Fig. 4, liability flows for several non-major economies are shown. The increase in liability flows in the run up to the GFC is visible, as is the ensuing sudden stop. Towards the



**Fig. 2** Emerging markets and selected countries equity and liability flows, millions of dollars. Source: KP dataset (Koepke & Paetzold, 2020) updated March 2022.



**Fig. 3** Brazil and Korea equity and debt flows, millions of dollars. Source: KP dataset (Koepke & Paetzold, 2020) updated March 2022

end of 2009, liability inflows picked up again, as investor risk perception declined and yields stayed low in major economies. Liability inflows remained high until 2015 when investors started expecting major central banks to start unwinding their asset purchases and normalizing policy rates. Even with these fluctuations, it is evident that liability flows have been historically high and persistent for the past decade. This is an indication of increased vulnerability in countries that have been receiving these liability flows.

Liability flows for Chile and India are shown in more detail in Fig. 5. The flows are analyzed according to who is receiving the external funding: public entity, banks or corporations. Liabilities are then further split into portfolio debt and other investment debt. This breakdown can give insights into where vulnerabilities may be present. In the run up to the GFC a large portion of the liability flows into Chile were to corporates and banks in the form of other investment debt. Prior to 2015 this was replaced by portfolio investment into corporate debt and lately increased liability flow into public portfolio debt. Chile has had persistent high liability inflows over the past decade, although at somewhat lower levels than in the last quarters before

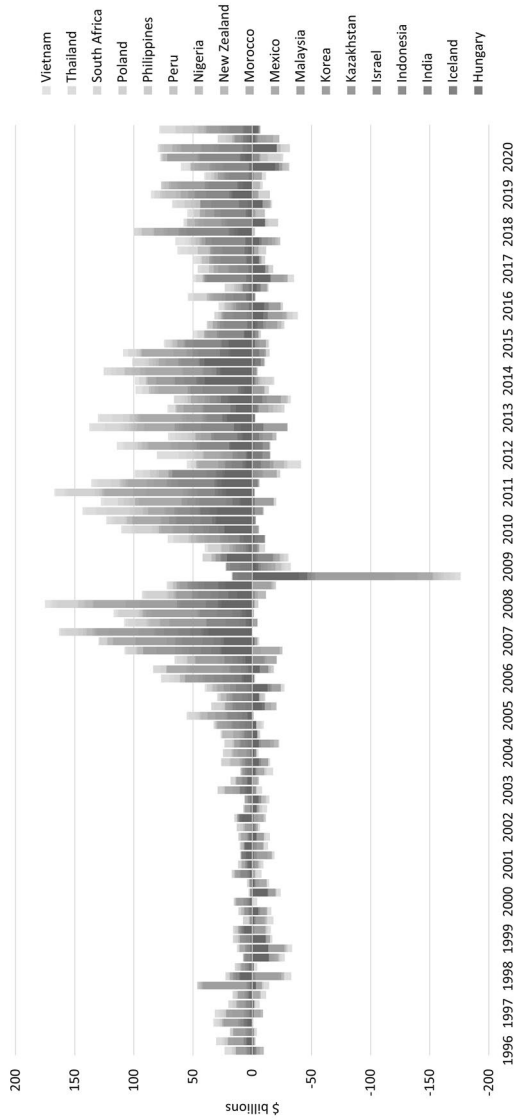
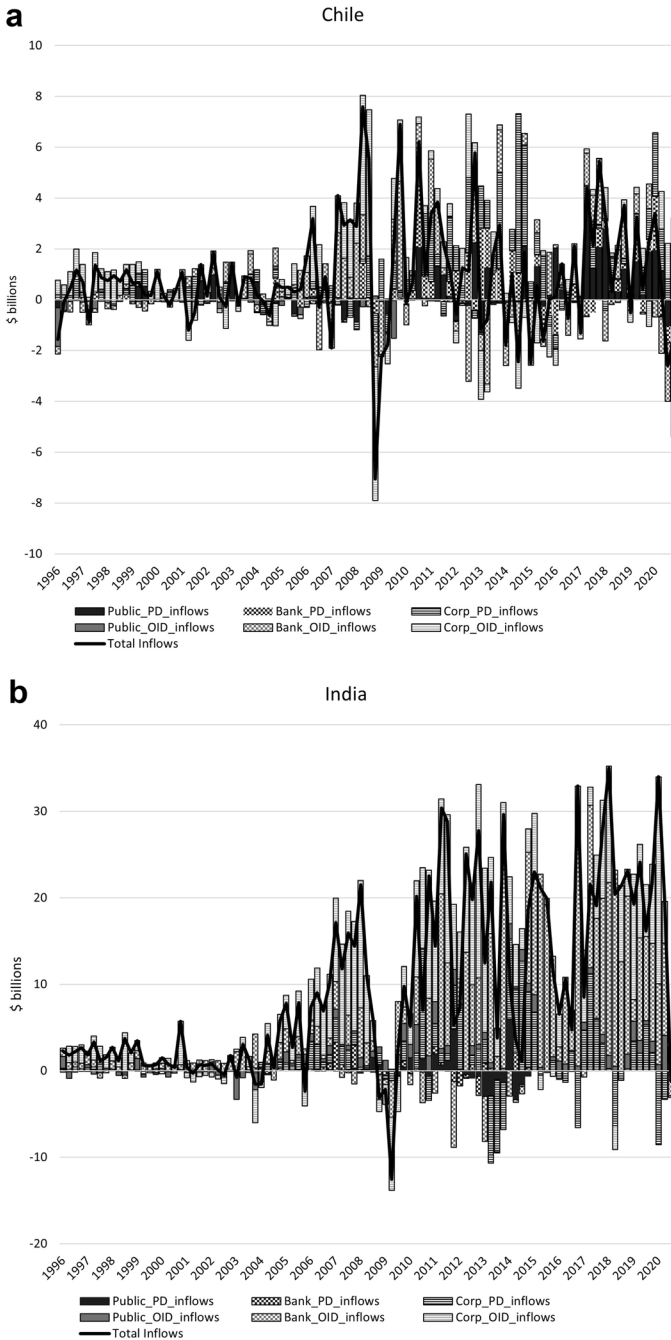


Fig. 4 Liability flows 1996–2020, billions of dollars. Source: Dataset from Avdjiev et al. (2022)



**Fig. 5** Chile and India Liability flows 1996–2020, billions of dollars. Notes: PD=Portfolio Debt, OID=Other Investment Debt, Public=General Government+ Central Bank, Bank=Depository Corporations, except the central bank, Corp=Other Sectors. Source: Dataset from Avdijev et al. (2022)

the GFC. The levels of liability inflows are noticeably higher than in the late 1990s and early 2000s.

India had a sharp increase in liability inflows in 2005–2008, mostly driven by other investment debt of corporations. In 2010 liability flows picked up again after a sharp sudden stop during the GFC. The inflows were comprised mostly of corporate and bank flows. It is particularly noticeable that bank and other investment debt flows have been high into India lately, indicating a potential vulnerability.

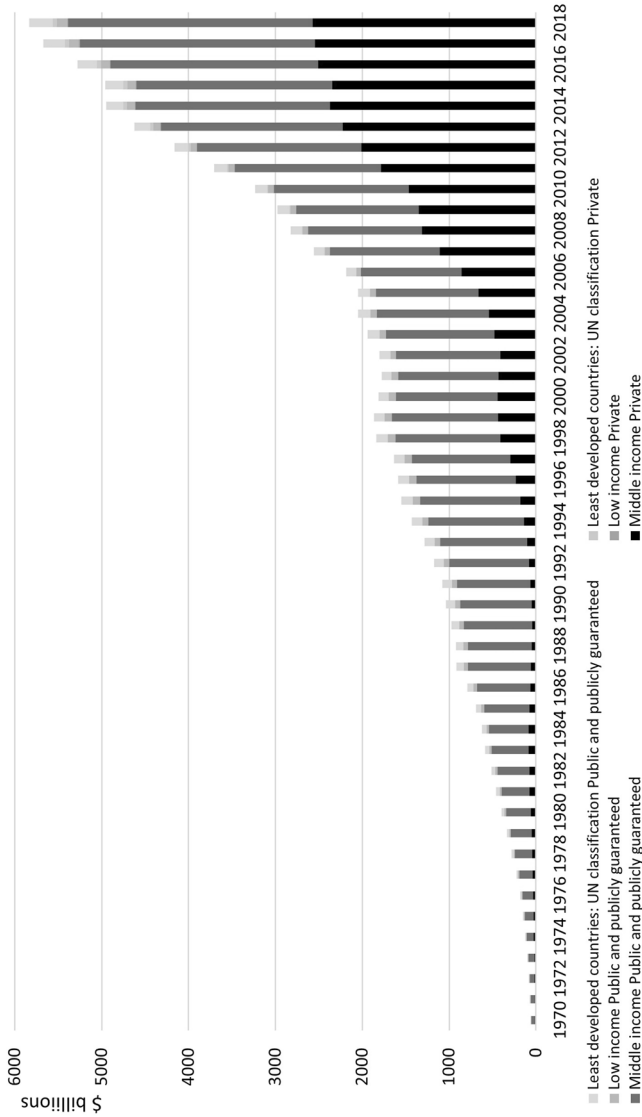
## External Debt and Indication Systemic Risk and Vulnerabilities

External debt has increased steadily for middle income and low-income economies, measured in current dollars, over the past 50 years (Fig. 6). The growth has been particularly fast in middle-income economies. From the turn of the century, this growth has been increasingly driven by private external debt. This indicates that looking solely at government external debt may not be sufficient to evaluate the risk of a balance of payment crisis. External debt as a percentage of gross national product has not been increasing as consistently for as long (Fig. 7). The external debt of middle- and low-income economies as a percentage of gross national income (GNI) grew steadily through the 1970s and even faster through the debt crisis years of 1980s (Fig. 7, 1<sup>st</sup> panel). Then, lower middle-income countries and low-income countries lowered their external debt until after the GFC. Since 2009, however, external debt as a percentage of GNI has increased fast for Latin America and the Caribbean and Sub-Saharan Africa to around 45% of GNI.

As an example, the external debt of Brazil as percentage of GNI rose from around 15% of GNI in early 2011 to close to 40% at the end of 2020 (Fig. 8). Over the same period the external debt of Morocco rose from around 20% of GNI to 60%. Neither one of these levels are a historical high, with both countries having the highest external debt to GNI level in the 1980s, following major economies deflationary interest rate hikes.

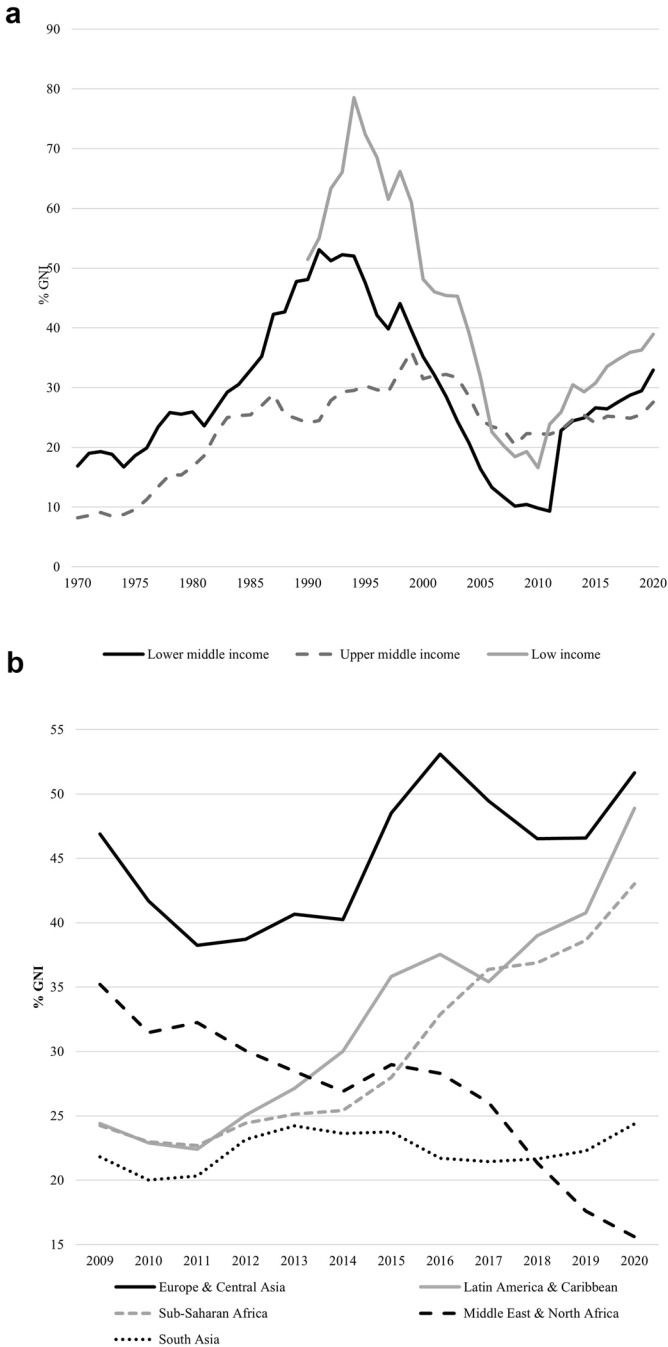
Current levels of external debt are high for low- and middle-income economies. Servicing this debt is going to become increasingly expensive as major central banks increase policy rates. Additionally, there is a risk that debt refinancing will also become an issue, as international investors move their funds. The term structure of the external liabilities is then, as mentioned previously, informative. However, data on short-term external liabilities is scarce and unreliable. Marketable securities and foreign deposits can easily be liquidated, which is not always considered in the data on short-term external liability. Still, Fig. 9 shows external debt and short-term external debt as a percentage of GNI for some countries. It would be good to make a similar figure using reliable data on short-term external liability, which would include liquid marketable assets held by foreigners.

The growth of external debt is an indication of the accumulation of systemic risk and increased vulnerabilities. Looking over the five-year period from 2016 to 2020, the average growth of external debt for 126 countries (Online Supplemental Appendix (OSA) Table 1) was 38% on average. Figure 10 shows clearly that most

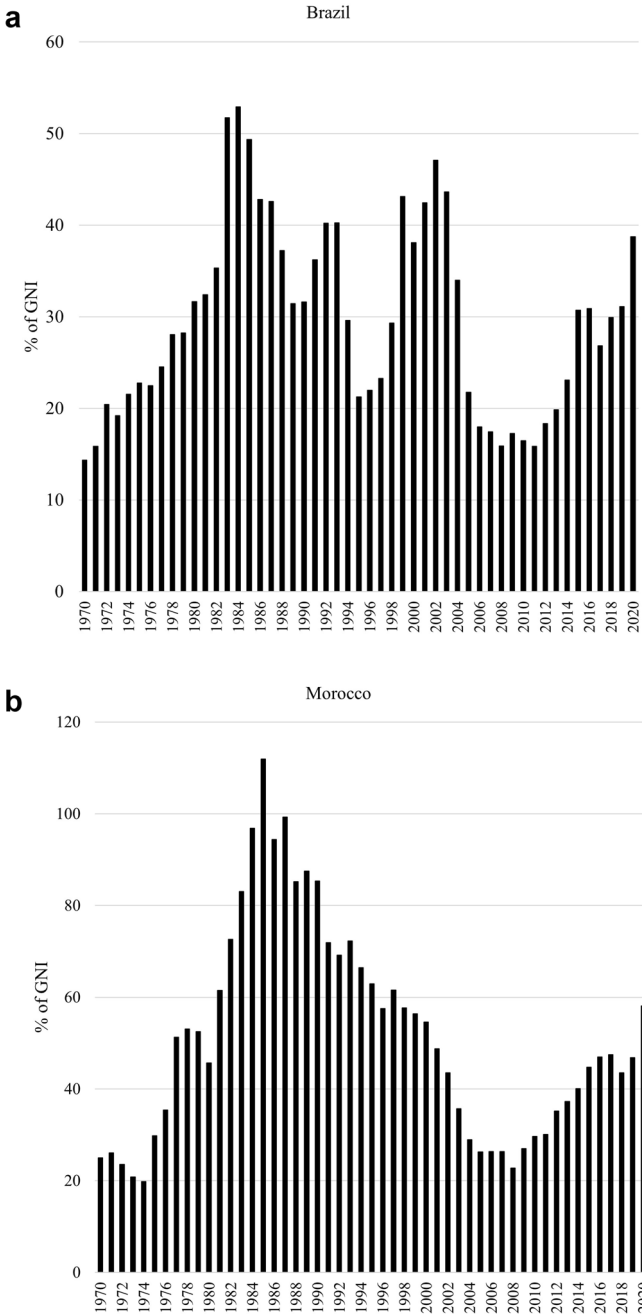


**Fig. 6** External debt by borrowers; current billions of dollars. Source: International Debt Statistics database (World Bank, 2022)





**Fig. 7** External debt as % of GNI by income and region, excluding high income economies. Source: International Debt Statistics database (World Bank, 2022)



**Fig. 8** External debt as % of GNI. Source: International Debt Statistics database (World Bank, 2022)

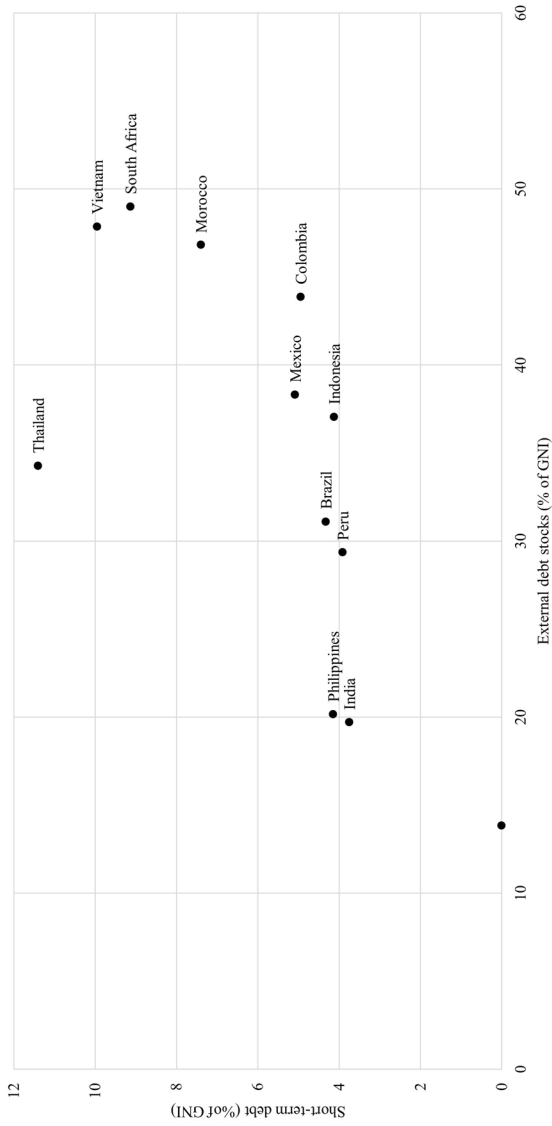


Fig. 9 External debt and short-term external debt as % of GNI. 2019. Source: International Debt Statistics database (World Bank, 2022)

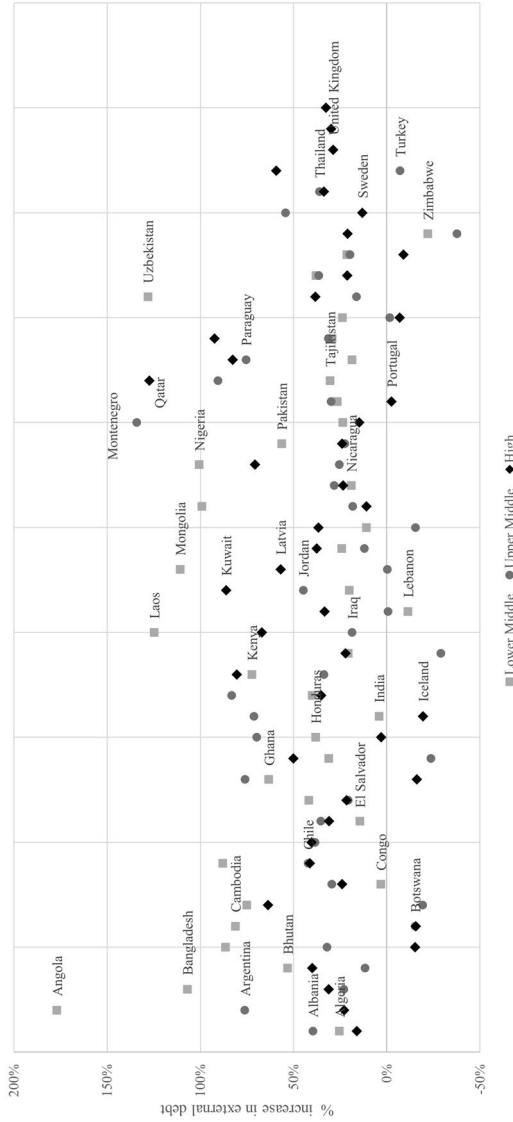
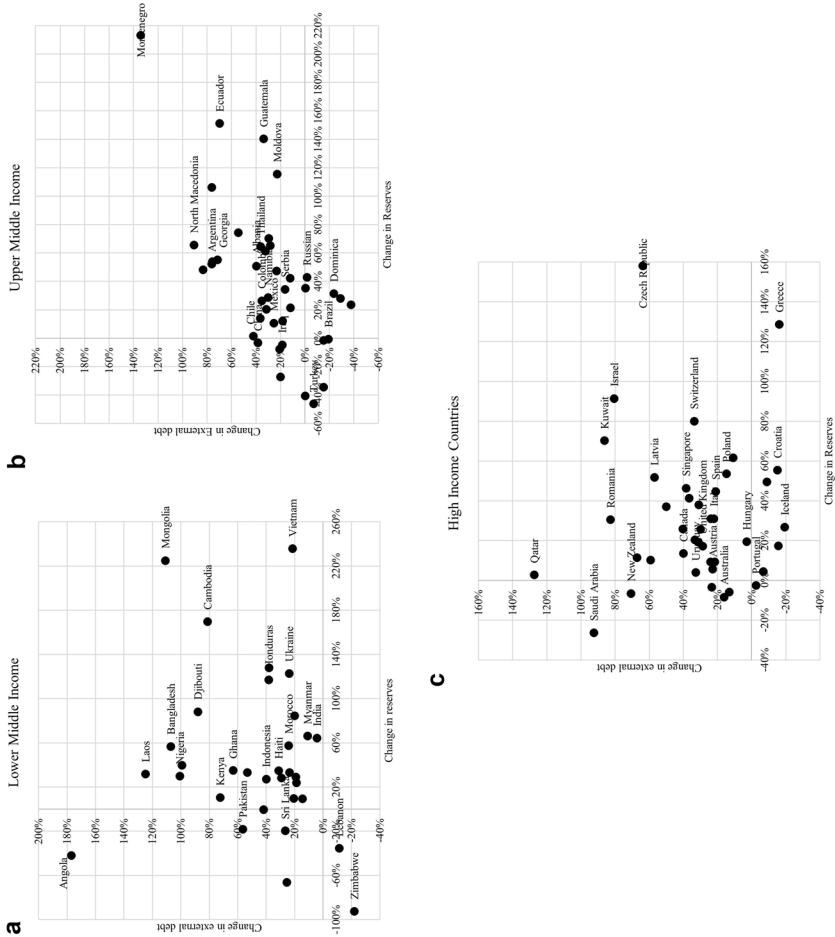


Fig. 10 Changes in external debt 2016–2020 (OSA Table 1). Source: International Debt Statistics database (World Bank, 2022)



**Fig. 11** Changes in external debt and reserves, 2016–2020. Source: International Debt Statistics database (World Bank, 2022)

countries increased their external liability in this five-year period, which includes the first months of the COVID-19 pandemic. Eighty-five percent (107 countries) increased their external liabilities over this period (Fig. 10). Only 19 countries lowered their external liabilities, including countries that were still unwinding their leverage after the GFC: Greece, Cyprus, and Iceland. Other countries were forced to lower their external liabilities due to the economic crisis during this period, such as Lebanon and Zimbabwe.

Nine countries more than doubled their external debt. They are, in alphabetical order, Angola, Bangladesh, Egypt, Laos, Mongolia, Montenegro, Nigeria, Qatar and Uzbekistan. It is notable that most, if not all, of these countries notably increased their external borrowing from China.<sup>8</sup>

The analysis presented in Fig. 10 also shows that lower-middle income countries increased their external debt the most in 2016–2020. The average increase is 50%, with clear outliers like Angola, Bangladesh, Laos, Mongolia, Nigeria, and Uzbekistan. As a group, these countries also increased their reserves on average around 50%, but as Fig. 11 shows, it is not always well matched. As the external debt of Angola almost tripled, its reserves declined. Reserves to total external liabilities went from 66% to 14%. Laos, Nigeria, and Bangladesh are also among the countries whose external liabilities grew notably faster than their central bank reserves. In Laos, central bank reserves are particularly low against total external liabilities (only about 3.5%), which is only second to Zimbabwe in this income group of countries.

External liabilities increased on average 30% in upper-middle income economies, while reserves increased about 40% on average. Montenegro which more than doubled external liabilities also beefed up their reserves. High income economies increased external liabilities by about a third and increased reserves by about half. However, the heterogeneity is much more obvious here than in the middle-upper income group. There are several countries that increased their external debt by more than 60%, while increasing reserves little. Qatar and Kuwait are among them.<sup>9</sup> Kuwait's short-term debt more than doubled in these five years, increasing at a faster pace than the overall external debt. Still their reserves to short-term debt (Greenspan-Guidotti ratio) is strong at 2.0, down from 2.7 in 2016. However, Qatar has a Greenspan-Guidotti ratio of 0.6, down from 1.2.

## Conclusions

Systemic risk has been building up in the past decade during an extended period of low interest rates and increasing borrowing. Cross-border borrowing has risen to levels not seen before and risks may materialize as major central banks embark on combating historically high inflation. In the 1980s, central banks in major economies, including the U.S. and the UK, increased policy rates steeply to combat entrenched inflation. This triggered financial crisis in several non-major economies, most notably

<sup>8</sup> Angola has been paying down debt with increased oil revenues (Bloomberg, 2022).

<sup>9</sup> Saudi Arabia is growing external debt from low levels and lowering reserves from high levels.

in Latin America, where increased interest rates on sizeable external liabilities made debt servicing prohibitively costly.

This paper looks at recent data to discuss potential risks and vulnerabilities now. The evaluation is based on academic research emphasizing that extreme inflow episodes are a sign of accumulation of systemic risk and vulnerabilities, which may result in a crisis. This is stronger if the inflows are liability flows (foreign lending) rather than domestic retrenchment. The composition of the inflows matter, where an extreme increase in FDI is not a significant signal of increased systemic risk. However, portfolio and debt inflows are. The term of the external liability is also a potential risk signal. The shorter the maturities on external debt and the higher the level of liquid market securities foreigners hold, the larger the ensuing capital flow reversal threatens to be.

Three types of data were introduced to gauge the current risk level. First, the KP dataset (Koepke & Paetzold, 2020) shows that capital portfolio and debt flows (excluding FDI) to EMEs were much higher and more volatile in the past decade. Portfolio and debt inflows are persistent, while reversals are swift and extreme. The increased volume in debt and portfolio flows indicates higher risks and vulnerabilities today.

A novel dataset from Avdijev et al. (2022) showed that liability flows were historically high and persistent for the past decade. Again, this is an indication of increased vulnerability in countries that have been receiving these liability flows. This dataset also shows into which sectors in individual countries these liability flows are going. This gives a good indication of where the vulnerabilities are, such as if there is increased risk of a government debt default, banking crisis or individual corporations defaulting. All of these could result in a financial crisis through contagion.

The World Bank (2022) International Debt Statistics dataset includes data on levels of external leverage. Non-major economies have been increasing their external debt over the years. Of the 126 countries explored, 107 of them increased their external debt in 2016–2020. Nine countries doubled their external leverage, most with a lot of credit from China. This all indicates a high level of systemic risk and vulnerabilities.

Despite these improved data sources on capital flows, liability flows and external debt exposure, there are still some obvious gaps in the data. Term structure of external debt is not always available or reliable. Additionally, it would be informative to know to what extent foreign investors are present in highly liquid securities markets. Both would give an indication of how sudden a sudden stop and reversal of flows can be.

Most of the indicators explored in this paper point to high levels of systemic risk and considerable vulnerabilities to interest rate increases and investor retrenchments in major economies. This is despite many non-major economies having employed macroprudential policies in an attempt to lean against this risk accumulation. Many non-major economies still seem quite vulnerable to external-debt-sustainability-driven financial crisis in the next months.

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