EU Tax Observatory Working Paper No. 41

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December 2025

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9 December 2025

Abstract

This paper constructs homogeneous time series of global household offshore wealth covering the 2001–2023 period, during which major international efforts were implemented to curb offshore tax evasion. We find that: (i) global offshore wealth remained broadly stable as a fraction of global GDP since 2001, following a sharp increase in the 1980s and 1990s; (ii) the location of offshore wealth changed markedly, with a decline in the share held in Switzerland and a rise of Asian financial centers, the United Kingdom, and the United States; and (iii) a growing fraction comes from developing countries.

JEL classifications: H26, H87, E21
Keywords: Tax havens, Tax evasion, Wealth, International investment positions

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1 Introduction

In this paper, we extend Zucman's (2013) estimate of global offshore financial wealth, which covered 2001-2008, up to the year 2023. Using the same methodology and updated input tables from more than 20 different data sources, we compute the annual global portfolio assets-liabilities gap from which we derive the total value of financial assets held offshore for the 2001-2023 period. We build on the methodology developed by Alstadsæter, Johannesen and Zucman (2018) to estimate the amount of offshore wealth held by each country in each financial center and analyse changes in the location and origins of offshore financial wealth over two decades. We further extend the global estimate backwards to 1980 by extrapolating from missing portfolio income in the international balance of payments statistics as observed by Zucman (2013).

The results suggest that offshore financial wealth has increased sharply in the 1980s and 1990s and remained broadly stable in % of GDP and in % of household financial wealth since the early 2000s. We find that the share of offshore wealth held in Switzerland has declined significantly since 2006, while the share held in Asian financial centers, in the United Kingdom, and in the United States has increased. The owners of offshore financial wealth are still predominantly located in high-income countries but the share of middle- and low-income countries has increased over the last two decades.

Before the implementation of the Foreign Account Tax Compliance Act (FATCA) and the Common Reporting Standard (CRS), most of offshore financial wealth could be assumed to go untaxed. Available estimates suggest that about 90%-95% of offshore financial wealth went unreported to tax authorities in 2007-08, implying large tax revenue losses for governments. Today, the scope for hiding accounts offshore, seems dramatically reduced. Estimates from Danish CRS micro data suggest that only 17% of foreign financial wealth owned by Danish residents are still hidden from the tax authorities while ownership of the remaining 83% is likely to have been revealed through the CRS (Boas, Johannesen, Kreiner et al., 2023). However, the increasing transparency and exchange of information does not seem to have had dramatic effects on the amount of household wealth held offshore, indicating that tax evasion cannot be the primary motive for holding financial assets offshore today.

Our research contributes to a growing body of literature on anomalies in the international investment statistics, offshore financial wealth, and international reforms to tackle cross-border tax evasion. While Lane and Milesi-Ferretti (2007) had first analyzed the systematic assets-liabilities gap in international investment statistics, several researchers have since then used it to derive estimates of global offshore wealth (Zucman, 2013, Pellegrini, Sanelli & Tosti, 2016;

Vellutini, Casamatta, Bousquet et al., 2019; ECORYS, 2021). With this paper we provide the most recent estimate for 2023 and a comprehensive update of the Zucman (2013) methodology. New research on the global portfolio assets-liabilities gap suggests that a significant portion of assets without identifiable country of ultimate ownership are managed or held in custody in the United Kingdom which appears to have overtaken Switzerland as a key intermediary (Beck et al., 2024, Milesi-Ferretti, 2024). We incorporate their insights which have implications for the size of global offshore wealth as well as for the allocation of offshore wealth across financial centers.

The stability of global offshore wealth in times of rising international transparency highlights the importance of research into non-tax related reasons for holding wealth offshore such as capital flight (Marchesi & Marcolongo, 2025), corruption (Andersen, Johannesen et al., 2017, Andersen, Johannesen & Rijkers, 2022, Marcolongo & Zambiasi, 2022), sanction evasion (Kavakli, Marcolongo & Zambiasi, 2023, Langenmayr et al., 2025) or circumvention of foreign investment restrictions (Florez-Orrego, Maggiori, Schreger et al., 2023). The changing geographical distribution of offshore wealth might also stimulate further research about uneven progress towards global transparency (Janský, Palanský, & Wójcik, 2023, Alstadsæter, Casi-Eberhardt et al., 2023) or gaps in the Common Reporting Standard (Bomare & Collin, 2025).

The updated country-by-country estimates allow for a comparison with recent country studies of offshore tax evasion informed by tax amnesties or data from the automatic information exchange (Londoño-Vélez & Tortarolo, 2022, Johannesen, Reck, Risch et al., 2023, Boas, Johannesen, Kreiner et al., 2023) which might serve as benchmarks for evaluating the country-level results produced by the Alstadsæter, Johannesen and Zucman (2018) methodology. Finally, the updated figures allow for a comparison with CRS-reported foreign wealth, which may become the leading source of information on offshore financial wealth once country-by-country CRS statistics will be made publicly available.

The paper is structured as follows: Section 2 provides our definition of offshore wealth and outlines our methodology. Section 3 presents our global and country-level estimates for the 2001-2023 period. Section 4 extends the global offshore wealth estimate back to 1980. Section 5 discusses our results in the light of new insights from international investment statistics and compares our country-level estimates to country studies on offshore wealth and to recently published CRS statistics. Section 6 concludes.

2 Definitions and Methodology

This section explains the concept of offshore financial wealth which is not necessarily identical to wealth hidden from tax authorities in times of increasing international financial transparency. We outline the data and methodology used to update estimates of offshore wealth globally and by country. Additional and more detailed descriptions can be found in the Appendix and in the replication package available at github.

2.1 What is Offshore Financial Wealth

Household offshore financial wealth refers to financial assets held by individuals in financial centers[1] outside of their residence country. Financial assets include bank deposits and portfolios of securities (equities, bonds, and mutual fund shares). Offshore bank deposits are deposits held in foreign banks in financial centers, for example, deposits on a Swiss bank account owned by a French resident. Offshore securities are securities held through foreign custodian banks in financial centers. For example, a French resident may own shares of a French or a German company. Both would be considered "offshore" if held through a custodian in a financial center outside of France, e.g. in Switzerland or the United Kingdom.

It is not illegal to hold financial assets abroad. The income earned on these offshore assets (such as interest, dividends, and capital gains) must simply be reported to domestic authorities, as countries typically tax the worldwide income of their residents, no matter where this income is earned. The wealth itself must be reported in the countries that have a wealth tax. In addition, some countries require the owners of these assets to report offshore holdings on specific forms (for instance in the United States on Foreign Bank Account Reports for holdings above $10,000), even if no income is earned or no wealth tax exists. For a long time, it was straightforward to evade taxes on offshore income and wealth without being detected. This is because until 2017 most offshore financial institutions did not communicate information to foreign tax authorities, except on an ad-hoc basis when information was requested for specific taxpayers who had aroused suspicion (Johannesen & Zucman, 2014). A large body of economic research shows that whenever there is no automatic third-party reporting of information to tax authorities, tax evasion tends to be widespread (Kleven, Knudsen et al., 2011). This was particularly true for taxes on offshore capital income and wealth, as the industry had developed since the 1920s (first in Switzerland, then in some other financial centers) to facilitate wealth concealment by

[1] We have updated the list of jurisdictions hosting offshore financial wealth compared to Alstadsæter, Johannesen and Zucman (2018). See Appendix B.1.

non-resident individuals (Zucman, 2015).

Offshore banks provide a variety of services to their customers, so that even when tax evasion occurs, it is not necessarily the only or even primary motive for having offshore accounts. These banks may offer investment services that are not available in the customers' home country or are only available at a higher cost (such as brokerage services, wealth management, or access to certain investment funds); they may allow customers to circumvent certain regulations (such as foreign exchange controls); they may help people dissimulate assets from spouses (e.g., in the context of a divorce), from business partners (e.g., in the context of bankruptcy), from regulators (e.g., in the context of the illicit financing of a political campaign); they may allow individuals to avoid international sanctions; they may be used to launder the proceeds from illegal activity. When offshore accounts are used for these more questionable purposes, they are typically combined with opaque ownership structures involving shell companies, foundations, trusts, and nominees located in different countries, including territories with a poor track-record of cooperation with foreign authorities.

2.2 Estimating Global Offshore Financial Wealth

For a long time, it was difficult to estimate the amount of wealth owned offshore by households, let alone to know who owned that wealth and the motives behind these holdings. This situation started to change in the early 2010s, thanks to an increase in data availability and new research in this area. Zucman (2013) developed a methodology to estimate the global amount of household offshore wealth, exploiting official statistics published by the Swiss central bank, the Bank for International Settlements, and systematic anomalies in the international investment positions of countries. We use and extend the Zucman (2013) methodology to update the estimate of global offshore financial wealth and analyze in which jurisdictions it is located.

The global portfolio assets-liabilities gap The basic idea behind the methodology is simple. When individuals own portfolios of financial securities – stocks, bonds, mutual fund shares – offshore, these holdings cause anomalies in global investment statistics. Take the case of a French resident individual who owns US equities on a Swiss account. The French statistical authorities typically do not observe these holdings, because their data are based on surveys of French financial institutions and companies. As a result, no asset would be recorded in France. US statisticians would duly record a liability vis-à-vis the rest of the world: they observe that some US equities are owned in custody in a Swiss bank. Finally Swiss statisticians would record neither any asset nor any liability for Switzerland – and rightly so, as these assets belong to

a French resident. As a result, more liabilities are recorded globally than assets, as if Earth was owned in part by another planet. This mismatch has been long noted by the International Monetary Fund and researchers working in this area. By exploiting it, Zucman (2013) estimated the size of portfolio wealth held offshore. We build on the same methodology to update these estimates, originally available for the period 2001-2008, annually all the way to 2023.

Our key data sources for this update are the Coordinated Portfolio Investment Survey (CPIS) of the IMF and the External Wealth of Nations Database (EWN) by Lane and Milesi-Ferretti (2018). For the computation of global assets we use data for 2001-2023 from the September 2024 wave of the CPIS which presents bilateral portfolio holdings of 94 jurisdictions and international organizations on 244 debtors. For the computations of global liabilities, we use the January 2025 wave of the EWN dataset (Milesi-Ferretti, 2025) which contains aggregate portfolio assets and liabilities of 212 countries.

Not all jurisdictions report all assets held by their residents or public institutions to the CPIS, so we have to make several adjustments to avoid over-estimating the amount of offshore wealth. The most important adjustments are for non-reported assets by China and Middle Eastern oil exporters which are to a large extend held by central banks or sovereign wealth funds. These assets are not hidden from the domestic authorities but just not reported internationally for strategic reasons. In addition, up until 2015, the CPIS numbers for Cayman Islands did not include the hedge funds industry. We estimate these underreported assets based on different additional data sources, most importantly the bilateral foreign liabilities reported by the U.S. in the Treasury International Capital (TIC) System. Furthermore, we make other smaller adjustments to fill reporting gaps, for example we extrapolate missing years of CPIS-reporting countries or obtain assets from the EWN database or from creditor-derived liabilities for non-reporters (see Appendix A.2 - A.7 for more details on country-specific corrections).

We also make some adjustments on the liability side, among which corrections for Cayman Islands and non-EWN countries (see Appendix A.8). An important development since Zucman (2013) has been the rise in the number and size of publicly listed non-financial companies (especially Chinese) incorporated in the Cayman Islands, e.g. Alibaba, Tencent, Baidu, etc. We compute their equity value using data from *Compustat Global - Security Daily* and add a share of these non-financial corporations' liabilities to the estimated liabilities of the Cayman Islands' hedge funds industry (see Appendix A.2). The liabilities of the Cayman Islands estimated in this way exceed the EWN liabilities in all years, on average by 30%. Finally, we compute the portfolio assets-liabilities gap by country and globally. We thereby replicate the assets-liabilities gap of Zucman (2013) for the years 2001-2008 with minor discrepancies mainly due

to data revisions (see Appendix A.9) and extend it up to 2023.

Incorporating new evidence on Irish investment fund holdings An important part of the global assets-liabilities gap arises due to investment funds domiciled in financial centers which manage portfolio assets on behalf of their shareholders. Beck et al. (2024) find that in 2020 Irish investment fund liabilities towards the UK exceed the CPIS-reported equity assets of the UK in Ireland by more than a trillion USD. Most of these missing assets are likely managed in the UK on behalf of non-residents and form part of our global offshore wealth estimate. However, the currency composition of the Irish investment funds' bond holdings also suggests that UK-based clients own a relevant share of them as they have a stronger preference for pound-denominated assets than investors from other countries (Ibid.).[2] Strikingly, even the fraction of pound-denominated bonds of investment funds still exceed the CPIS-reported equity and fund share assets of the UK in Ireland, suggesting some underreporting of UK-owned assets in the CPIS. To incorporate these insights, we estimate what fraction of the missing fund shares are actually underreported assets owned by UK residents and add those to the UK's CPIS-reported assets. These should not be part of our global offshore wealth estimate as they are held by residents of the UK in the UK. To give a sense of magnitude, our correction suggests that the UK's equity and fund share assets in the CPIS have been underreported by about 20% in recent years (see Appendix A.5).

Bank deposits On top of offshore security wealth derived from the global assets-liability gap, we need to estimate the share of global offshore wealth held in bank deposits. The Swiss National Bank publishes detailed statistics on both security holdings and fiduciary deposits in Swiss bank custody accounts from which Zucman (2015) infers the global ratio of offshore wealth held in deposits versus securities. We use Zucman's (2015) number for end-2013, $1500 billion, which suggests that bank deposits make up 18% of total offshore wealth. We assume that deposits have grown at the same rate as offshore portfolio assets before and after 2013. This constant ratio ignores potential temporary restructuring of assets in high vs. low interest phases but we assume that the portfolio asset-liability gap provides an acceptable global trend across business cycles.

[2] Beck et al. suggest that part of these pound-denominated bonds might be assets of British liability-driven investment funds resident in Ireland which channel the assets of British pension funds.

2.3 The Location of Offshore Wealth

Offshore wealth held in Switzerland can be observed from the Swiss National Bank's statistics on security holdings and fiduciary deposits in Swiss bank custody accounts (see Appendix B.2). Having subtracted the offshore wealth held in Switzerland from the global total, we allocate the remaining offshore wealth to other financial centers based on the BIS locational banking statistics. To do so, we need to make a few crucial assumptions. As we cannot observe the distribution of security holdings across financial centers, we first assume that it follows the same distribution as bank deposits. Second, we need to make assumptions about the share of accounts held by households versus firms in each financial center as household and corporate wealth likely follow a different geographical pattern. Financial centers that host a lot of multinational enterprises might bias our allocation of household wealth because the firm accounts inflate their foreign-owned BIS non-bank deposits. However, the breakdown into deposits owned by households versus firms provided by the BIS it not useful for our purpose because the use of shell companies blurs the distinction between personal and firm accounts.

Due to the blurry line between firm and personal wealth we make our own assumptions of how the share of deposits ultimately owned by households varies by financial center, with a lower household share in jurisdictions such as Cayman Islands and Luxembourg which host a lot of investment funds or multinational corporations, and a higher share in financial centers more specialized in personal wealth management such as Cyprus or Panama. Notable modifications compared to Zucman (2013) include the increase of the assumed household share in UK deposits to account for its outstanding role in wealth management on behalf of non-residents (Milesi-Ferretti, 2024, Beck et al. 2024). We further let the household share of Austria and Belgium converge to zero because, compared to the early 2000s, they lost attractiveness as financial secrecy jurisdictions following the EU Savings Directive and the introduction of the Common Reporting Standard (see assumptions table in github repository).

Adding the United Arab Emirates As we rely on BIS data to allocate the offshore wealth to non-Swiss financial centers, we lack information to allocate offshore wealth to financial centers not reporting to the BIS, such as the British Virgin Islands or the United Arab Emirates. The Central Bank of the United Arab Emirates at least provides aggregate figures on foreign-owned deposits held in the UAE which we use to extend our coverage of major financial centers compared to Alstadsæter, Johannesen & Zucman (2018). The United Arab Emirates are listed as one of the 21 jurisdictions in the core of the tax evasion network analyzed by García Alvarado

& Mandel (2022), rank among the top 25% most secretive jurisdictions according to the Financial Secrecy Score (Tax Justice Network, 2022) and have reached nearly half of the global financial scale weight of the British Virgin Islands in 2022 (Ibid.). For this reason, we allocate offshore financial wealth to the UAE even though it was not (yet) included in the Johannesen & Zucman (2014) list of tax havens.

2.4 Ownership of Offshore Wealth by Country

The next step is the allocation of offshore financial wealth to the countries of residence of its owners. Again following Alstadsæter, Johannesen and Zucman (2018), we rely on the distributions of foreign deposits from the SNB and the BIS Locational Banking Statistics but need to make some additional adjustments to produce consistent time series estimates for each country.

Offshore wealth in Switzerland The Swiss data provides a break-down of fiduciary deposits held in Swiss banks' custody by country of the account holder. This allows us to distribute offshore wealth held in Switzerland to the countries of ownership. As discussed by Alstadsæter, Johannesen & Zucman (2018) a growing share of the wealth owned by foreigners in Switzerland is wrongly attributed to residents of financial centers due to the use of shell companies. We thus redistribute the Swiss deposits owned by financial centers back to other countries by assuming that the deposits indirectly held through shell companies actually follow the same ownership distribution as the directly owned deposits.

Beforehand, we make an additional correction: As noted by Zucman (2013), we observe a sharp drop of Swiss deposits owned by Europeans in 2005 and a symmetric increase of Swiss deposits owned by financial centers in the original SNB data (Figure 7a) which coincides with the adoption of the Savings Directive in the European Union.[3] We thus assume that an important share of Swiss accounts are still owned by Europeans post-2005. In line with Alstadsæter, Johannesen & Zucman (2018), we neutralize this drop in European-owned deposits by freezing the distribution of fiduciary deposits in 2005 and 2006 at the average 2003/2004 values. In the following years, we let each country's share of deposits grow at the originally observed rates.

FDI-corrected allocation of offshore wealth held in Switzerland In an alternative specification, we reallocate all Swiss deposits owned by financial centers based on the distribution of Foreign Direct Investment (FDI) in those centers from non-financial centers. We

[3]Since 2005, Swiss banks were required to withhold a tax on interest earned by Europeans which could be circumvented by transferring the ownership to shell companies in other financial centers.

thus redistribute the Swiss deposits owned by financial centers to other countries present in the Swiss fiduciary data, by assuming that Swiss deposits held through shell companies reflect the same ownership distribution as FDI inflows into financial centers from other countries, and redistribute them accordingly.

Offshore wealth in other financial centers For the allocation of offshore wealth held in non-Swiss financial centers, we use the bilateral BIS Locational Banking Statistics. In 2016, several financial centers authorized the BIS to disseminate bilateral data which, for example, discloses the amount of French residents' deposits in Luxembourg or Hong Kong. Alstadsæter, Johannesen, and Zucman (2018) developed a methodology that uses these data to allocate the global amount of offshore financial wealth held outside of Switzerland to the country of owners. We build on this methodology to distribute offshore financial wealth according to the distribution of deposits held in BIS-reporting financial centers for each year between 2001 and 2023. As in the Swiss case, part of financial center deposits is wrongly attributed to being owned by residents of other financial centers due to shell companies. So again, we redistribute it back to other countries based on the distribution of financial center deposits owned by other countries. Finally, we use a 5-year moving average to smooth the development of offshore asset ownership over time because BIS deposits can be very volatile.

In contrast to Alstadsæter, Johannesen, and Zucman (2018), we have to rely on publicly available bilateral BIS data so we need to infer the development of bilateral deposits hosted by Bahamas, Bahrain, Bermuda, Cayman Islands, Curacao, Malaysia, Panama, and Singapore from the global residual of non-bilaterally allocated deposits in the years prior and past 2006/2007. This is because these jurisdictions still do not publicly disclose bilateral deposits and the "offshore financial center" sub-aggregate used by Alstadsæter, Johannesen, and Zucman (2018) is not publicly disclosed (see Appendix B.4 for more details).

To estimate who owns offshore financial wealth hosted in the United Arab Emirates, we rely on additional data sources because the United Arab Emirates do not report to the BIS and the UAE Central Bank reports only aggregate foreign-owned deposits. We therefore construct a country-level distribution of UAE deposit ownership using bilateral data on foreign direct investment into the UAE and data on foreign real estate purchases in Dubai from Alstadsæter et al. (2022), assigning equal weights (50% each) to these two sources.

Correction of Russian offshore wealth In our benchmark estimate, we reallocate 80% of Cyprus-owned Swiss fiduciary deposits to Russia to avoid underestimating the true level

of offshore wealth owned by Russian residents. Estimates by Alstadsæter, Johannesen, and Zucman (2018) suggest that the majority of wealth of the richest Russian residents was held outside of Russia already between 2000 and 2009 which was consistent with substantial capital flight highlighted by Novokmet et al. (2018). Since 2014, we observe a decline of Russian-owned Swiss fiduciary deposits which absent corrections would translate into declining offshore financial wealth. We assume that this is not due to a repatriation of funds back to Russia but the result of more opaque ownership structures for two reasons: First, the decline of Russian-owned Swiss deposits coincides with the beginning of the Russo-Ukrainian war and the implementation of several cycles of sanctions against Russia by the European Union, the United States and Canada including restricted capital market access and the step-wise freezing of Russian public and private foreign assets (see for example European Council, 2025). The sanctions provide a strong incentive to conceal Russian asset ownership. Second, we observe a nearly symmetric increase of Cyprus-owned fiduciary deposits: While Russian-owned fiduciary deposits declined by 2 percentage points between 2015 and 2022, the Cyprus-owned increased by 2 percentage points (Figure 8). We suspect this development to be driven by Russian beneficial owners using Cyprus shell companies or nominees or changing their citizenship or residence through golden passport or citizenship by investment programs. For example, the International Consortium of Investigative Journalists has highlighted the role of Cypriot financial service providers helping shield Russian oligarchs' assets (Woodman and Weinberg, 2023) and research by Surak (2023) suggests that Russian asset owners make for a sizeable part of Citizen-by-Investment programs in the EU, and specifically the golden passport programs offered by Cyprus.

3 Results: Offshore Financial Wealth, 2001–2023

Based on the most recent publicly available data and the time-series adapted methodology, we provide estimates of offshore financial wealth held by households globally, broken down by location and country of ownership and spanning the period 2001 to 2023. The resulting time series allow us to analyze global and regional trends and discuss implications for the global economy, particulary in the context of the automatic exchange of information.

3.1 Aggregate Trends

Our estimates suggest that financial assets worth approximately USD 13 trillion were held offshore in 2023. Offshore financial wealth appears to have evolved at roughly the same pace as global GDP over the last 20 years. It has hovered around the equivalent of 10%, as shown

in Figure 1. Year-to-year variation primarily reflects fluctuations in asset prices: in years of strong stock market growth (such as 2020 and 2021), wealth in general – and offshore wealth in particular – tend to grow faster than GDP, and vice versa during episodes of stock market declines. No clear trend appears over the medium run. Measured as a share of global household financial wealth, offshore holdings have fluctuated around 7 % between 2001 and 2023, again without a clear trend (Figure 2). The increasing transparency and exchange of information does not seem to have had dramatic effects on the amount of household wealth held offshore, indicating that tax evasion cannot be the primary motive for holding financial assets offshore today.

3.2 Changing Location of Offshore Wealth

Both the location and origin of offshore wealth have changed over the last two decades. Figure 3 plots the evolution of the location of offshore wealth. The frontier between the different financial centers can be fuzzy – for example, wealth that is managed by bankers in Zurich might be recorded in a subsidiary in Singapore – so the results should not be over-interpreted. However, a number of interesting findings emerge. First, a growing fraction of global offshore wealth appears to be managed in the United Kingdom and in Asian financial centers, the most notable being Hong Kong and Singapore. As a result, the share of Asian financial centers has increased from 19% to 37% over the last two decades. Second, a smaller fraction is managed in Switzerland, historically the epicenter of offshore wealth management. Prior to the financial crisis of 2008–09, almost half of global offshore wealth was managed in Switzerland. Today this share is down to 22%. The share of American financial centers has increased slightly, from 9% in 2001 to 13% by 2023. At the individual level, Hong Kong and the United Kingdom stand out as they have increased their shares in global offshore wealth hosted to 20% in 2023, starting from lower levels of 4% and 8% respectively, in 2001. The shares of Singapore and the United States grew from 7% to 10% and from 2% to 10% respectively (Appendix Figure A.1). As discussed in Section 2, we have added the United Arab Emirates to the list of financial centers hosting offshore financial wealth. Our estimation suggests that offshore wealth held in the UAE has increased sharply over the last two decades but still accounts for a minor share of global offshore wealth reaching 2% in 2023 (Appendix Figure A.4).

The changing location of offshore wealth may reflect institutional changes towards more financial transparency but also general economic trends. It is plausible that increased financial transparency has made access to Swiss secrecy more costly for potential clients so that other financial centers might have become relatively more attractive. For example, recent research

suggests, that offshore deposits were shifted from CRS-participating tax havens to the U.S. because under FATCA the U.S. do not grant the same level of transparency to other countries as required by the CRS (Casi, Spengel & Stage, 2020). The rise of Asian financial centers, likely reflects the growth of Asian economies attracting foreign investments which might be facilitated by wealth managers in Hong Kong or Singapore. China, in particular, strictly regulated foreign capital inflows and assigned quotas for investing in its bond and equity markets to selected "RMB Qualified Foreign Institutional Investors" most of which were located in Hong Kong and Singpore (State Administration of Foreign Exchange, 2020).

At the same time, wealthy residents of Asian countries moving assets offshore might prefer Asian financial centers due to geographic or cultural proximity. Capgemini estimates that in Asia High-Net-Worth Individuals' financial wealth has risen by 8.7% annually on average between 2008 and 2023 compared to 7.7% globally (Capgemini Research Institute for Financial Services Analysis, 2024). This would be in line with a rise of financial services offered by private banks and asset managers in Asia and also with the observed rise of family offices as a relatively new vehicle for wealth management in Hong Kong and Singapore (Wong and Hsu, 2024).[4] The increasing offshore wealth owned by middle and low income countries (see following section) might generally favour the rise of Hong Kong, as it ranges higher on the top 10 secrecy jurisdictions for lower middle income countries than for example Switzerland (Janský, Meinzer & Palanský, 2021).

3.3 Changing Origin of the Wealth

Analyzing regional patterns in ownership of offshore wealth we find that the share of offshore wealth owned by middle- and lower-income countries[5] has increased by eight percentage points between 2001 and 2023 while that of high-income countries has declined (Figure 4). This trend has stabilized since 2019. It seems to correlate with the development of GDP as the share of middle- and low-income countries increased from 20% to 40% in the same period (Appendix Figure A.7). This might indicate that the relative increase of offshore financial wealth owned by middle -and lower-income countries can be explained by stronger economic growth. At the individual country level, the relationship between offshore financial wealth growth and GDP

[4]Quantitative estimates by Deloitte.Private (2024) suggest that North America and Asia Pacific have been the two regions with the fastest growth in the number of family offices between 2019 and 2024 with a growth of 44% and 28% respectively. North America remains the epicentre of the Family Office Business. According to Deloitte family offices managed assets worth USD 3.1 trillion globally in 2024 of which USD 1.3 trillion in North America and 590 billion in Asia Pacific.

[5]Countries are assigned following the 2022 World Bank classification, with some adjustments (see notes below Figure 4.

growth appears to be blurry, though. We find a positive correlation of average annual growth in offshore financial wealth and average annual GDP growth of 0.17 once excluding the outliers Palau, Timor-Leste, and Tuvalu[6] (Appendix Figure A.8).

The weak correlation of countries' offshore financial wealth growth and domestic GDP growth points to additional country-specific factors — such as taxation, tax enforcement, political and economic uncertainty, corruption risk, or inequality — which might influence a country's propensity to hold assets offshore. At the same time, the fact that middle- and lower income countries' share in offshore financial wealth has increased much more slowly than their share in global GDP (+37% vs. +100%) might also indicate that an important share of capital returns earned globally still flow to asset owners residing in the Global North. In a few important emerging and newly industrialized economies such as China, Korea, Mexico, and Vietnam, however, offshore financial wealth has grown markedly faster than GDP (Appendix Figures A.12, A.13). This might be related to the surge in high-net-worth individuals in these countries, with Vietnam and China ranking first and second in millionaire population growth between 2013 and 2023 (Henley & Partners, 2024).[7]

At the country level, we observe a few notable changes in the ownership of offshore wealth compared to the 2006/2007 results by Alstadsæter et al. (2018). Figure 5 plots offshore wealth owned by each country in 2007 and in 2023 in % of their GDP focusing on large economies with GDP exceeding $200 billion in 2007. Taiwan and Qatar lead the ranking with 100% and 90% of GDP today and have overtaken Venezuela and Saudi Arabia which were in the lead in 2006/2007. Greece holds the third position with 82%, followed by Saudi Arabia with 52% in GDP and the United Kingdom and Portugal, each at 40% of GDP. For most large economies, the share of offshore wealth has increased slightly compared to 2007, in line with global offshore wealth. Notable exceptions are Argentina, Belgium, Germany, Turkey, and the United States whose offshore wealth has decreased relatively to GDP.

Our preferred methodology and the FDI-corrected distribution of Swiss offshore wealth produce broadly similar global trends. The FDI-corrected series shows a more pronounced rise of the share of middle- and low-income countries in global offshore wealth but it also stabilizes in recent years (Appendix Figure A.15). Comparisons at the regional and at the country level illustrate the sensitivity of individual country results to the underlying assumptions without fundamentally changing the overall picture. For individual European countries, most notably,

[6] These two jurisdictions have average annual offshore wealth growth rates above 100% because of extreme fluctuations of offshore wealth in individual years.

[7] The estimated increase in the number of millionaires was +98% for Vietnam, +92% for China, and +28% for Korea (Henley & Partners, 2024).

Greece, Italy, Portugal, Spain, and the United Kingdom the FDI correction produces some important reductions in offshore wealth (Figure A.17). This illustrates that our estimates suffer from uncertainty about who ultimately owns Swiss fiduciary deposits held through shell companies in other financial centers. In our preferred methodology, we reallocate a significant portion of those indirectly-owned Swiss deposits to European countries because these countries have recently increased their shares in directly-owned Swiss deposits. The comparison with FDI-corrected series indicates, however, that the recent rise of European-owned offshore wealth in Switzerland might be overestimated. With the FDI-correction it would have remained relatively stable since 2015 (Appendix Figure A.16). Also offshore wealth owned by Saudi Arabia, Qatar and Oman is reduced but without strongly affecting their top positions in the country ranking. For Czechia and Hungary, the FDI-correction leads to an unrealistic jump in offshore financial wealth which is likely biased by the exceptional presence of multinational firms in those countries. In the Appendix B.3, we further discuss regional trends produced by the two different methodologies.

4 Global Offshore Wealth Back to the 1980s

The CPIS coverage does not allow us to derive the global portfolio assets-liabilities gap for the pre-2001 period. However, the global assets-liabilities has its counterpart in the world balance of payments which reaches back to the 1970s. Zucman (2013) notes that globally more investment income is paid than received in each year and that by capitalizing missing portfolio income one can derive an underlying portfolio wealth consistent with the portfolio assets-liabilities gap. We make use of Zucman's derived estimates to prolong our global offshore financial wealth series back to 1980 (Figure 6). We rely on Zucman's data because IMF data availability has changed: The number of countries covered in the early years of the bilateral Balance of Payments Statistics has decreased[8] and the table "Global discrepancies in balance of payments statistics" is no longer publicly available pre-2005. We cannot properly reconstruct the discrepancy for the 1990s because bilateral data for several important economies are missing: Data for Austria, Belgium, Ireland, and Luxembourg start only in the 2000s today and Taiwan has been completely removed. As a plausibility check, we also recover historic data on securities held in custody in Swiss banks from Zucman (2015).[9]

The historic trend suggests that, starting from 2% in 1980, offshore financial wealth has

[8] Zucman (2013) used current account data for 135 countries in 1980 while today only 120 are available.

[9] Zucman (2015) provides 10-year averages of the total value of securities for the 1980s and 1990s which we use as a proxy for offshore wealth held in Switzerland in 1985 and 1995 in Figure 6.

increased sharply during the 1980s and 1990s in relation to world GDP and stabilized at around 10% in the 2000s. The sharp rise in the 1980s and 1990s probably reflects the general rise in capital mobility following the gradual liberalization of international capital flows in the 1970s, 1980s and 1990s (Edison et al., 2004). The development of offshore financial wealth held in Switzerland seems to broadly follow the same pattern, fluctuating between 35% and 45% of total offshore wealth between the 1980s and 2010. Starting from 2010, its share has declined relatively.

5 Comparison with Other Data Sources

Our country-level time series of offshore financial wealth finally allow for comparison with recent studies on the global portfolio assets-liabilities gap, country studies on offshore wealth revealed in amnesty programs and foreign wealth revealed thanks to third-party reporting under FATCA and the CRS. The following sections assess consistency with these new data sources.

5.1 Offshore Wealth Managed in the United Kingdom

An important part of the global assets-liabilities gap arises due to investment funds domiciled in financial centers which manage portfolio assets on behalf of their shareholders. As international financial statistics are based on immediate counterparty reporting, they do not reveal the countries of residence of the ultimate owners, i.e. the owners of the investment fund shares. For this reason, Beck et al. (2024) and Milesi-Ferretti (2024) analyze different available counterparty data for major financial centers, and find that an important share of the United States', Ireland's and Luxembourg's liabilities without identifiable counterparty country are likely held in custody in the United Kingdom. The United Kingdom even seems to have outpaced Switzerland in managing equity instruments on behalf of non-residents.

Analyzing the asset composition of Irish and Luxembourg investment funds, Beck et al. (2024) suggest that a relevant part of Irish fund shares held in the United Kingdom are ultimately owned by residents of the United Kingdom, while Luxembourg fund shares are to a larger extent only intermediated by UK custodians on behalf of foreign investors. They suggest that these are mainly non-Euro Area investors because the asset structure differs from the observed portfolios of Euro Area investors. The analysis by Milesi-Ferretti (2024) further suggests that portfolio asset holdings of the United Kingdom (incl. Guernsey and Jersey) also play a major role in explaining the discrepancy between reported U.S. equity liabilities and CPIS-reported claims on the U.S. He suggests that the "missing assets" are mainly equity instruments traded in the UK.

While underreporting of UK-owned assets might contribute to the gap, Milesi-Ferretti deems most of these assets to be managed on behalf of non-residents.

Our results are broadly in line with the findings of this recent literature. First, our allocation of offshore wealth across financial centers reflects the growing importance of the United Kingdom whose share has increased from 8% in 2001 to 20% in 2023. Adding Guernsey and Jersey as in Milesi-Ferreti's data, we obtain a global share of 22% (Figure 9, Panel A). Second, our estimated distribution of offshore wealth held in the United Kingdom also suggests that only 16% (22% when including Guernsey and Jersey) ultimately belong to European residents while more than 50% belong to the United States, followed by Japan and Saudi Arabia with roughly 4% and 3% respectively (Figure 9, Panel B). Figure 10 illustrates how our estimate of offshore wealth hosted by the UK compares to the missing Irish fund shares managed in the UK according to Beck et al. (2024). As discussed in Section 2.2, we have allocated some missing Irish fund share assets held in the UK to the residents of the UK and thereby reduced the equity assets-liabilities gap arising between Ireland and the UK by a constant fraction of 34% – which also reduces the global assets-liabilities gap.

According to our estimates, the rise of the UK as an offshore wealth location is paralleled by the rise of Hong Kong, while Singapore and the US have also gained importance (Figure A.1). This more regionally dispersed location of offshore wealth does not contradict the findings of Beck et al. (2024) and Milesi-Ferretti (2024) who emphasize the role of the UK. Examining the different countries' contributions to the global assets-liabilities gap we identify the Cayman Islands as the jurisdiction where most of the global discrepancy arises (33% in 2020, 45% in 2023), while the authors focus on investments in the United States, Ireland, and Luxembourg. These investment locations are also key in our approach, accounting for 18%, 15%, and 21% of the 2020 global discrepancy, respectively (Appendix Figure A.5).[10] However, the geographical distribution of investment fund ownership in these jurisdictions may not necessarily align with that of funds domiciled in the Cayman Islands, a financial center specialized in intermediating funds between Asia and the Americas (Pogliani et al., 2022). Moreover, assets managed in the United Kingdom may be held in custody across multiple financial centers through complex

[10]Generally, our estimated portfolio assets-liabilities gap is higher than the one computed by Milesi-Ferretti (2024), first, because we add debt assets while he focuses on equity. Second, even for equity, we compute a higher global discrepancy (USD 5 tn in 2022, vs. 2.8 by Milesi-Ferretti) because we make different adjustments to account for underreported assets and liabilities so that our overall global equity liabilities exceed Milesi-Ferretti's by USD 3 tn. while our adjusted global equity assets are only slightly higher. Most notably, we add USD 1.3 tn to the Cayman Islands equity liabilities in addition to what is reported in the EWN Database (see Appendix A.2). For this reason, we find that a higher equity discrepancy arises in the Cayman Islands (24% in 2022) compared to Milesi-Ferretti who focuses on the United States, Ireland, and Luxembourg.

ownership structures, making it difficult to determine their actual location.

5.2 Country Studies of Offshore Wealth

Recent country studies have produced figures on offshore wealth held by the residents of Argentina (Londoño-Vélez & Tortarolo, 2023), Colombia (Londoño-Vélez & Àvila-Mahecha, 2021), and the United States (Johannesen, Reck, Risch et al., 2024) which can serve as benchmark for our country allocation of offshore wealth. Conceptually, the figures for the United States come closest to our offshore financial wealth estimate, as they cover all financial assets U.S. residents held in financial centers and which were reported through FATCA in 2018. These amounted to 9% of GDP which is higher than our preferred estimate of 7% but close to our FDI-adjusted estimate of 8.5% (Figure 11). As pointed out by Johannesen, Reck, Risch et al. (2024), the financial wealth revealed through FATCA might be a little inflated as a minor share of assets cannot be matched to U.S. taxpayers and might actually belong to foreign households or U.S. citizens residing abroad. However, this is unlikely to explain a difference of 2 percentage points of GDP so our methodology probably underestimates offshore wealth of the U.S.

For Argentina, our country results are much lower than the offshore wealth revealed through an amnesty program in 2016. Our preferred estimate suggests 6% of GDP while the figure by Londoño-Vélez & Tortarolo (2023) amounts to nearly 15%. This might indicate that our methodology underestimates Argentinian offshore wealth, for example because the third and fourth most important offshore jurisdictions for Argentina according to the amnesty data – British Virgin Islands and Uruguay – do not report to the BIS. However, the wealth revealed under the amnesty might also be higher due to a different asset structure as the numbers provided by the Argentinian national tax authority (AFIP) refer to "cash deposits" and "investments". The latter includes corporate shares, stocks, bonds, mutual funds but might also include full company ownership or direct investments which would not be part of our offshore financial wealth estimate.

Finally, for Colombia, we find that our offshore wealth estimates are somewhat higher than the self-reported offshore wealth partly revealed under a voluntary disclosure program in 2017 (3.5% or 8% vs. 2.8%)[11]. This is what we would expect as amnesty programs are unlikely to reveal 100% of wealth hidden offshore.

[11] Londoño-Vélez & Àvila-Mahecha (2021) point out that in 2016 Colombian taxpayers reported offshore assets worth 2.8% of GDP of which 1.4 percentage points were revealed thanks to a voluntary disclosure program.

5.3 CRS Data

With the introduction of the CRS countries receive information on foreign accounts in all participating jurisdictions. The OECD (2025) reports that information about financial assets worth almost EUR 12 trillion, was exchanged automatically under the Common Reporting Standard for the year 2022. These publicly reported global totals are not easily comparable to our offshore financial wealth estimates as they also include foreign bank deposits related to real employment mobility or study abroad, i.e. bank deposits held in a former country of residence or due to cross-border commuting. We assume that the global portfolio asset-liability gap arises because of asset owners holding their portfolio assets in foreign custodian banks and that these portfolio assets constitute roughly 80% of household offshore financial wealth. There is little economic reason to hold significant portfolio assets in foreign custodian banks in non-financial centers, so we suggest that among the CRS-reported foreign assets only a sub-aggregate from financial centers could be comparable to our offshore financial wealth estimate.

Indeed, a comparison of country-level figures on CRS information received by Germany (and published by the German Parliament in 2021) to BIS-reported foreign deposits of German residents would support this view. We find that the CRS-reported foreign assets in most neighbor countries of Germany are lower than the BIS-reported deposits owned by German residents in these countries (see Figure A.6 in the Appendix). This is consistent with a share of non-bank deposits being owned by corporations and thus not reported through the CRS. For BIS-reporting financial centers, in contrast, the opposite holds: The CRS-reported figures from Luxembourg, Jersey, Guernsey, and Hong Kong are much higher than the BIS-reported deposits which German residents own in these jurisdictions - in the case of Guernsey, Jersey, and Luxembourg even more than six times as high. This would be consistent with German residents holding important portfolio assets in these financial centers which are by definition not included in the BIS deposit data. Comparing our estimates with aggregate CRS statistics collected by Boas, Collin, Godar et al. (2025), we find that our estimates positively correlate with the CRS-reported wealth. For 14 out of 17 countries, the CRS-reported figures exceed our estimates which is what we would expect given that they refer to all reporting countries and not just financial centers (Figure 12).

6 Conclusion

We replicate and extend Zucman's (2013) estimate of global offshore financial wealth to 2023 and analyse its changing location and origin over two decades. We adapt the methodology by Alstadsaeter et al. (2018) to produce consistent offshore wealth time series for more than 200

countries. Refining the country-allocation methodology, we add the United Arab Emirates as an offshore-hosting jurisdiction, incorporate recent findings on missing Irish investment fund shares held in the UK, and provide an additional FDI-adjusted distribution of offshore wealth across countries of ownership. We further extend our global offshore wealth estimate back to the 1980s based on inconsistencies in the Balance of Payments Statistics observed by Zucman (2013).

We find that global offshore financial wealth rose sharply as a share of world GDP during the 1980s and 1990s, but has since stabilized at roughly 10%. Over the past two decades, it has also remained broadly stable at about 7% of global household financial wealth. The geography of offshore wealth has shifted from Switzerland toward Asian financial centers —led by Hong Kong and Singapore—as well as toward the United Kingdom, and, to a lesser extent, the United States. Ownership of offshore wealth is still concentrated in high-income countries but the share owned by low- and middle-income countries has increased since 2001.

A straight-forward explanation for the observed trends might be strong economic growth in East Asia driving up both capital inflows from the rest of the world often channeled through Hong Kong and Singapore and growing populations of high-net-worth individuals in some emerging and newly industrialized economies which might prefer custodians in Hong Kong and Singapore due to geographical and cultural proximity. At the global level, the increasing financial transparency and exchange of information do not seem to have caused major repatriations of offshore assets as the portfolio assets-liabilities gap persists. This might suggest that tax evasion is not the primary reason for holding financial assets offshore today or that the transparency measures are still patchy globally.

Comparing our estimates with newly available data on offshore holdings of individual countries, we find that our estimates look conservative for Argentina and the United States where researchers have found evidence of even larger offshore holdings but exceed self-reported offshore wealth holdings of Colombians. Futhermore, our country estimates correlate positively with CRS-reported foreign wealth but are mostly lower because they refer to financial wealth held in financial centers while most available CRS statistics refer to all CRS-reporting countries.

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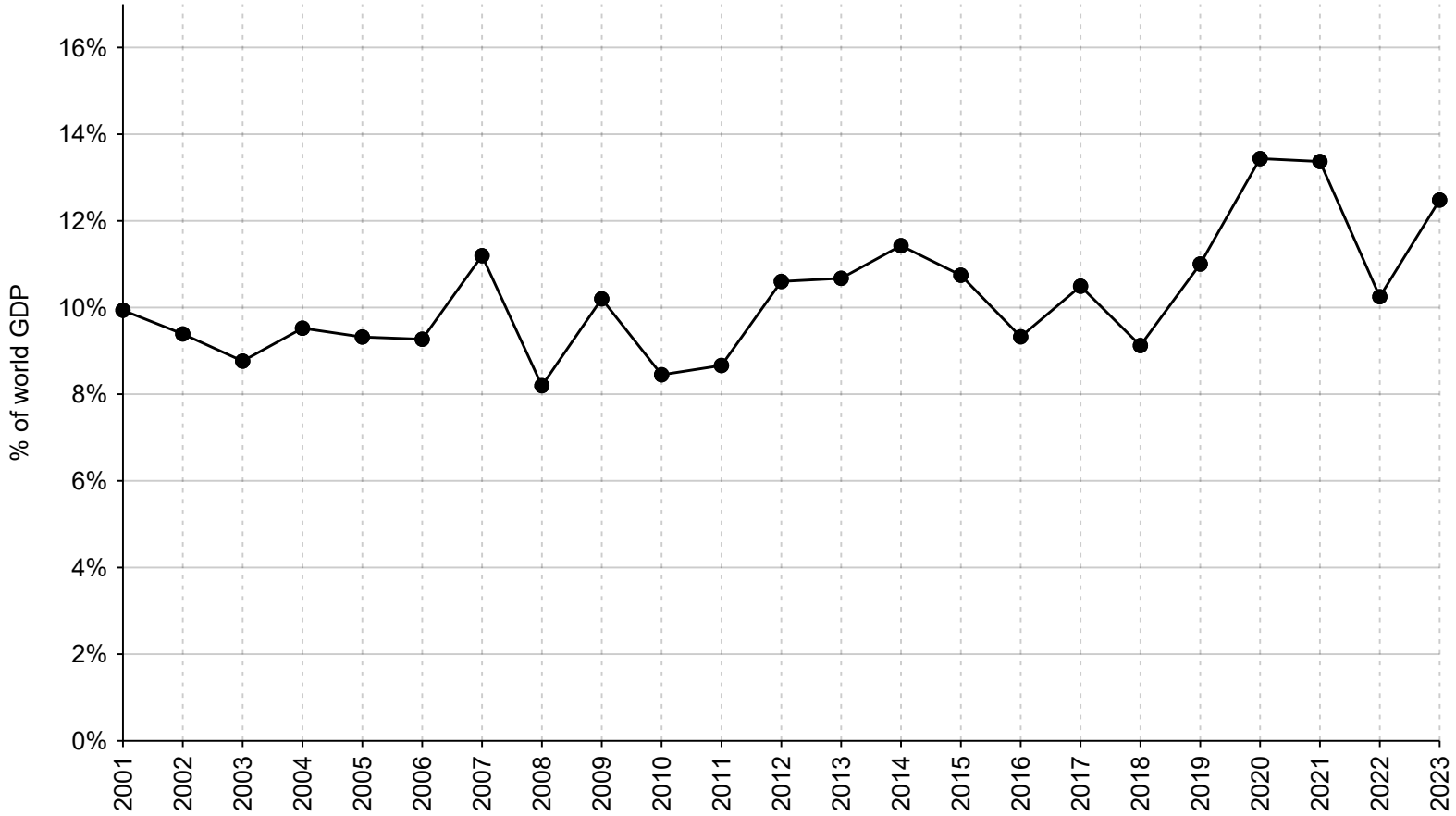
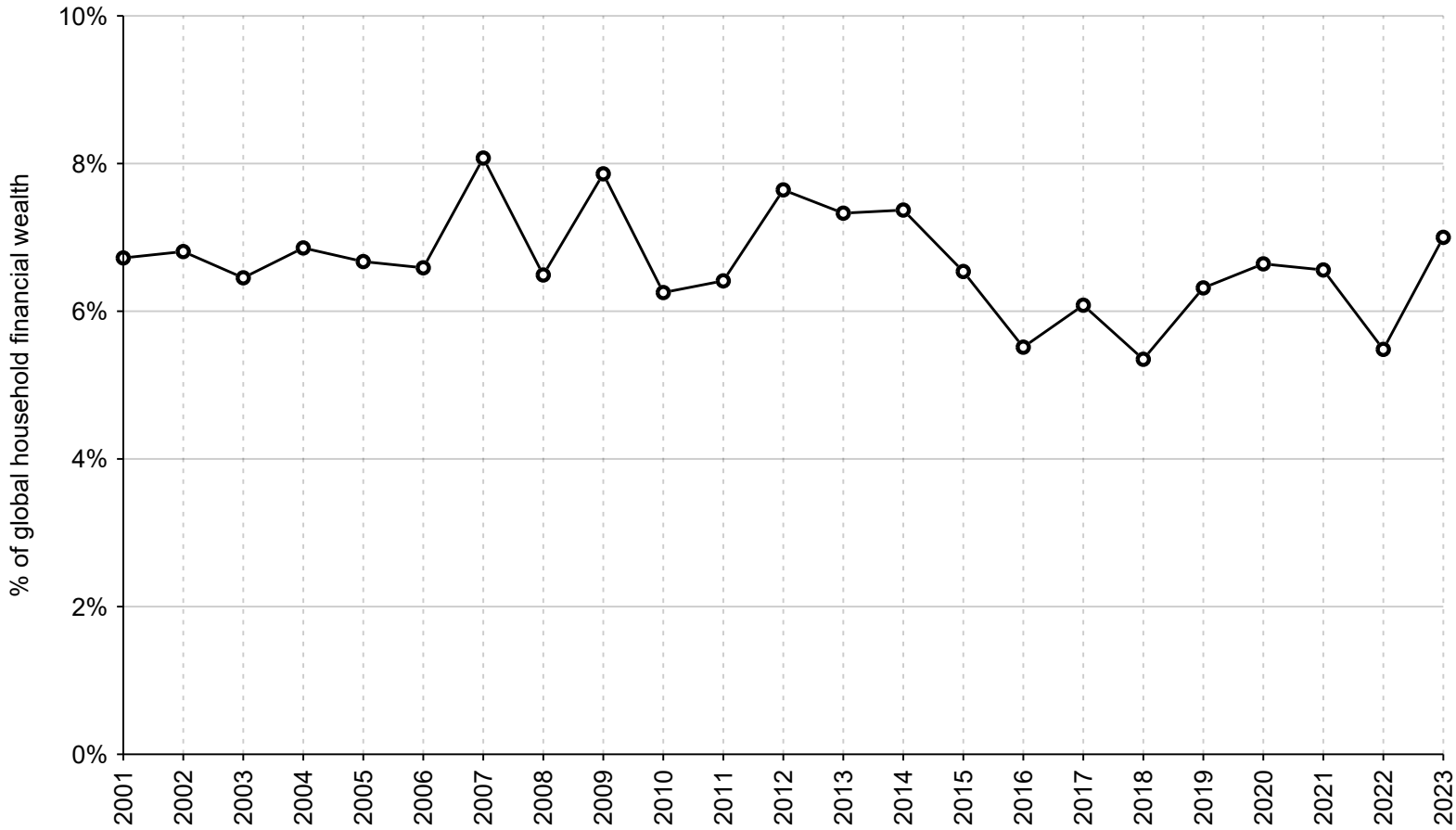
Figure 1: Evolution of Global Offshore Wealth (as a % of World GDP), 2001–2023



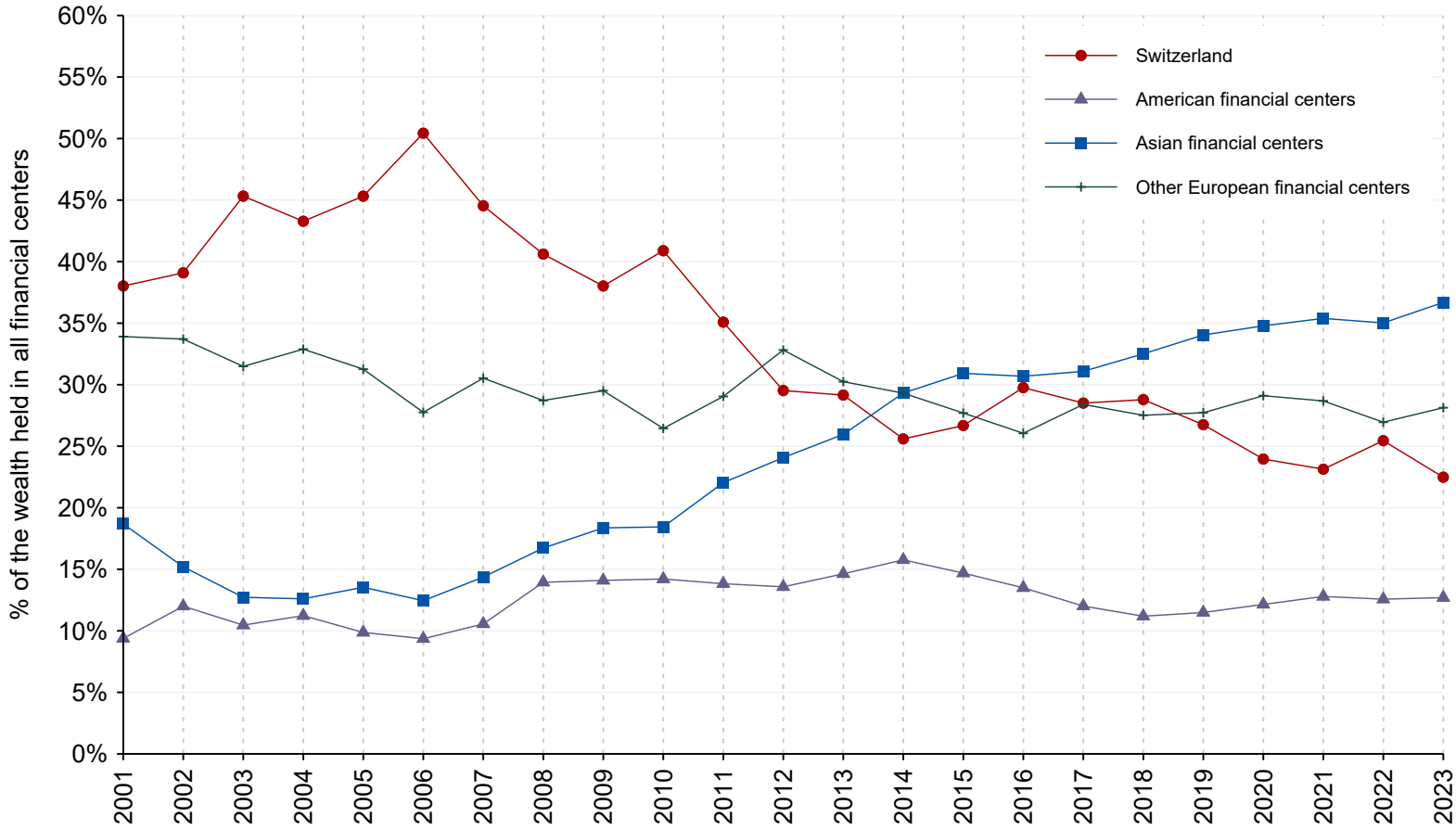
Notes: This figure depicts the evolution of year-end global offshore wealth held in all financial centers, for the period 2001 to 2023, as a fraction of world GDP.

Figure 2: Evolution of Global Offshore Wealth (as a % of Global Household Financial Wealth), 2001–2023



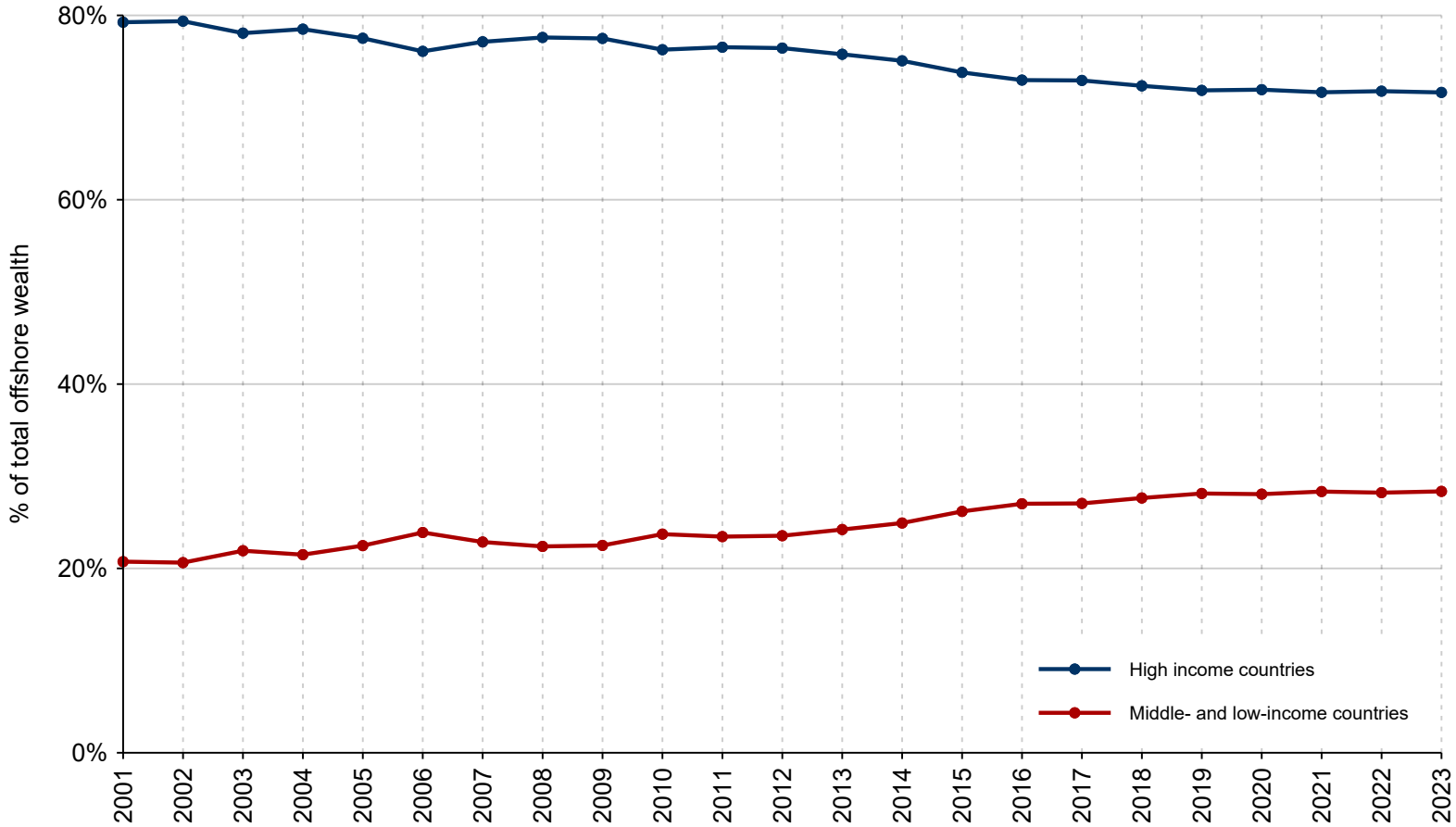
Notes: This figure depicts the evolution of year-end global offshore wealth held in all financial centers, for the period 2001 to 2023, as a fraction of global household financial wealth. Household financial wealth data extracted using the World Inequality Database (World Inequality Lab, 2025).

Figure 3: Where is the World's Offshore Household Wealth Located?



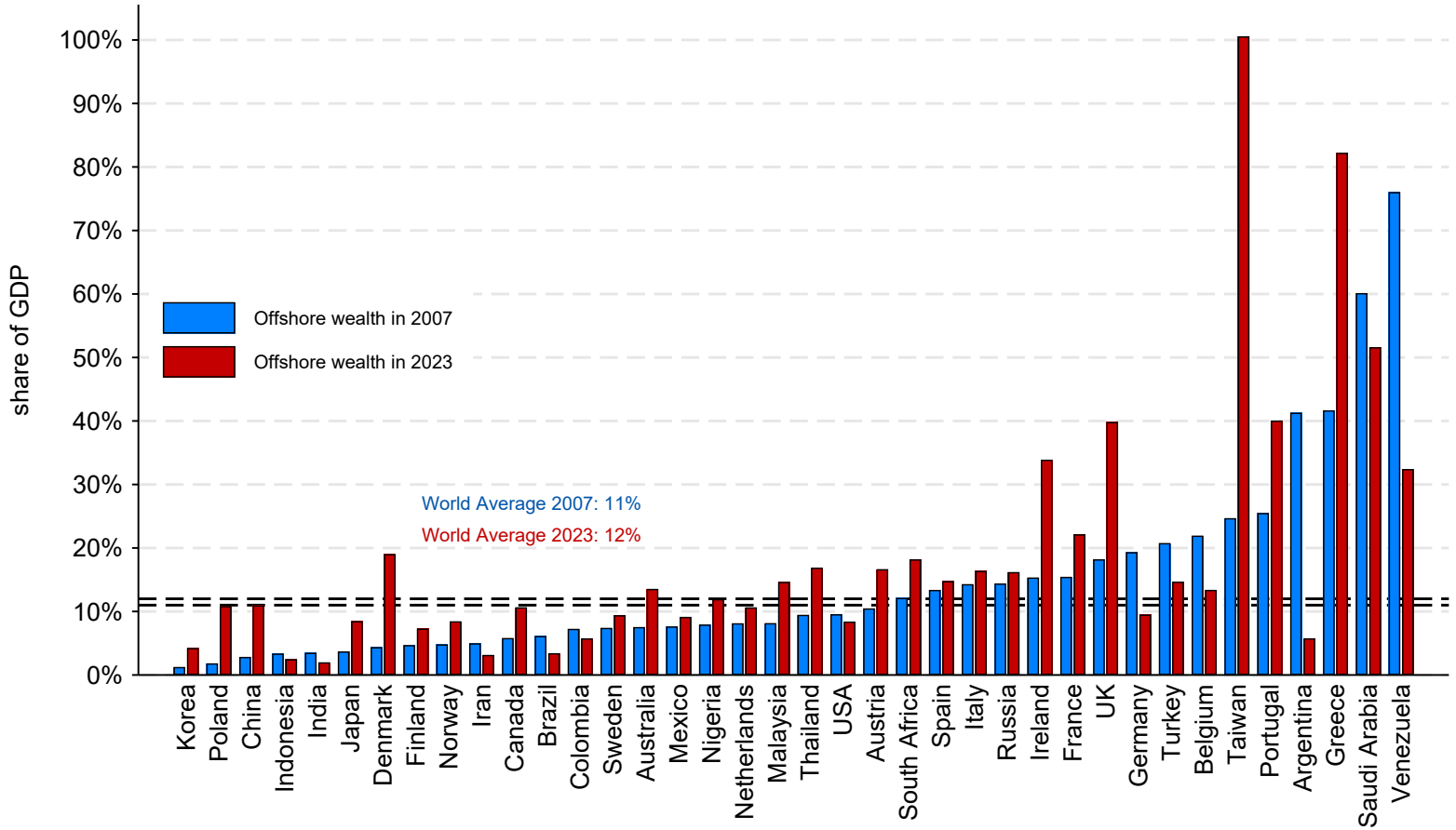
Notes: This figure plots the share of the world's offshore wealth managed in financial centers, namely Switzerland, American financial centers (Cayman Islands, Panama, and the United States), Asian financial centers (Bahamas, Bahrein, Bermuda, Curaçao, Hong Kong, Macao, Malaysia, Netherlands Antilles, Singapore, United Arab Emirates), and other European financial centers (Austria, Belgium, Cyprus, Guernsey, Isle of Man, Jersey, Luxembourg, and the United Kingdom).

Figure 4: Offshore Wealth Owned by High-Income vs. Middle- and Lower-Income Countries (% of total offshore wealth)



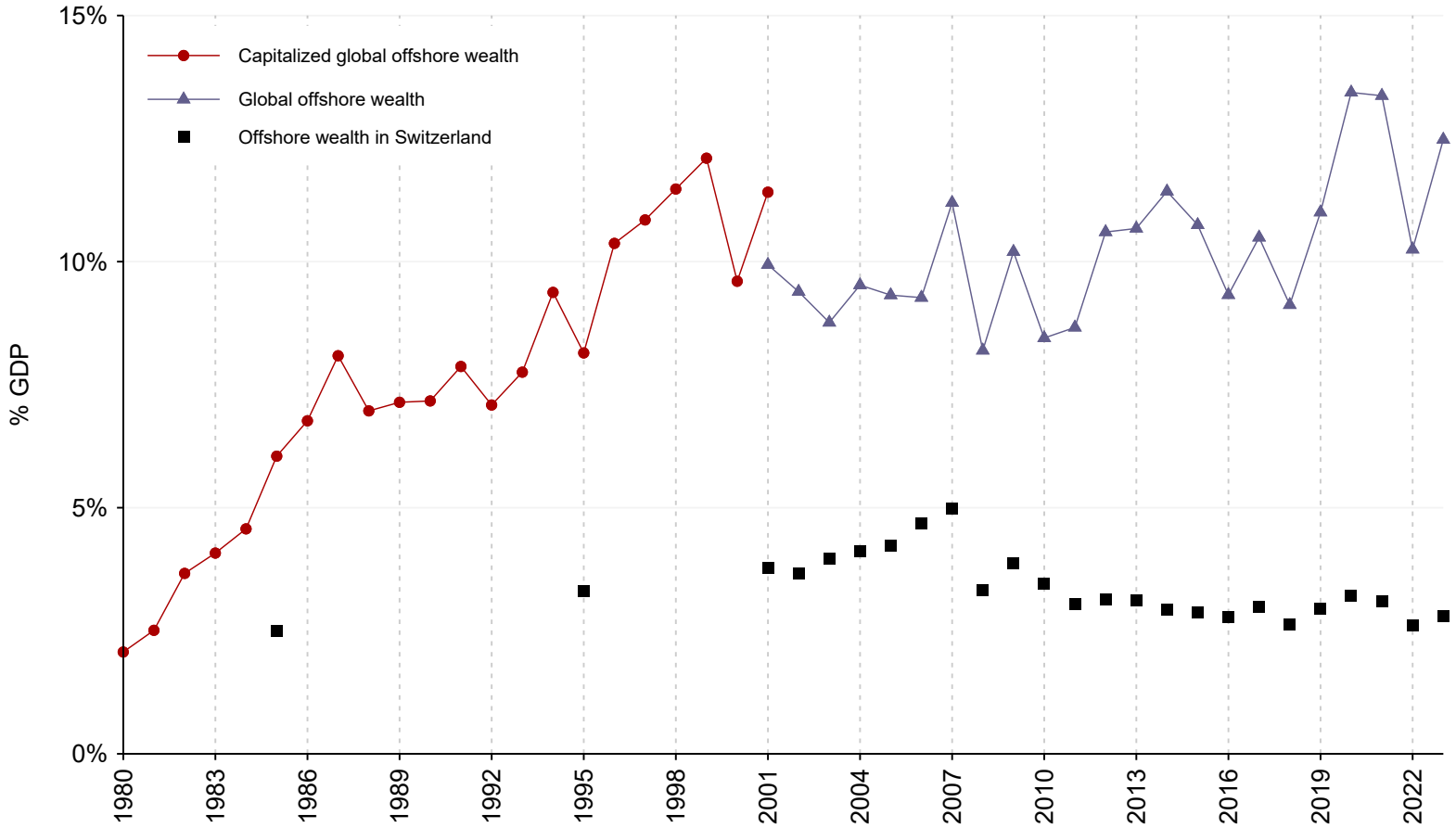
Notes: This figure plots the distribution of offshore wealth ownership, differentiating between high-income countries and lower-income countries, as a share of global offshore wealth. Income level country groups are defined using the World Bank classification as of 2022. We categorize upper-middle income, lower-middle income, low-income, and unclassified countries within the middle and lower-income group. Source: Appendix Table A.6.

Figure 5: Offshore Wealth in Large Economies: 2007 vs. 2023 (% of GDP)



Notes: This figure plots offshore wealth held in financial centers, comparing data from 2007 to 2023 as a percentage of each country's GDP. The figures includes countries with a GDP exceeding $200 billion.

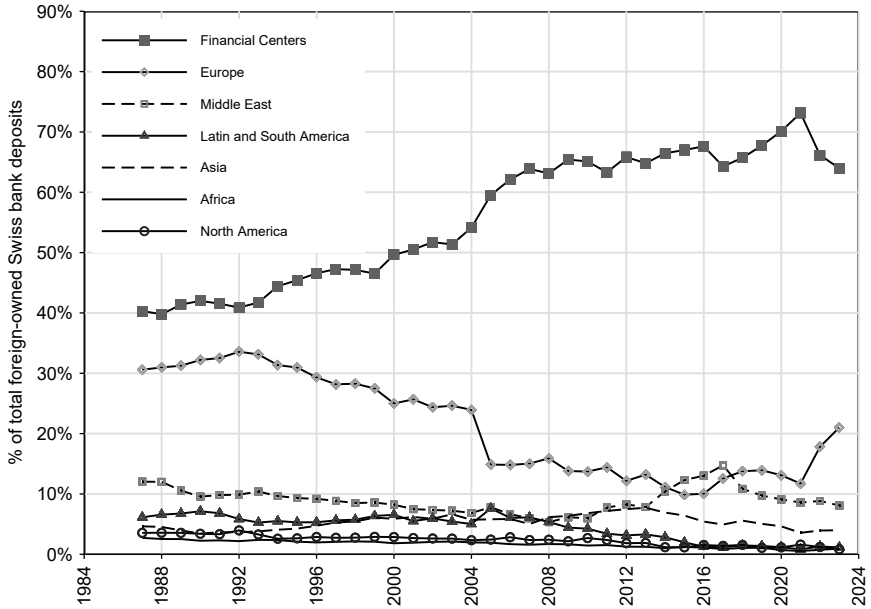
Figure 6: Historic Offshore Wealth, 1980-2023 (% of GDP)



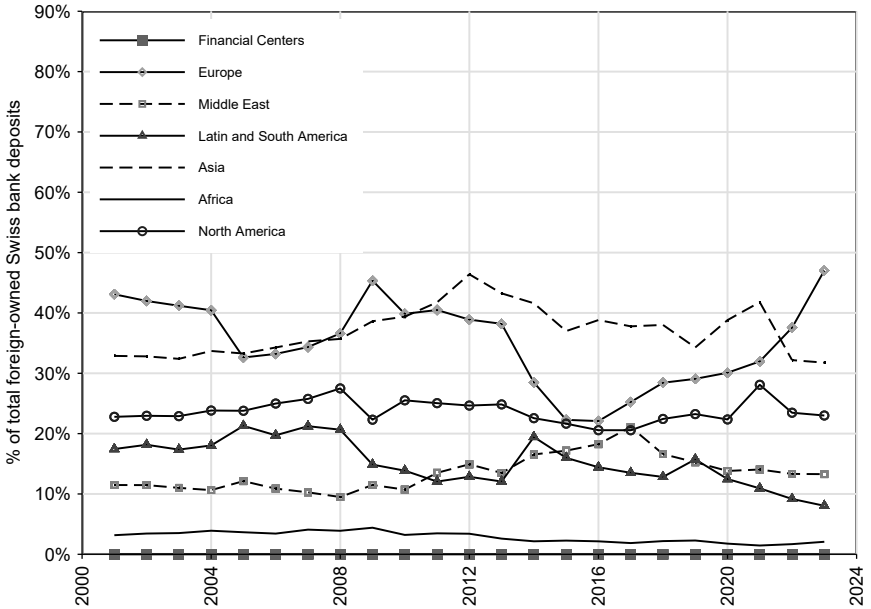
Notes: This figure plots the development of offshore wealth globally and in Switzerland from 1980 to 2023 in % of global GDP. Capitalized offshore wealth refers to an offshore financial wealth estimate based on capitalizing missing portfolio investment income from historic IMF Balance of Payments Statistics by Zucman(2013) and extrapolated offshore deposits. Global offshore wealth refers to the estimate of global offshore financial wealth developed in this paper. Offshore wealth in Switzerland combines historic data on offshore financial wealth held in Switzerland from Zucman (2015) and our more recent data for Switzerland.

Figure 7: Who Owns Swiss Fiduciary Deposits?

(a) Uncorrected shares



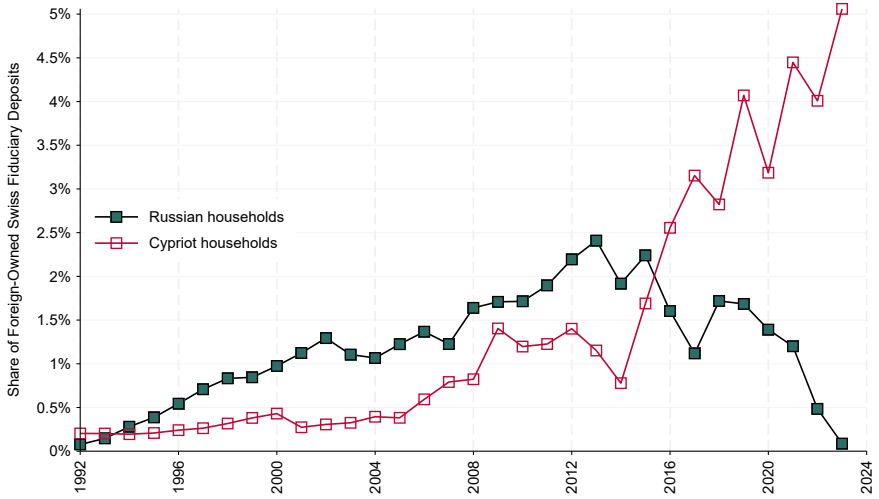
(b) Corrected shares



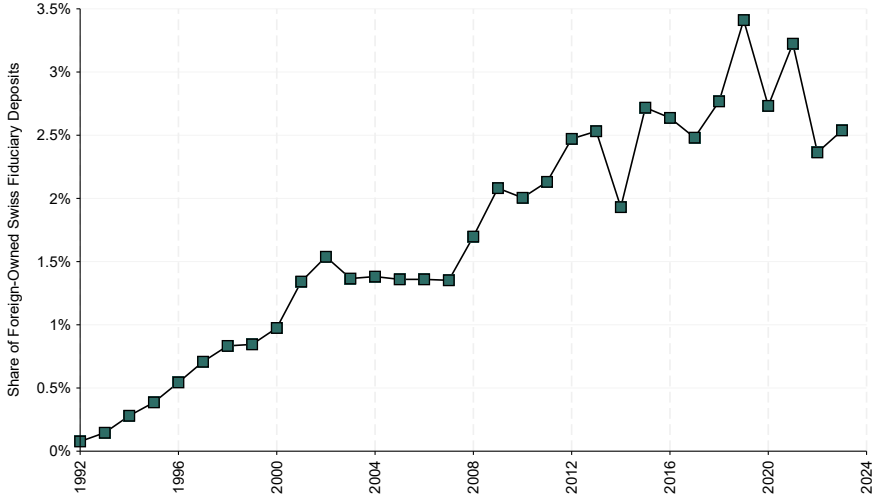
Notes: These figures plot ownership of Swiss fiduciary deposits by country group. Panel A plots the raw shares as reported by the Swiss National Bank (SNB). Panel B plots a corrected distribution where we reallocated deposits owned by financial centers to their true owners using Foreign Direct Investment data as recorded by the IMF in its Coordinated Direct Investment Survey.

Figure 8: Unrecorded Share of Bank Deposits in Switzerland Belonging to Russian Households

(a) Uncorrected share

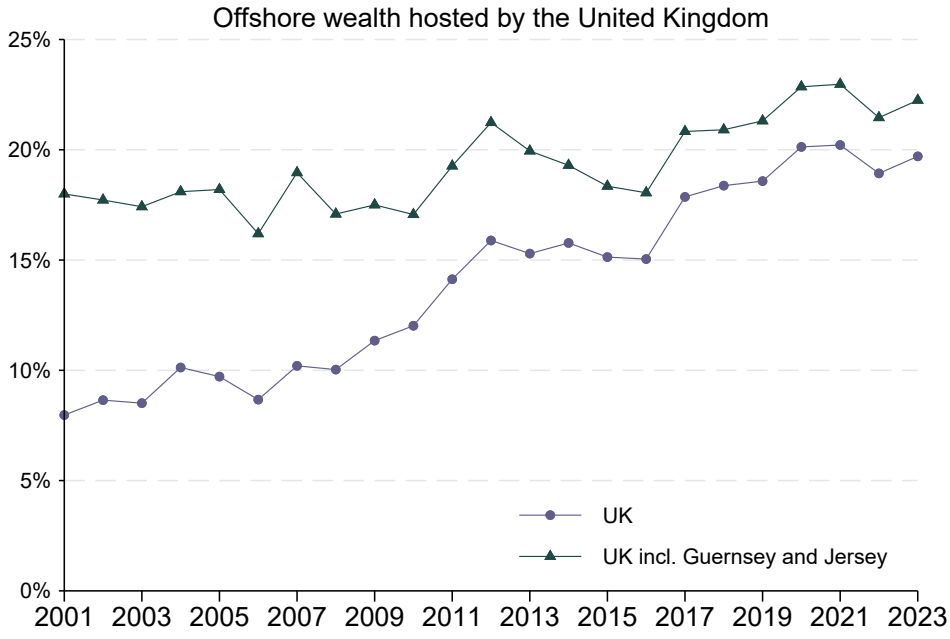


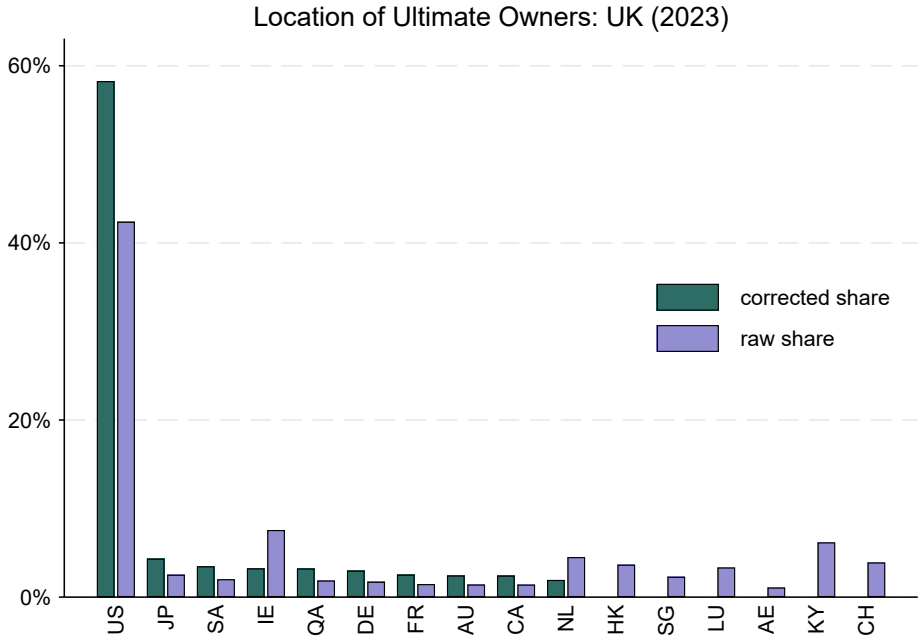
(b) Corrected share



Notes: Panel (a) plots the share of foreign-owned Swiss fiduciary deposits for both Russian and Cypriot households, as reported by the Swiss National Bank. Panel (b) shows the share of Russian-owned Swiss fiduciary deposits, after reallocating 80% of Cypriot-owned deposits to Russia and including the Savings Directive adjustment in 2005-2006.

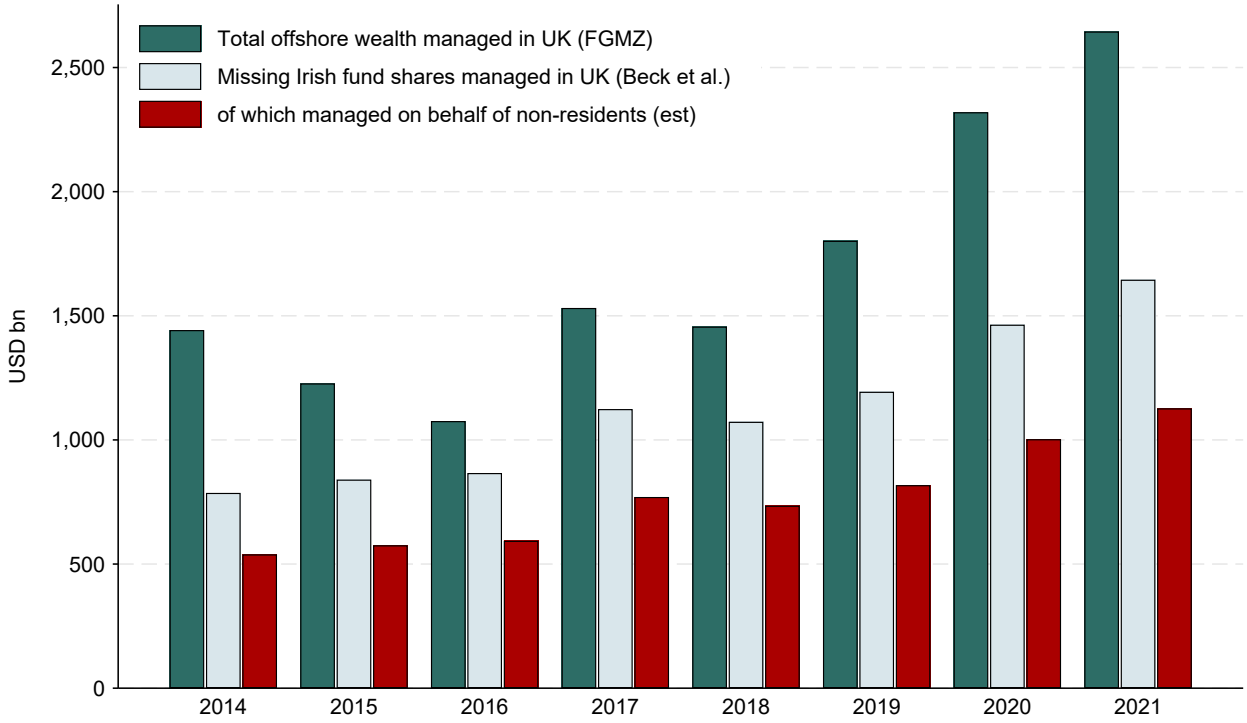
Figure 9: Development and Ownership of UK-Hosted Offshore Wealth





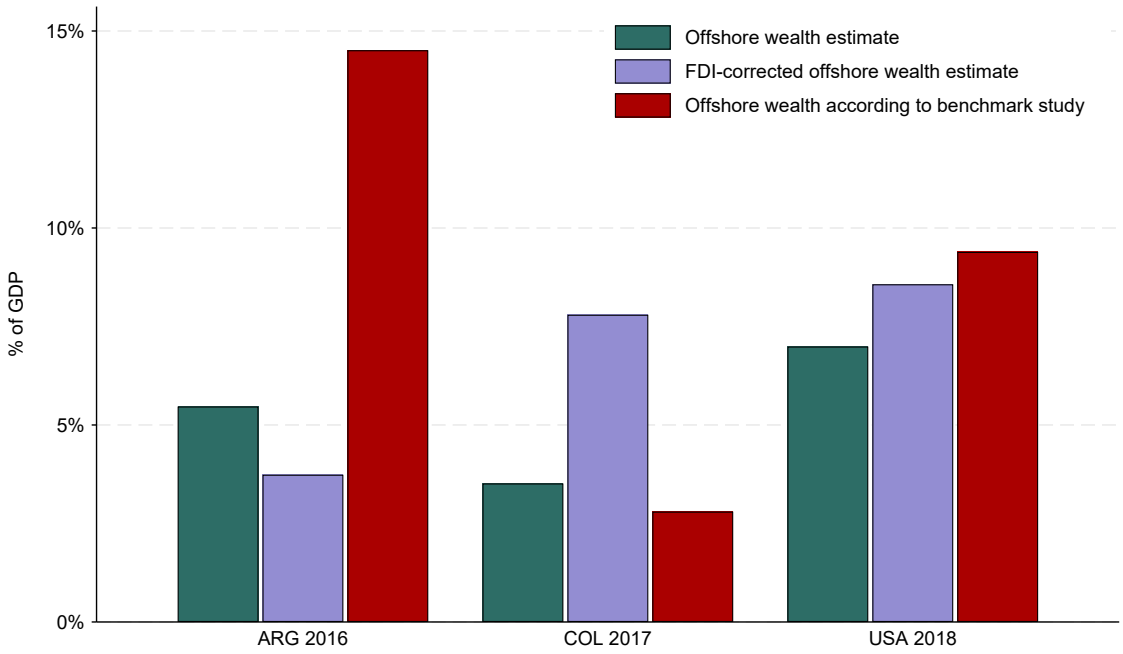
Notes: These figures plot offshore wealth hosted by the United Kingdom for comparison with results by Beck et al. (2024) and Milesi-Ferretti (2024). Panel A plots the development of offshore wealth hosted in the UK and UK including Guernsey and Jersey. Panel B plots our allocation of offshore wealth to the countries of ultimate ownership with and without reallocation of deposits owned by other financial centers.

Figure 10: Comparison of Missing Irish Fund Shares and UK-Hosted Offshore Wealth



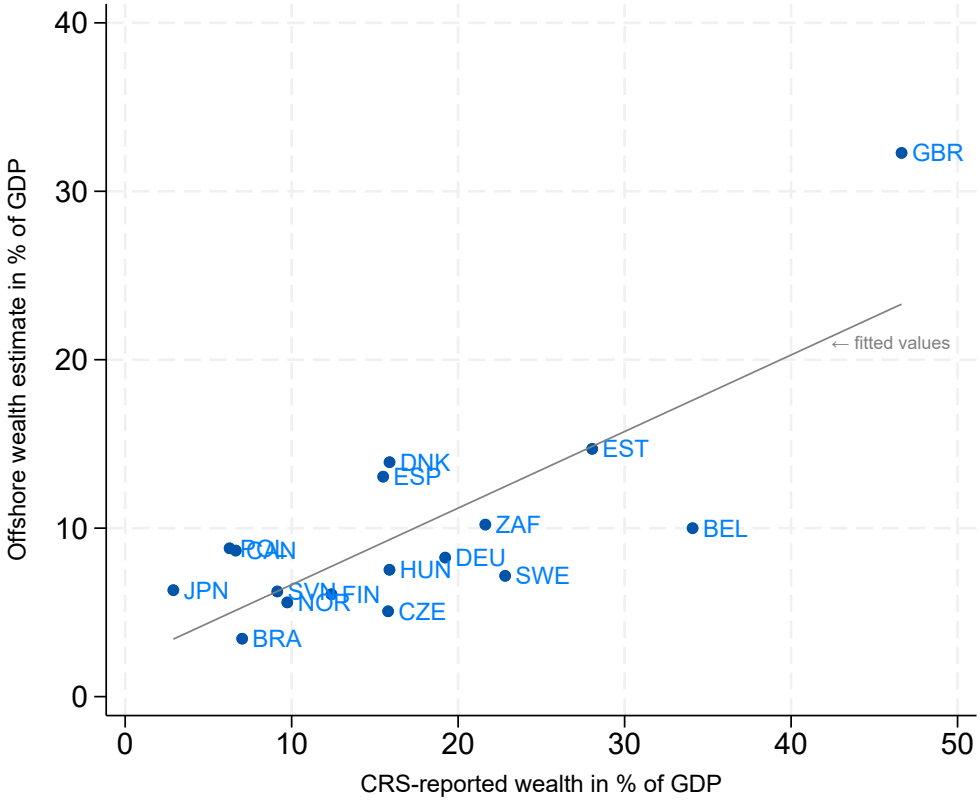
Notes: This figure compares offshore wealth hosted by the UK allocated with the Alstadsæter et al. (2018) methodology (green bars), to the missing Irish fund shares, i.e. the discrepancy between liabilities of Irish investment funds vis-à-vis UK and CPIS-reported assets of the UK vis-à-vis Ireland as reported by Beck et al. (2024) (light gray bars). In addition, the figure plots an estimate of the share of missing Irish fund shares managed in the UK on behalf of non-residents (red bars).

Figure 11: Offshore Wealth and Country Studies



Notes: The figure compares offshore financial wealth estimates to findings of recent studies on offshore wealth held by residents of Argentina, Colombia, and the United States of America. The green bars plot our preferred offshore wealth estimates, the lavender bars plot our FDI-corrected estimates and the red bars plot offshore wealth self-reported in Argentina (Londoño-Vélez & Tortarolo, 2023) and Colombia (Londoño-Vélez & Ávila-Mahecha, 2021), and third-party reported through FATCA in the United States (Johannesen et al., 2024).

Figure 12: Offshore Wealth and CRS-Reported Foreign Wealth



Notes: The figure plots offshore financial wealth estimates against CRS-reported financial wealth. The reference years differ because of limited CRS data availability: Belgium and South Africa refer to 2018, Denmark refers to 2019, Czechia and Hungary to 2020, Canada, Finland, Japan, Norway, Poland, Slovenia, Spain, and Sweden to 2022, Brazil to 2023. Source of CRS figures: Boas, Collin, Godar, Moura and Økland (2025).

Online Appendix

A Update of Zucman (2013)

A.1 The Gravity Model

As in Zucman (2013), we estimate a gravity model following Lane and Shambaugh (2010) and use the estimated coefficients to predict the distribution of bilateral portfolio assets. We use the predicted shares of each country to distribute unallocated assets from the aggregate CPIS and estimated assets of non-reporting or not fully reporting countries. For updating the predicted shares we use the CEPII Gravity database (Conte et al., 2022)[12]. We import the time-constant variables landlocked, industrial pair, and latitude and longitude from the GeoDist database (Mayer and Zignago 2011).[13] The GDP variables and population are from the World Development Indicators (World Bank, 2023)

A.2 Cayman Islands

Portfolio debt assets. From 2015 onward, Cayman portfolio debt assets are taken from the CPIS, with no correction. Pre-2015, Cayman portfolio debt assets are estimated using TIC data on Cayman holdings of US debt, and we assume that the share of US debt in the total portfolio debt assets of the Cayman is constant back to 2001, and equal to its 2015 value of 66% (computed in the CPIS in Dec. 2015). We checked that the US portfolio debt assets of the Cayman Islands are about the same as reported by the Cayman in the CPIS vs. as reported by the US in the TIC. We also checked that the US share of Cayman portfolio debt assets over the period 2015-2021 is stable, at around 2/3. Our updated methodology delivers 2001-2008 estimates consistent with Zucman (2013), which based on a gravity model predicted a US debt share of about 60% (cf. Zucman's Appendix Table A6 line 7) and applied this predicted share to US holdings recorded in the TIC over the 2001-2008 period.

Portfolio equity assets. From 2015 on, Cayman portfolio equity assets are taken from the CPIS, with a correction to replace reported US equity holdings by holdings of US equity by the Cayman recorded in the TIC (which are significantly larger). Pre-2015, Cayman portfolio equity assets are estimated using TIC data, and assuming that the US share of equity assets in 2015 is constant back to 2001. The US share of equity assets in 2015 is computed as US equity liabilities to the Cayman recorded in the TIC data, divided by our estimate of total equity assets of the Cayman (from the corrected CPIS); this share is equal to 80% in 2015. We checked that this share is quite stable over the period 2015-2021, around 70%-80%. Note that this share is higher than the share of 35%-45% in 2001-2008 predicted in Zucman (2013) based on a gravity model (cf. Zucman's Appendix Table A6 line 6). As a consequence, our revised estimates of Cayman holdings of portfolio equity assets over 2001-2008 are lower than in Zucman (2013), where they were computed as TIC holdings / predicted US share. It is possible that the US

[12] http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=8
[13] http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=6

share of Cayman holdings has been rising over the period 2008-2015 (indeed the gravity model predicted an increase over 2001-2008), but for simplicity we assume constant shares prior to 2015. This has no impact on the global assets/liabilities gap (and hence on offshore wealth estimates), because Cayman equity liabilities are estimated proportionally to Cayman portfolio assets (see below).

Portfolio equity liabilities. Equity liabilities are the sum of the equity liabilities of Cayman hedge funds and the equity liabilities of listed non-financial companies incorporated in the Cayman Islands.

Hedge funds. Throughout the period, we compute Cayman hedge funds equity liabilities as total (debt+equity) portfolio assets of the Cayman Islands (as estimated above), minus total portfolio (debt+equity) assets of the sectors other than hedge funds covered by the CPIS.[14] This gives a close approximation of the equity liabilities of Cayman hedge funds, since for them equity liabilities are equal to the net asset value of the funds, which in turn are equal to the cross-border portfolio equity and debt assets owned by the funds. A similar approach was followed in Zucman (2013), who obtained slightly higher Cayman equity liabilities in 2001-2008 because of the higher predicted Cayman equity assets (see above), with no consequence for the global assets/liabilities gap (and hence offshore wealth estimates).

Non-financial corporations. An important development since Zucman (2013) has been the rise in the number and size of publicly listed non-financial companies (especially Chinese) incorporated in the Cayman Islands, e.g., Alibaba, Tencent, Baidu, etc. The number of listed companies incorporated in the Cayman has increased from less than 100 in 2001 to about 1,750 in 2022. Throughout the period, we compute their equity value using data from *Compustat Global – Security Daily* on the end-of-year market value of all listed firms incorporated in the Cayman Islands.[15] We adjust this by a factor of 0.75 to take into account the fact that some of these equities are not portfolio liabilities but direct investment liabilities, because some shareholders own more than 10% of the stock (e.g., SoftBank owned 24% of Alibaba in 2022; Prosus 28% of Tencent).

Portfolio debt liabilities. We take Cayman portfolio debt liabilities from the updated External Wealth of Nations database throughout the period. The EWN estimate is equal to max(BIS international debt securities, CPIS-derived debt liabilities), which is also the methodology implemented in Zucman (2013)

A.3 China

China has started to partially report to the CPIS with bilateral data being available from 2015 onwards. As in Zucman (2013) we estimate private portfolio assets before 2008 by extrapolating

[14] Before 2014 only banks reported in the CPIS so we remove the total portfolio assets of the Cayman Islands; starting in 2015 hedge funds are included so we only remove the holdings of the "deposit-taking corporations" sector (identified in CPIS Table 3.A); starting in 2016 insurance companies are included in the CPIS so we also remove the holdings of this sector.

[15] Some of thees companies may own cross-border portfolio assets, but these assets are not covered by the CPIS (which does not capture non-financial companies), hence there is no double counting with our estimate of hedge fund equity liabilities.

backwards from the 2008 International Investment Position using the proportional change of U.S. equity liabilities vis-a-vis China from Bertaut and Tryon (2007).[16] However, the bulk of Chinese assets are publicly held and these still seem to be unreported as we do not find a visible upward correction of global SEFER+SSIO assets in the CPIS. We assume that 85% of Chinese foreign exchange reserves were held in portfolio assets between 2001 and 2008, and that this share gradually increased to 95% in 2012 and remained constant afterwards. We derive the equity-debt ratio and the share of Chinese assets held in the US from the end-of-year U.S. liabilities reported by the TIC.[17] We distribute Chinese non-US assets to host countries based on the share of international SEFER+SSIO in each non-US country assuming that the Chinese central bank follows similar geographic diversification strategies as other central banks.

A.4 Middle Eastern Oil Exporters

Middle Eastern oil exporting countries are Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Bahrain and Kuwait report to the CPIS. Since Zucman (2013), Saudi Arabia has started to partially report to the CPIS with data being available from 2013 onwards. However, Saudi Arabian public assets still seem to be unreported as we do not find any visible upward correction of global SEFER/SSIO assets. Thus, Saudi Arabian total assets and those of other non-reporting Middle Eastern oil exporters still need to be estimated. An important share of Middle Eastern foreign assets is held by sovereign wealth funds which are not necessarily included in official reserve statistics.

We infer Middle Eastern oil exporters' global assets from their holdings of U.S. assets as reported by the TIC. More specifically, we use information on equity and long-term debt security liabilities to "Middle Eastern Oil Exporters" from Bertaut and Judson (2014) until 2010 and update the series with TIC's Foreign Portfolio Holdings of U.S. Securities[18] for 2011 onwards. After 2010, TIC reports for June instead of December. For this reason we uprate equity assets based on growth rates derived from the CPIS-reported assets of Bahrain, Kuwait, and Saudi Arabia. We estimate short-term debt securities based on the short-term long-term ratio of liabilities to foreign official institutions derived from Bertaut and Tryon (2007) and Bertaut and Judson (2014). To estimate the Middle Eastern oil exporters' assets outside of the U.S., we assume that the share of the U.S. in total decreases from 68% in 2001 to 48% in 2011 and remains constant afterwards. We distribute the estimated assets to non-U.S. countries based on the predicted shares from the gravity model.

[16] https://www.federalreserve.gov/pubs/ifdp/2007/910/ifdp910appendix.htm

[17] We combine historic tables from Bertaut and Tyron (2007) and Bertaut and Judson (2014) https://www.federalreserve.gov/econres/ifdp/estimating-us-cross-border-securities-positions-new-data-and-new-methods.htm and import most recent long-term liabilities from the TIC resource center https://ticdata.treasury.gov/resource-center/data-chart-center/tic/Documents/slt_table1.html

[18] https://home.treasury.gov/data/treasury-international-capital-tic-system/us-liabilities-to-foreigners-from-holdings-of-us-securities

A.5 United Kingdom

We estimate underreported Irish fund shares owned by residents of the UK based on data provided by Beck et al. (2024) and the CPIS. We first compute the annual discrepancy between Irish investment funds' liabilities to the UK and the equity and fund share assets reported by the UK vis-à-vis Ireland in the CPIS. In line with Beck et al., we assume that some of these missing assets are owned by residents of the UK because of the currency composition of Irish investment funds' assets. Beck et al. report that EUR 474 bn or 40% of Irish investment funds' bond holdings which could not be assigned to euro area investors were denominated in GBP in 2020. We assume that 95% of those are ultimately owned by UK residents as investors from other countries are not very likely to invest in GBP-denominated bonds.[19] We thus assume that 36% of Irish investment funds' bond holdings are on behalf of UK residents. On top of that we add estimated equity holdings of Irish investment funds ultimately owned by UK residents by assuming that the ratio of equity to bond holdings equals 0.58 – the ratio of equity to bond holdings of Irish investment fund holdings on behalf of non-euro area countries as reported in Beck et al. "Table 1: Fund unwind: summary statistics". We thus obtain a total of equity and bond assets worth USD 870 which we assume Irish investment funds hold on behalf of UK residents. We then subtract the CPIS-reported equity and fund share assets of the UK vis-à-vis Ireland and thus obtain a our estimate of missing UK-owned Irish fund shares. These amount to 31% of the equity assets-liabilities gap between Ireland and the UK and to 20% of total CPIS-reported equity assets of the UK in 2020. To obtain a time series of missing UK-owned assets we assume a constant share of 31% and apply it to the missing Irish fund holdings computed for the years 2014 to 2021. For the remaining years we predict the share of missing Irish fund holdings in total CPIS equity assets of the UK based on a linear trend. We then use this final series to correct the UK's aggregate portfolio assets in the CPIS accordingly.

A.6 Other Corrections for CPIS-Reporting Countries

Gaps in the CPIS We adjust the original CPIS data in two steps to obtain a complete matrix of bilateral assets. First, we reallocate "confidential and unallocated assets" to jurisdictions not reporting assets in a given year. The allocation is based on predicted country shares from the gravity model but rescaled such that all unallocated assets are allocated only to countries not reporting in a given year. In 2010 this leads to puzzling jumps in debt assets assigned to Switzerland and Luxembourg. This is because the UK reports 155 billion of unallocated or confidential assets in 2010 of which our approach distributes comparably high shares to Luxembourg and Switzerland (which do not report debt liabilities to the UK in this year). Note that sometimes unallocated assets can also be negative. Distributing them to individual countries can thus cause negative corrections of bilateral CPIS assets (see column 9 ("Other [reporting countries]"), table A1).

Second, some CPIS-reporting countries have not always reported their data. To fill the gaps, we use each country's share in total CPIS-countries' assets in reporting years and apply it to the totals in missing years. This produces some upward corrections mostly in the early years of

[19] Findings by Maggiori et al. (2020) suggest that bond investors have a strong home currency bias. Globally, only 2-4% of global portfolio assets were denominated in GBP according to Galstyan et al. 2020.

the panel or in the last year which are included in column 9 of table A1.

Netherlands SFIs Zucman (2013) upgrades assets and liabilities reported by the Netherlands because at the time, special financial institutions (SFIs) were not, yet, included in the CPIS. With the introduction of BPM6 in September 2014, the reporting requirements have changed and SFIs have been included. A comparison of the old and the most recent CPIS versions suggests that assets and liabilities of the Netherlands have been corrected backwards up until 2003. We just drop the correction for Dutch SFIs after 2002. The corrections for 2001 and 2002 are included in column 9, table A1.

A.7 Other Corrections

Assets of Non-CPIS Countries The number of countries not reporting any data to the CPIS has decreased compared to Zucman (2013). We still need to estimate the private holdings and reserve assets for a number of non-reporting countries. We also need to estimate assets of CPIS-reporting countries for which reporting gaps are too long to just impute based on constant country shares. We fill the data gaps as follows:

- We use assets reported in the External Wealth of Nations (EWN) database for non-CPIS reporting countries and for countries with long reporting gaps.
- We estimate assets of non-CPIS, non-EWN countries based on derived liabilities from the CPIS. This concerns only very few jurisdictions.
- We estimate missing global reserves by assuming a fixed share of IMF-reported reserves to be held in portfolio securities with 74% held in debt and 1% in equity securities.

These corrections can be found in table A1, columns 16 ("Of which: private portfolios (Other, not or partially reporting)") and 17 ("Of which: reserve (Other, not or partially reporting)").

A.8 Global Aggregate Securities Liabilities

For portfolio liabilities we use the updated version of the External Wealth of Nations Dataset (EWN) constructed by Milesi-Ferretti (2025). The January 2025 version comprises external financial liabilities for more than 200 countries for the period 1970 to 2023. The EWN's coverage has improved compared to Zucman (2013), where the EWN covered 178 countries and reached until 2007 only so that 2008 liabilities needed to be estimated. We still make the following corrections to the EWN liabilities:

- We add creditor-derived liabilities when countries are included in the EWN but with gaps (table A2, column 5 ("No data")).
- As in Zucman (2013), we add liabilities of Dutch SFIs but only for the years 2001 and 2002 (table A2, column 6 ("Netherlands SFIs")). For the later years, SFIs are now in included in the EWN.

- We use CPIS-derived liabilities if these are higher than the liabilities reported in the EWN (table A2, column 7 ("raw CPIS ¿ reported liabilities"))
- We correct the Cayman Islands' liabilities as described in section A.2. (table A2, column 8)
- We estimate the liabilities of non-EWN countries as creditor-derived liabilities based on our corrected assets (table A2, columns 10 and 12).
- We add liabilities of international organizations. We obtain their debt liabilities from the Bank of International Settlement (BIS) and their equity liabilities are creditor-derived from the CPIS (table A2, column 13).

A.9 Differences between the Original and the Reproduced Assets-Liabilities Gap 2001-2008

Based on the updated and new data sources, we replicate the estimation of the assets-liabilities gap for the years 2001-2008 as in Zucman (2013) and extend the calculation to 2021 which is the last currently available CPIS year. Despite following the same methodology, the assets-liabilities gap deviates slightly from the original estimates. Most notably, our gap is higher in 2001, 2002, 2006, and 2007 and lower in 2008. This can be explained by data revisions: The difference in 2001 and 2002, is due to a higher estimated discrepancy in debt assets. This is due to revised U.S. debt liabilities in the EWN dataset which exceed the liabilities in the old EWN by about $200 billion in both years. In 2007, the debt liabilities of the United Kingdom were revised upwards by roughly $100 billion. Also, the equity liabilities of the United Kingdom were revised upwards by $200 and $300 billion in 2006 and 2007. Similarly, Germany's equity liabilities were revised upwards by roughly $100 and $200 billion in the same years, respectively. As a result, the equity discrepancy of "other" countries (Table A3, column 12) is higher in 2006-2007 than in the Zucman (2013) version. In addition, the older version of the EWN dataset reached only until 2007 so that liabilities had to be estimated based on countries international investment positions or by extrapolation. With the new data available, the debt liabilities of Germany, for example, shrink by roughly $ 100 billion in 2008 which leads to a narrowing of the assets-liabilities gap for investments in Germany.

A.10 United Arab Emirates

Given the increasing attention paid to the United Arab Emirates (UAE) regarding offshore financial wealth, we classify the UAE as a pure financial center. The United Arab Emirates does not report to the BIS, so we create a dataset of non-resident deposits based on the statistics from the Central Bank of the UAE. More precisely, we take the December values from *Statistical Bulletin*s and *CBUAE Annual Reports*[20]. We assume that the household deposits share is equal to the sum of the shares of individuals and corporate entities.[21] Then, we apply monthly

[20] Publicly available at `https://www.centralbank.ae/en`, extracted on September 16, 2024.

[21] For missing shares in 2014, we imputed them as the mean of the evolution between December 2013 and December 2015.

bilateral exchange rates from AED to USD using the BIS exchange rates dataset.[22] The data is not disclosed bilaterally, so we proxy the distribution of offshore deposits in the UAE using two equally weighted distributions. We utilize the distribution of Foreign Direct Investment data as recorded by the IMF in its *Coordinated Direct Investment Survey*[23] and the distribution of national shares of all property purchases made between 2006 and 2019 in Dubai, based on a confidential dataset from the EU Tax Observatory.

B Update of AJZ (2018)

B.1 Updated List of Financial Centers

For our allocation of offshore wealth we distinguish pure and hybrid financial centers. Pure financial centers host private banking industries catering to non-residents which are largely disproportionate to their domestic economies. We assume that they manage offshore wealth on their territory but that their resident households do not own relevant assets offshore. Hybrid financial centers play or played an important role in foreign custodian banking but also host relevant real economic activity, larger populations and their residents also own significant offshore financial wealth in other financial centers.

- **Pure Financial Centers**: Anguilla, Aruba, Andorra, Anguilla, Antigua and Barbuda, Bahamas, Bahrain, Barbados, Belize, Bermuda, Bonaire, Sint Eustatius and Saba, British Indian Ocean Territory (incl. Chagos Archipelago), British Virgin Islands, Cayman Islands, Cook Islands, Costa Rica, Curaçao, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Hong Kong, Isle of Man, Jersey, Lebanon, Liberia, Liechtenstein, Luxembourg, Macao, Malta, Marshall Islands, Mauritius, Monaco, Montserrat, Nauru, Netherlands Antilles[24], Niue, Panama, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Seychelles, Singapore, Sint Maarten, St. Kitts and Nevis, Switzerland, Trinidad and Tobago, Turks and Caicos Islands, United Arab Emirates, Uruguay, Vanuatu, U.S. Virgin Islands.[25]

- **Hybrid Financial Centers**: Austria, Belgium, Malaysia, United Kingdom, United States of America.[26]

[22] Downloaded from `https://data.bis.org/topics/XRU/BIS,WS_XRU,1.0/M.AE.AED.E` on September 24, 2024.

[23] Downloaded from `https://data.imf.org/?sk=40313609-f037-48c1-84b1-e1f1ce54d6d5`. Years available from 2009 to 2023. Data extracted on April, 2, 2025.

[24] Following the dissolution of the Netherlands Antilles, Curaçao and Sint Maarten became autonomous while Bonaire, Sint Eustatius and Saba became municipalities of the Netherlands. We include these islands as distinct entities from 2012 onwards. We incorporate fiduciary deposits owned by Netherlands Antilles from 1987 to 2008.

[25] Note that in the SNB data Anguilla, British Virgin Islands and Montserrat are included in "West Indies UK".

[26] Austria and Belgium seem to have lost importance in international foreign custodian banking as they mainly served European customers, who should largely be covered by information exchange agreements. For this reason, we let the share of household deposits decline to zero after 2016.

B.2 Portfolio Securities and Fiduciary Deposits in Switzerland.

We obtain total offshore wealth held in Switzerland by adding fiduciary deposits and foreign-owned securities reported by the SNB. For fiduciary deposits, we use the SNB's *Monthly Banking Statistics*.[27] It discloses comprehensive monthly amounts of fiduciary liabilities in Swiss franc (CHF) at the bank-office level. We convert them to dollars using SNB's monthly foreign exchange rates[28]. For Switzerland securities, we take year-end amounts of securities holdings in bank custody accounts (non-resident custody account holders and foreign issuers).[29] We adjust for a less than exhaustive coverage of the SNB's monthly survey by multiplying amounts by $\frac{1}{0.968}$.[30] We correct the total number of securities by adding Swiss securities belonging to foreigners and foreign securities wrongly attributed to Switzerland. The former is estimated to be $77 billion[31] in 2011, while the latter is estimated to be $100 billion in 2013. We assume both follow the evolution of foreign securities belonging to foreigners since then.

Bank-office Level Fiduciary Deposits. Statistics taken from the SNB data are consolidated at the parent company level, so they exclude deposits invested by a parent company in one of its subsidiaries. For instance, UBS Switzerland could invest deposits in UBS Jersey. To account and correct for this, we propose to multiply each country's deposits by a ratio derived from aggregate totals deposits of each consolidation method.[32] As this adjustement is the same for all amounts, it doesn't change our results on the ownership of offshore wealth in Switzerland.

B.3 Distribution of Offshore Wealth in Switzerland

Data source. For the country distribution we use the SNB's *Annual Banking Statistics* survey data, which provides a country breakdown of comprehensive year-end statistics of fiduciary liabilities consolidated at the parent company level. Since 1987, banks with at least one foreign branch in Switzerland have been required to report fiduciary accounts, excluding banks in the Principality of Liechtenstein. We find some discrepancies when comparing this SNB data to the dataset previously used to estimate offshore wealth in Switzerland by Alstadsæter, Johannesen, and Zucman (2018). Specifically, the authors used *Banks in Switzerland* and *Monthly Statistical Bulletin*[33] publications, which have been discontinued since June 2020 and August 2015, respectively. The discrepancies arise from administrative changes and the omission of certain countries. Nonetheless, for the years before the reporting change by the SNB, the fiduciary deposit values are consistent in both the previous and new series.

[27] Downloaded from https://data.snb.ch/en/warehouse/BSTA/facets.

[28] See https://data.snb.ch/fr/topics/ziredev/doc/explanations_ziredev.

[29] Series are taken from https://data.snb.ch/en/topics/banken/cube/bawebedomsecwja.

[30] Computation for this correction factor can be found in the file https://gabriel-zucman.eu/files/Zucman2013LivreSuisse.xlsx.

[31] The discrepancy between Swiss-reported portfolio liabilities and CPIS creditor-derived liabilities.

[32] Ratio between bank office level consolidation and parent company level consolidation.

[33] See previous editions of Banks in Switzerland https://www.snb.ch/en/iabout/stat/statrep/statpubdis/id/statpub_bankench. and Monthly Statistical Bulletin https://www.snb.ch/en/iabout/stat/statrep/statpubdis/id/statpub_statmon_arch.

The Netherlands Antilles. The dissolution of the Netherlands Antilles in 2010 led to its division into Curaçao, Sint Maarten, and Bonaire, Sint Eustatius, and Saba. The Swiss National Bank's data is incomplete for the period before 2012, as it does not account for fiduciary deposits owned by these entities. Furthermore, the Netherlands Antilles no longer exists as a single jurisdiction in the SNB data. We incorporate a former version of the Swiss fiduciary deposits dataset in order to include the Antilles, France, St. Kitts and Nevis, and some other countries that are absent from the currently available version.

Liechtenstein. Liechtenstein was initially classified as a foreign country, but this status changed in 1984. Therefore, Liechtenstein is absent from the Swiss National Bank data series and its deposits are considered Swiss-owned. Before being omitted, Liechtenstein was the largest foreign holder of deposits among the countries considered. These are now considered Swiss deposits in the data set. For the period subsequent to 1984, we thus compute deposits stemming from Liechtenstein as 45% of the total Swiss-owned fiduciary deposits.[34] We derive this adjustment from the proportion of Liechtenstein deposits to the combined deposits of both Liechtenstein and Switzerland in the year 1983.

Greece We observe that the share of Swiss fiduciary deposits owned by residents of Greece nearly triples between 2021 and 2023 from 0.6 % in 2021 to 1.7% which would make Greece's already relatively high offshore financial wealth skyrocket in relation to its GDP. As we cannot find a plausible explanation for this extreme development, we suspect a measurement error and freeze Greece's share at its 2021 value.

Distribution of offshore wealth in Switzerland. To allocate offshore wealth held in Switzerland to the countries of residence of its owners, we rely on the breakdown of fiduciary deposits by location of asset holders. Figure 7 plots the development of ownership by country group over the 1987-2023 period. The country groups broadly align with the definitions used by Zucman (2013) but using the updated list of financial centers:[35]

- Europe: Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Estonia, Faeroe Islands, Finland, France, German Democratic Republic, Germany, Greece, Holy See, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Macedonia, Moldova (Republic of), Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Tchecoslovakia, Ukraine, United Kingdom of Great Britain and Northern Ireland, Yugoslavia.

- Middle East: Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, Yemen.

[34] In fact, nearly 100% of the fiduciary deposits labeled as "Swiss-owned" may indeed have foreign beneficial owners.

[35] Note that in this section, the list is limited to financial centers actually included in the SNB data set.

- Latin and South America: Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Falkland Islands, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Paraguay, Peru, Uruguay, Venezuela.
- Asia: Afghanistan, Armenia, Australia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji, French Polynesia, Georgia, India, Indonesia, Japan, Kazakhstan, Kiribati, Korea (Democratic People's Republic of), Korea (Republic of), Kyrgyzstan, Lao People's Democratic Republic, Malaysia, Maldives, Micronesia (Federal States of), Mongolia, Myanmar, Nepal, New Caledonia, New Zealand, Pakistan, Papua New Guinea, Philippines, Russian Federation, Solomon Islands, Sri Lanka, St Helen, Taiwan, Tajikistan, Thailand, Timor-Leste, Tonga, Turkey, Turkmenistan, Tuvalu, USSR, United States Minor Outlying Islands, Uzbekistan, Viet Nam, Wallis and Futuna Islands.
- Africa: Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo, Congo (Democratic Republic of), Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Togo, Tunisia, Uganda, United Republic of Tanzania, Western Sahara, Zambia, Zimbabwe.
- North America: Canada, United States of America.
- Caribbean: Cuba, Greenland, Grenada, Guyana, Jamaica, Saint Lucia, Sint Maarten (Dutch part), Suriname.

Reallocation of Swiss fiduciary deposits owned by other financial centers. In our benchmark estimate, we reallocate 80% of Swiss deposits owned by Cyprus to Russia. Furthermore, we assume that Swiss offshore wealth owned by other financial centers in reality belongs to residents of other countries. We thus redistribute it to the residents of other countries following the same distribution as their directly observable ownership of Swiss fiduciary deposits. This implies, for example, that we allocate 2.4% of Swiss deposits owned by other financial centers to France in 2023 as France owns 2.4% of the remaining Swiss deposits. We thus rely on the assumption that the ratio of Swiss deposits owned through shell companies to directly owned Swiss deposits is the same for all countries except Russia. As this assumption can be questioned easily we provide an alternative distribution of Swiss offshore wealth, where we reallocate deposits owned by financial centers based on their inward FDI.

FDI-corrected reallocation

Data source. For the Foreign Direct Investment (FDI) - corrected country-level distribution, we use the *Direct Investment Positions by Counterpart Economy (formerly CDIS)* reported official data from the International Monetary Fund (IMF). This dataset is available annually

from 2009 to 2023 and provides a country breakdown of foreign direct investments in financial centers.

Inward and Outward Direct Investment. When financial centers report their inward investments to the IMF, we use the indicator *Inward Direct investment, Net (liabilities less assets), All financial instruments, All entities*. However, not all financial centers report this information. In such cases, we rely on the corresponding *Outward Direct investment, Net (assets less liabilities), All financial instruments, All entities* as reported by their counterparty countries.

- Cleaning. For each financial center, we exclude investments made by countries not covered in the Swiss fiduciary data, as well as investments originating from other financial centers. We also implement minor adjustments to the dataset: negative investment values are set to zero, and missing values are filled by carrying forward the last available value (by country–counterparty country pair).

- FDI Shares Computation. From 2009 to 2023, we compute yearly shares of each non-financial center country (present in the Swiss data) in each financial center as the ratio of that country's direct investment to the total direct investment in the financial center. For the years 2001–2008, we assume these country shares to be constant and equal to the average shares computed over the 2009–2023 period (for each country–counterparty country pair).

Reallocation of foreign-owned Swiss fiduciary deposits. We redistribute the total amount of fiduciary liabilities—expressed in thousands of US dollars (converted at end-of-period exchange rates)—owned by financial centers in Switzerland. This redistribution is performed by allocating a share of each financial center's Swiss fiduciary deposits to non-financial center countries, based on their share of FDI in that financial center. As a result, the Swiss fiduciary holdings of financial centers become zero, while the total Swiss fiduciary deposits owned by non-financial center countries equal the sum of: the directly reported Swiss fiduciary deposits, and the indirectly attributed Swiss fiduciary deposits (based on financial centers' holdings redistributed using FDI shares). For example, Japan accounts for 11% of inward foreign direct investment in Singapore in 2023, among the countries covered in the Swiss fiduciary data and classified as non-financial centers. Accordingly, 11% of the Swiss fiduciary deposits held by Singapore in 2023 are reallocated to Japan, in addition to the deposits already directly attributed to Japan. We thus rely on the assumption that a country's propensity to hold Swiss deposits through shell companies in a given financial center corresponds to its share of FDI into that financial center. Figure 7b plots the development of ownership by country group over the 2001-2023 period, once we use FDI-corrected allocation of foreign-owned Swiss bank deposits.

- Pure Financial Centers: We include all pure financial centers, except Switzerland: Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Bahrain, Barbados, Belize, Bermuda, Bonaire, Sint Eustatius and Saba, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Cook Islands, Costa Rica, Curaçao, Cyprus, Dominica, Gibraltar, Grenada, Guernsey, Hong Kong, Isle of Man, Jersey, Lebanon, Liberia, Liechtenstein, Luxembourg, Macao, Malta, Marshall Islands, Mauritius, Monaco, Montserrat, Nauru,

Netherlands Antilles, Niue, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Seychelles, Singapore, Sint Maarten, Trinidad and Tobago, Turks and Caicos Islands, United Arab Emirates, United States Virgin Islands, Uruguay and Vanuatu.

- Conduit Financial Centers: We classify Belgium, the United Kingdom, Ireland and the Netherlands as conduit financial centers. For the FDI correction, we do not consider the US as a financial center because that there is not much evidence that the US is used as a conduit for FDI. One explanation might be that in contrast to the UK and EU countries intra-group dividends are taxed in the USA .

FDI-corrected regional trends. In Figure A.16, we compare regional patterns in the ownership of offshore wealth using our preferred offshore wealth estimates and the FDI-corrected offshore wealth estimates. When applying the FDI correction, Europe and Central Asia—the region with the largest offshore wealth owners—receive a somewhat smaller share of total offshore wealth.[36] This is primarily driven by a reduction in the estimated offshore wealth of certain European countries in recent years, such as the United Kingdom, Greece, and Italy. The FDI-correction produces a downward shift in the share of the Middle East and North Africa region mainly due to Saudi Arabia, Qatar and Oman and for Sub-Saharan Africa. In contrast, for North America—particularly the United States, along with Canada— and for the East Asia and Pacific region - mainly driven by China - it produces an upward shift without altering the trend. For Latin America and the Caribbean, and South Asia, the FDI correction to some extent counteracts the downward trend in their shares of offshore wealth over the last decade produced by our preferred method. However, the differences between the two regional estimates appear minor as they do not exceed 1.9 and 0.4 percentage points, respectively.

B.4 Bank Deposits in Other Financial Centers

Data source. For offshore wealth held in other financial centers than Switzerland we rely on the Bank for International Settlements' (BIS) *Locational Banking Statistics* quarterly survey data, which provides a country breakdown of cross-border positions, by nationality of reporting bank and sector of counterparty. More specifically, we use cross-border liabilities of all BIS-reporting banks ("all currencies", "all instruments", "all parent countries") towards non-banks which comprise households and corporate entities. Not all financial centers report to the BIS so our estimations are based on information provided by the following jurisdictions: Austria, Bahamas, Bahrain, Belgium, Bermuda, Cayman Islands, Curacao, Cyprus, Great Britain, Guernsey, Hong Kong, Isle of Man, Jersey, Luxembourg, Macao, Malaysia, Netherlands Antilles, Panama, Singapore, United States of America. Among these, only Austria, Belgium, Guernsey, Hong Kong, Isle of Man, Jersey, Luxembourg, Macao, the United Kingdom, and the United States disclose a bilateral breakdown of foreign-owned deposits. For this reason we have to estimate the distribution of offshore wealth held in Bahamas, Bahrain, Bermuda, Cayman Islands, Cyprus, Malaysia, Netherlands Antilles / Curaçao, Panama, and Singapore based on the global residual of not bilaterally allocated deposits in combination with bilateral information used in

[36] The difference does not exceed 8 percentage points.

Alstadsæter, Johannesen & Zucman (2018). In contrast to Alstadsæter, Johannesen & Zucman (2018), we cannot rely on the liabilities of the BIS sub-aggregate "offshore financial centers" broken down by counterparty country, as this series is not publicly available.

Allocation across financial centers and counterparty countries. We distribute global offshore financial wealth held outside of Switzerland to BIS-reporting financial centers based on each financial center's share in total financial centers' foreign liabilities making assumptions about the share of foreign-owned deposits belonging to potentially tax-evading households. For example, we apply share of 100% for Cyprus and Panama, but shares of 70% for Bahamas, Bermuda, Curacao, Hong Kong, and Singapore as these might also host some multinational activity. We apply even lower shares of 20% to the United Kingdom and 10% to the United States because most of bank deposits here are likely linked to real economic activity. Updating the assumptions used by Alstadsæter, Johannesen & Zucman (2018), we assume that Austria and Belgium are no longer relevant providers of foreign custodian banking so we stepwise reduce their shares to zero starting from 2008 when the EU commission proposed to tighten the EU savings Directive. We also reduce the shares of Guernsey, the Isle of Man, and Jersey to 65% and of Luxembourg to 40% to account for increasing financial transparency (see "assumptions.xlsx" table in github for all shares in all years.) As Bermuda, Chile, and Panama started reporting to the BIS in 2002, we assume that their deposits in 2001 are equal to those in 2002. As Cyprus only started reporting in 2008, we assume that their deposits follow the evolution of aggregate deposits of European financial centers backward.

We then redistribute offshore wealth to countries of ownership based on the bilateral liabilities of financial centers towards other countries. To estimate bilateral liabilities of the financial centers that do not disclose bilaterally, we proceed as follows: For Cyprus, we assume that 90% of the bank deposits belong to Russia, while 10% belong to Greece. For Cayman Islands, we use the distribution observed by Alstadsæter, Johannesen & Zucman (2018) for 2006/2007 where approximately 90% of the deposits belonged to the United States and keep it constant over time. For Panama and the other financial centers subsumed under "Asian financial centers" we start with their observed 2006/2007 (counterparty) country shares and let them develop at the same growth rates as the global residual of non-bilaterally allocated liabilities. We compute this residual by substracting the bilateral distributions from the aggregate liabilities of all BIS reporting countries which are broken down by counterparty country. To construct meaningful time series, we first have to fix some reporting breaks. First, some jurisdictions only start disclosing bilateral numbers in the middle of period. Before subtracting their bilateral distributions from the global residual we extrapolate them backwards to avoid misleading shifts in the residual distributions. This concerns Austria and Canada (2001-2006), Spain (2001-2011), Macao (2001-2012), Italy and Hong Kong (2001-2013). Second, starting from 2016 China's aggregate liabilities are included. This adds approximately 30% to 40% to total global deposits so and shifts of individual countries' shares in the global residual are substantial in this year. To neutralize these shifts, we freeze each country's share in the global residual in 2016 at its 2015 level and let it grow again in line with the residual in the following years.

Reallocation of BIS deposits in financial centers owned by financial centers. In line with our approach to Swiss fiduciary deposits, we redistribute the BIS deposits in financial centers owned by other financial centers back to other countries. Again, we assume that deposits held through shell-companies in financial centers are distributed in the same way as directly held deposits in financial centers.

B.5 Global Offshore Wealth Distribution

Data construction. When constructing the global offshore wealth distribution, we group BIS-reporting financial centers by region as for most jurisdictions subsumed under "Asian financial centers" a bilateral break-down is hard to obtain in the absence of bilateral reporting:

- Asian financial centers, composed by Hong Kong, Singapore, Macao, Malaysia, Bahrain, Bahamas, Bermuda, Netherlands Antilles / Curaçao.
- European financial centers, composed by Austria, Belgium, Cyprus, Guernsey, Isle of Man, Jersey, Luxembourg, and the United Kingdom.
- American financial centers, composed by Cayman Islands, Panama, and the United States of America.

Offshore wealth allocation across pure and hybrid financial centers. For the country allocation of offshore wealth we treat pure and hybrid financial centers differently. For pure financial centers, we redistribute all their offshore wealth held in other financial centers to residents in other (non-financial center) countries as described above. Hybrid financial centers, in contrast, both host and own offshore wealth. They are important financial service providers but also host relevant real economic activity and larger populations. These are Austria, Belgium, Malaysia, the United Kingdom and the United States. In the case of Austria and Malaysia we thus do not reallocate their offshore financial wealth holdings in other financial centers. For Belgium, the United Kingdom and the United States we respectively reallocate 50%, 50% and 20% of their offshore financial wealth holdings to residents in other countries because we assume that true ownership is concealed through shell companies. Indeed individual US Federal States have a very high prevalence of companies registered per resident according to the Shell Company Index developed by Aliprandi et al. (2023). According to this index Delaware ranks second globally with 2888 companies registered per thousand residents. Also Belgium and the united Kingdom rank relatively high with 168 and 109 companies per thousand residents. For comparison, Austria and Malaysia rank lower with 18 and 65 companies registered per resident, respectively. We further reallocate 75% of offshore financial wealth holdings of Ireland, and the Netherlands because their shares in financial center's BIS deposits are strongly inflated by financial activities of multinational enterprises.

Offshore wealth time series. As cross-border deposits sometimes fluctuate quite strongly, we use moving averages of country shares to compute absolute smoother time series of offshore wealth owned by each country. We compute the moving average in year t by applying weights: 10% for $t-2$ and $t+2$, 20% for $t-1$ and $t+1$, and 40% for t itself. In instances where certain

countries had missing data for some years, rendering the computation method infeasible, we simply rely on the share for the respective years (e.g, if we want an estimate for year t, $t+1$ being set as missing, we take the estimated share t). It is worth noting that we treat differently countries that experienced substantial fluctuations in their deposits (or in general, deposits in years at the border of our time series, i.e. 2001, 2002, 2021, and 2022). In such cases, we still employ a smoothing estimation, utilizing the available data (we put weight on available years, and we harmonize by dividing by the relevant factor).

C Appendix Figures

Figure A.1: Offshore Wealth in Top 5 Financial Centers, 2001-2023, % of Total

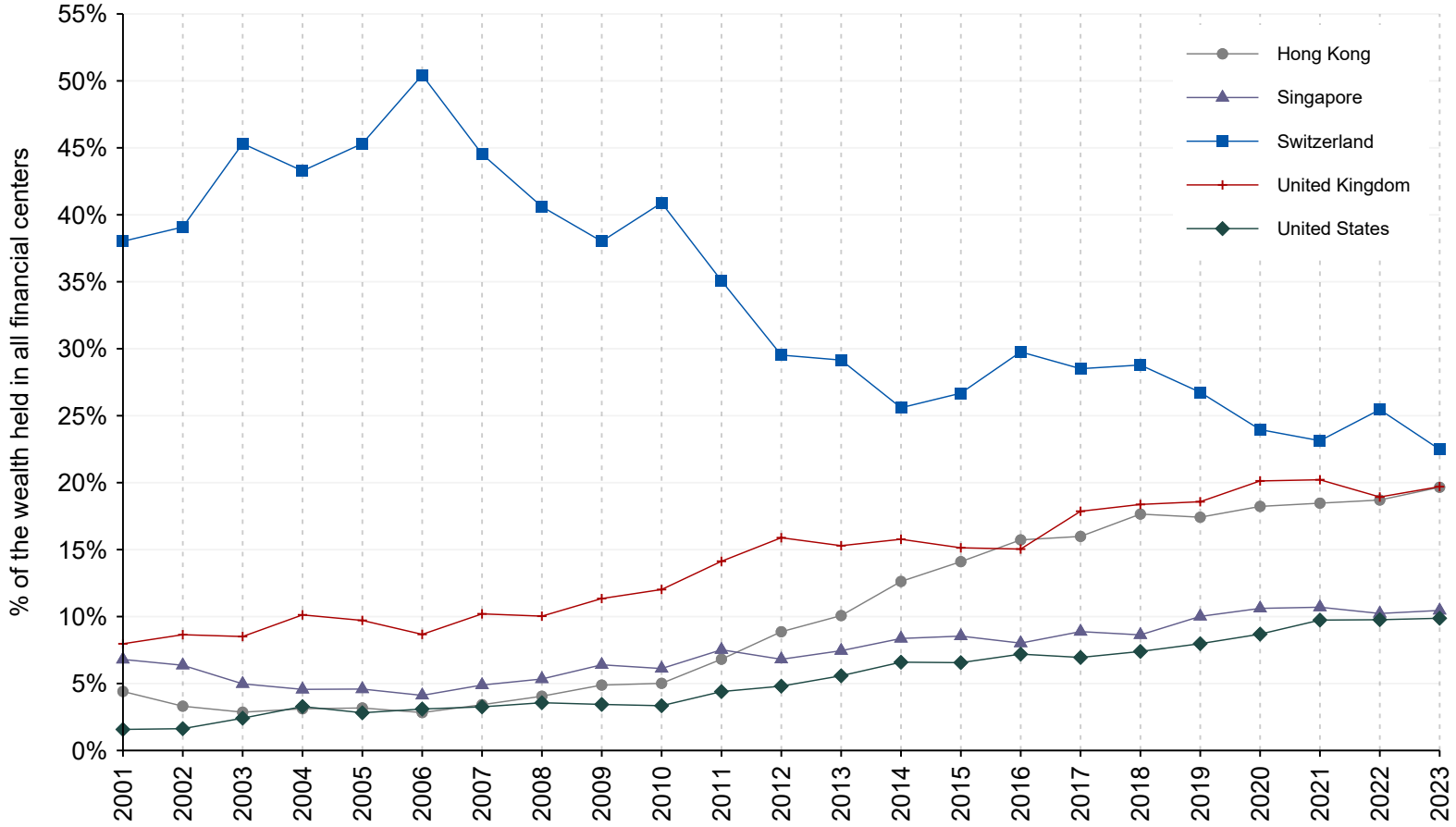


Figure A.2: Offshore Wealth in Top 5 Financial Centers, 2001-2023, % of GDP

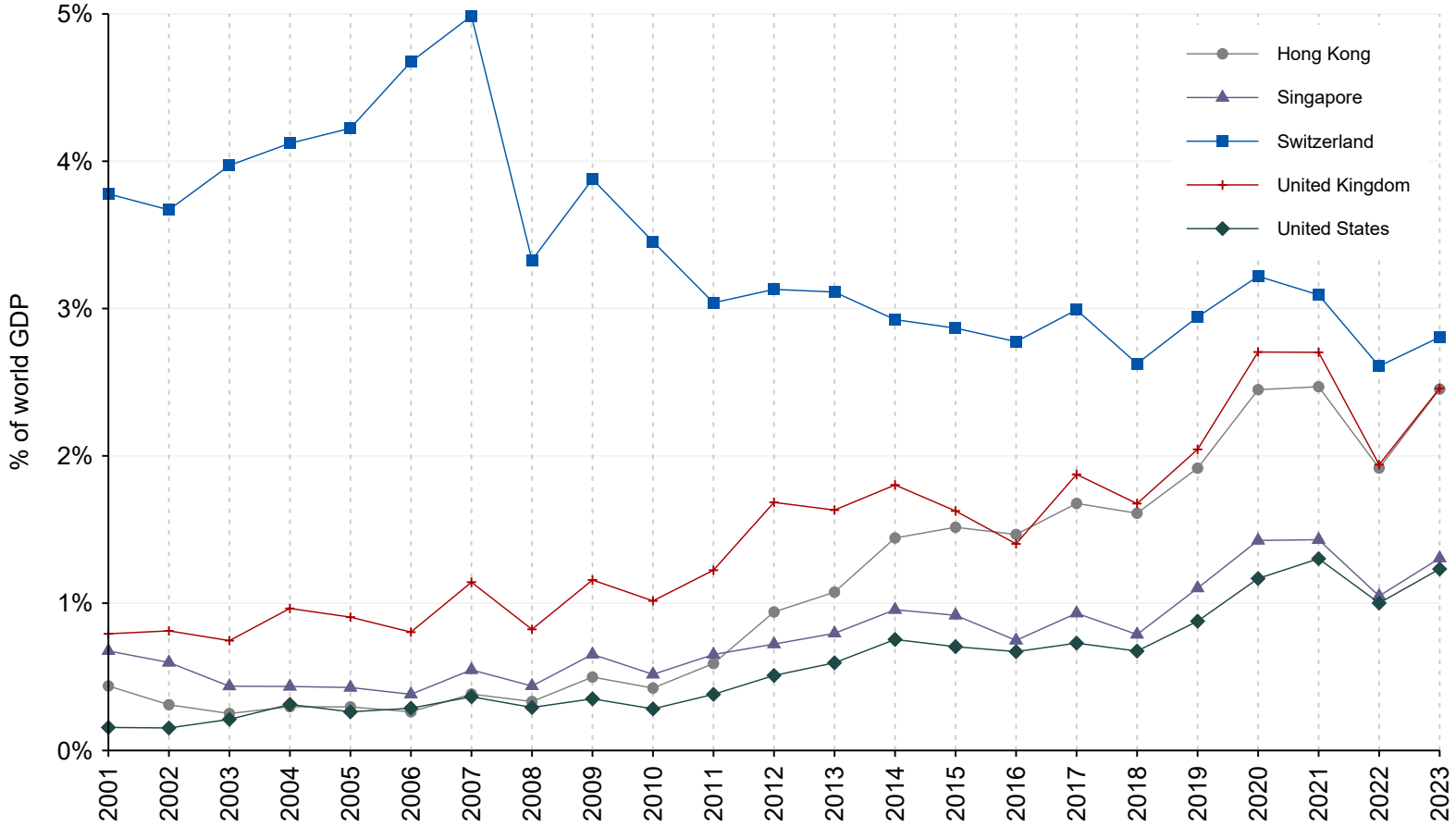


Figure A.3: Offshore Wealth in Top 5 Financial Centers, 2001-2023, % of Household Financial Wealth

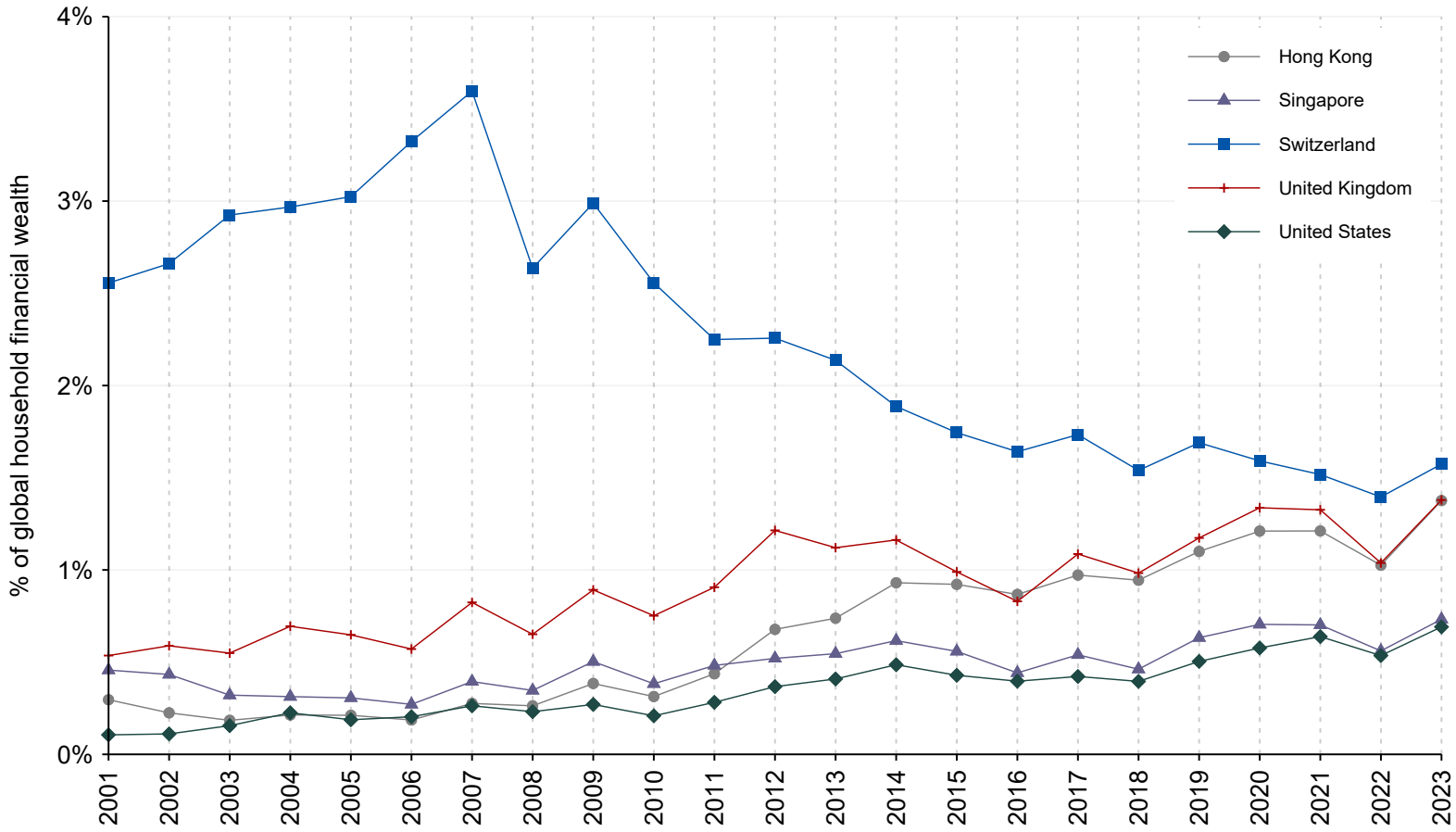
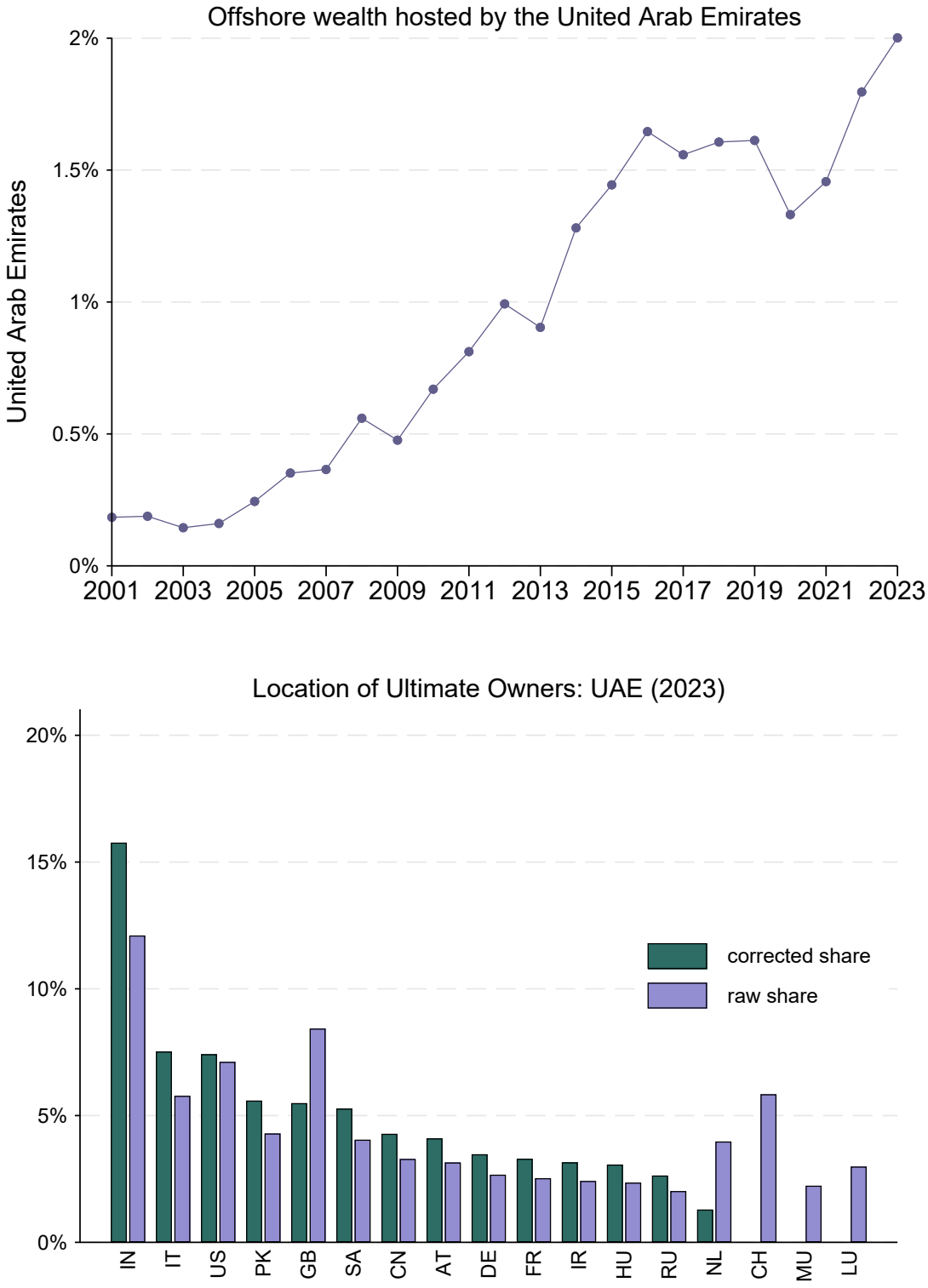
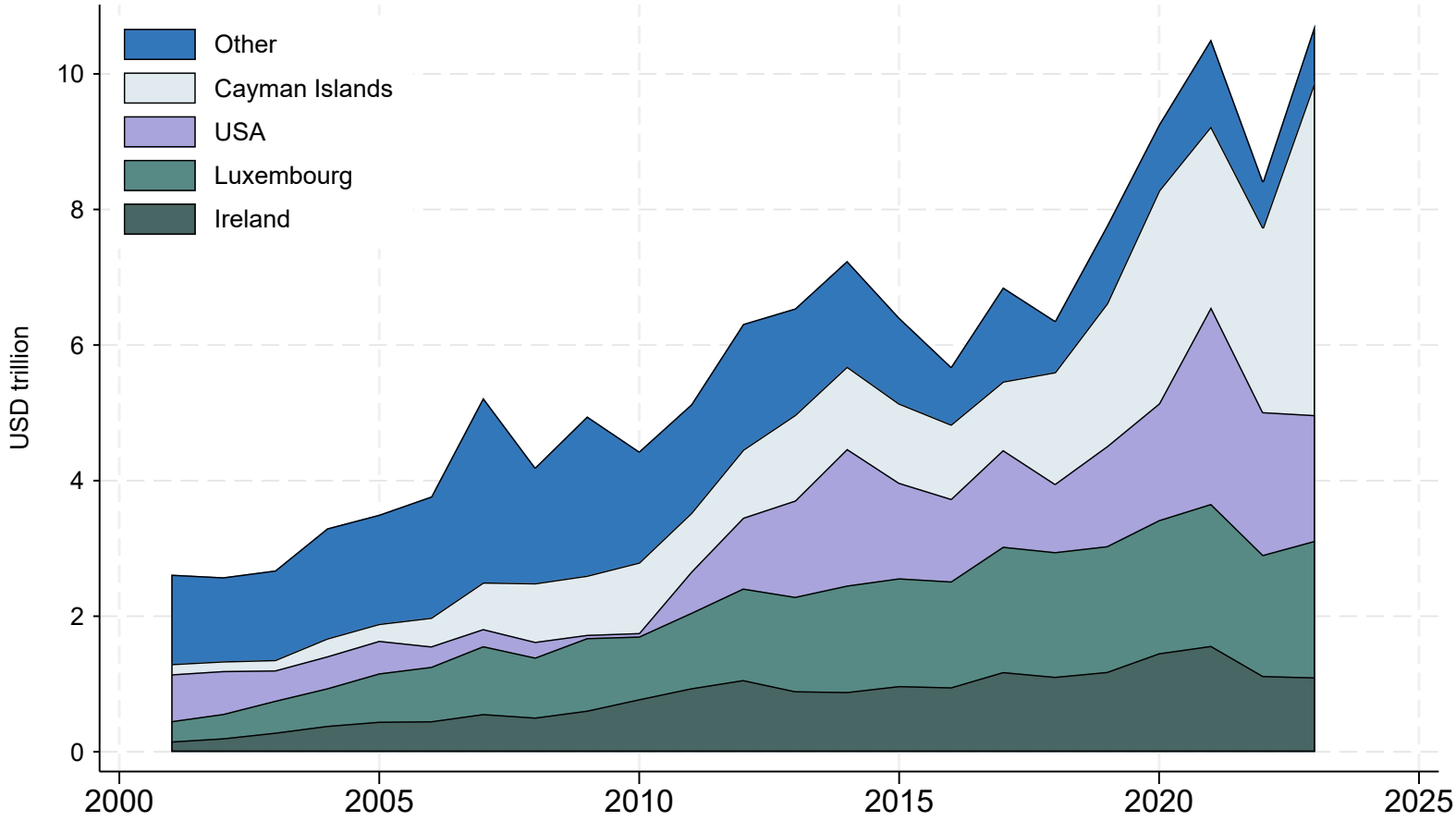


Figure A.4: Offshore Wealth Hosted in the United Arab Emirates



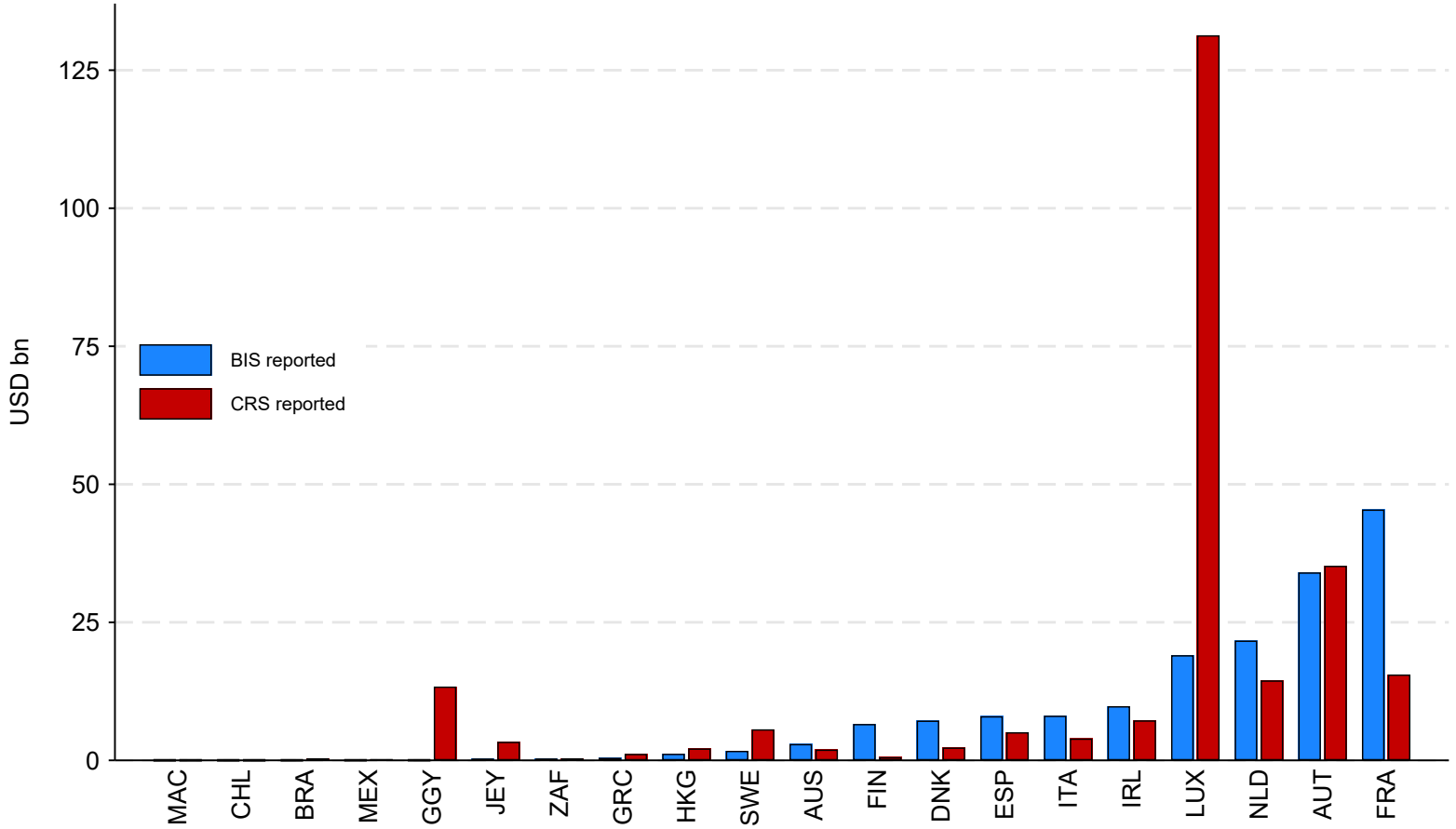
Notes: These figures plot offshore wealth hosted by the United Arab Emirates. Panel A plots the development of offshore wealth hosted in the UAE over time. Panel B plots our allocation of offshore wealth to the countries of ultimate ownership with and without reallocation of deposits owned by other financial centers.

Figure A.5: Where are the Missing Securities Invested?



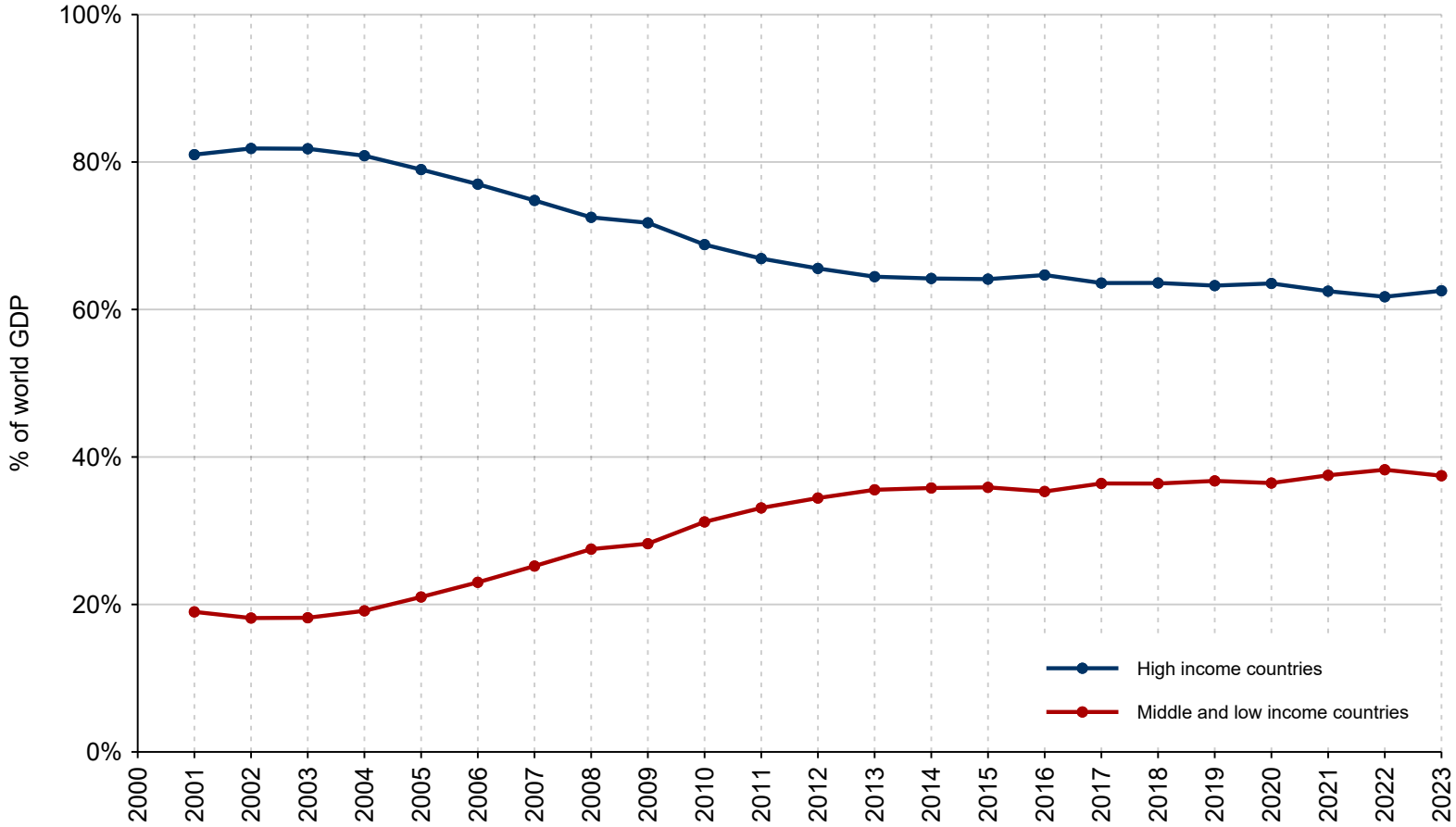
Notes: This figure plots the discrepancies between the total securities liabilities of Cayman Islands, United States, Luxembourg, and Ireland towards the rest of the world and the sum of the securities assets held in each of these jurisdictions by the rest of the world.

Figure A.6: BIS-Reported Foreign Bank Deposits and CRS-Reported Foreign Wealth of German Residents, 2019



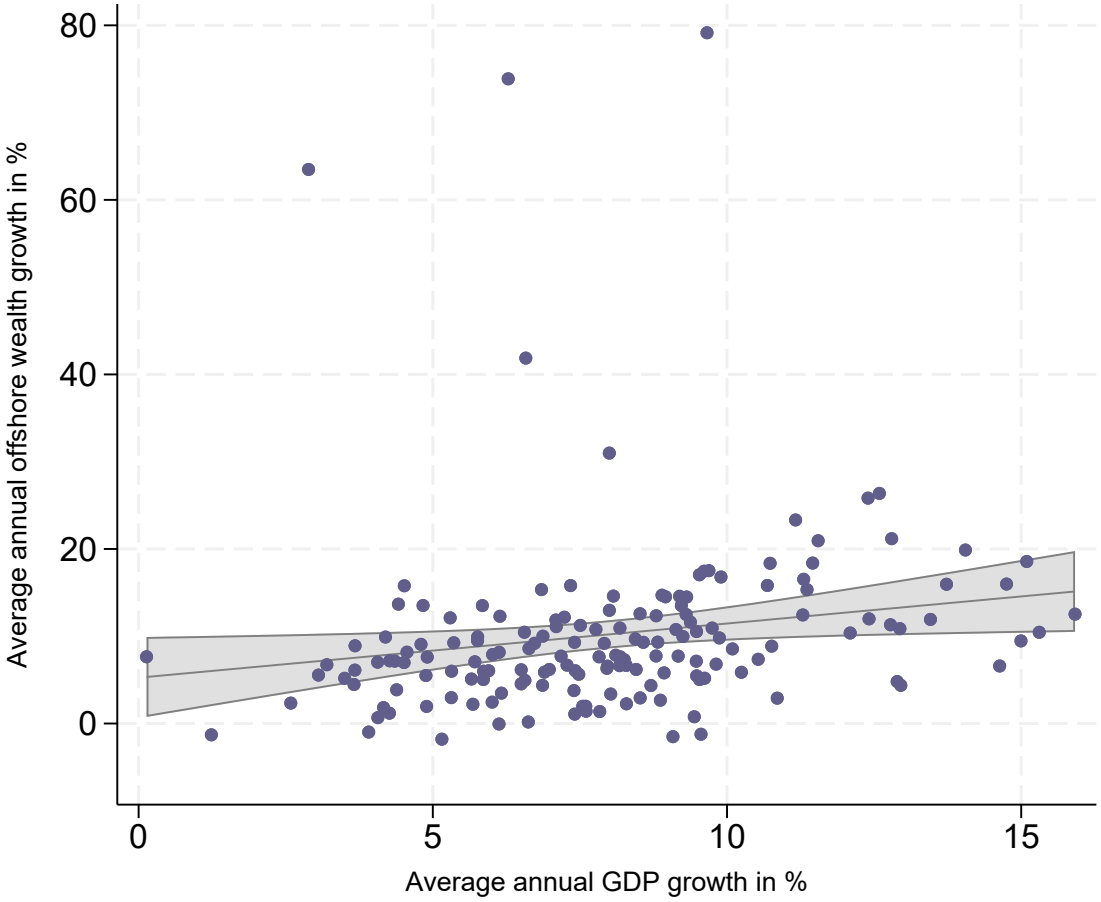
Notes: This figure plots foreign deposits held by German residents (non-bank sector) as reported in the BIS Locational Banking Statistics (blue bars) and compares them to foreign financial wealth of German residents as reported under the CRS for the year 2019 (red bars). CRS numbers are extracted from a document published by the German Parliament in 2021 (Deutscher Bundestag, 2021). Only countries with data available in both series are included.

Figure A.7: Shares of world GDP of High-Income vs. Middle- and Lower-Income Countries



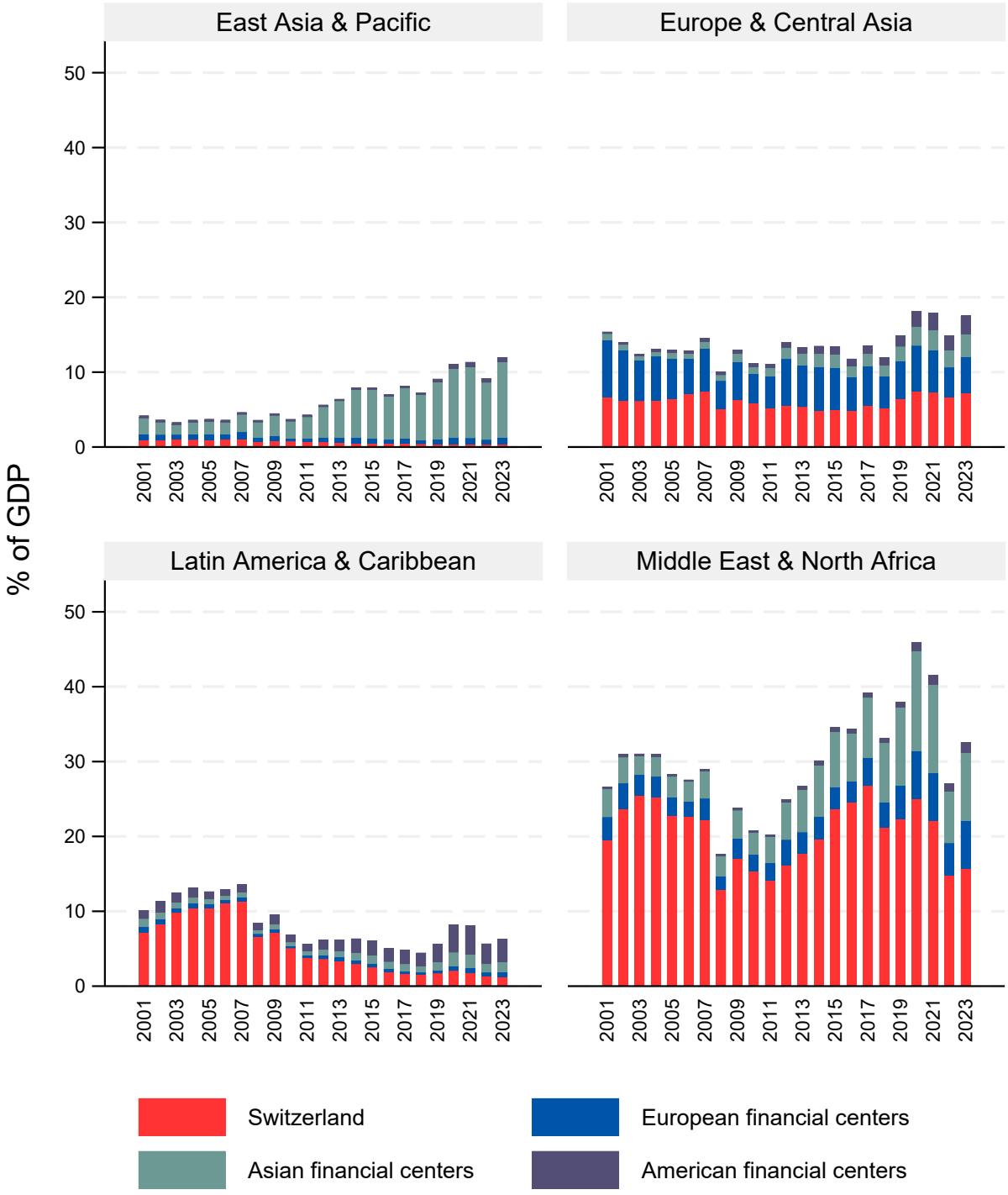
Notes: This figure plots the shares of high-income vs. middle- and lower-income countries in world GDP. Income level groups are defined using the World Bank classification as of 2022. We categorize upper-middle income, lower-middle income, and unclassified countries within the middle and lower-income group.

Figure A.8: Average Growth of Offshore Wealth and GDP by Country, 2001-2023



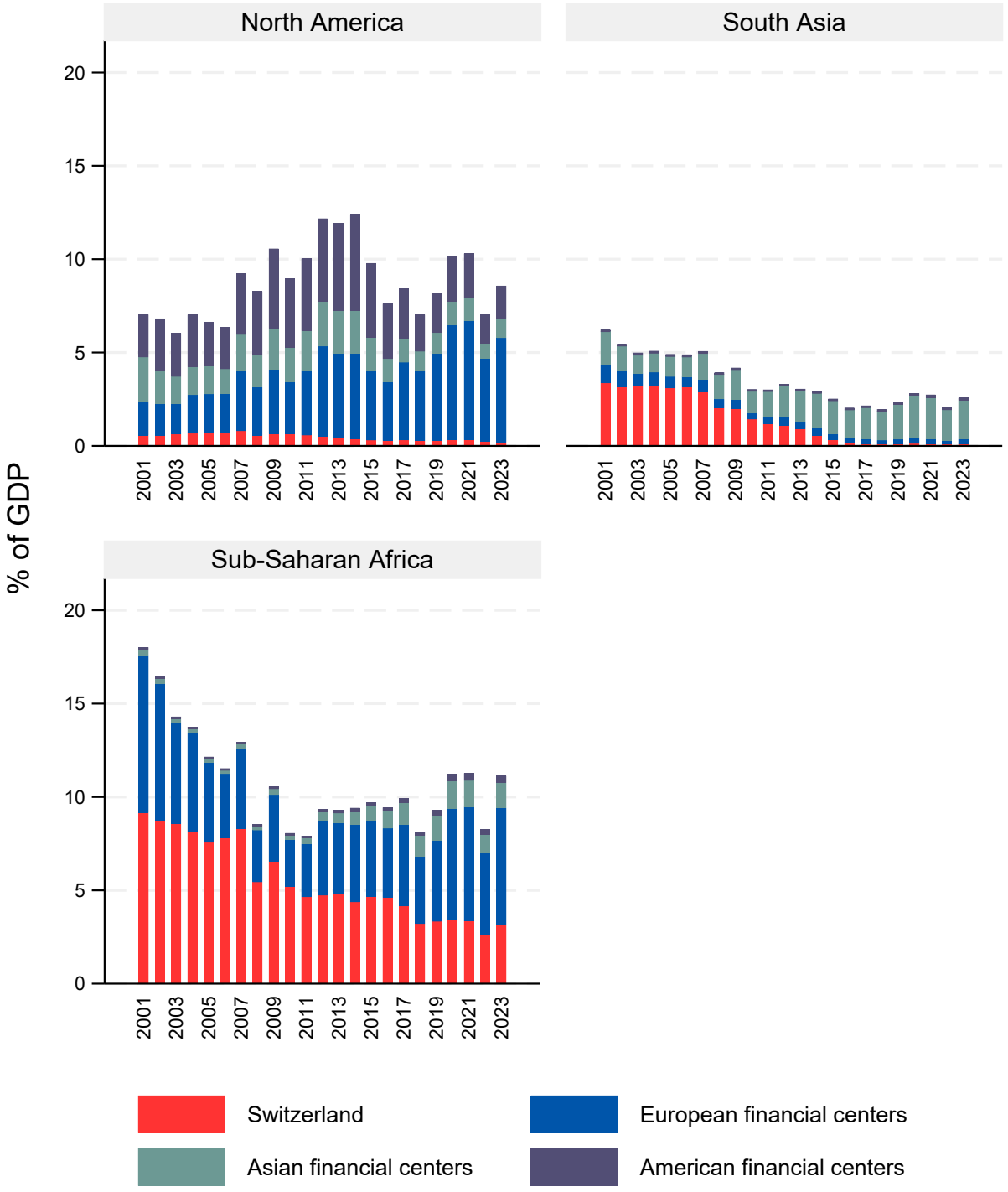
Notes: This figure plots each country's average annual growth in offshore financial wealth against its average annual GDP growth in %. GDP is measured in current USD. The outliers Palau, Timor-Leste, and Tuvalu are excluded.

Figure A.9: Offshore Wealth by World Region I



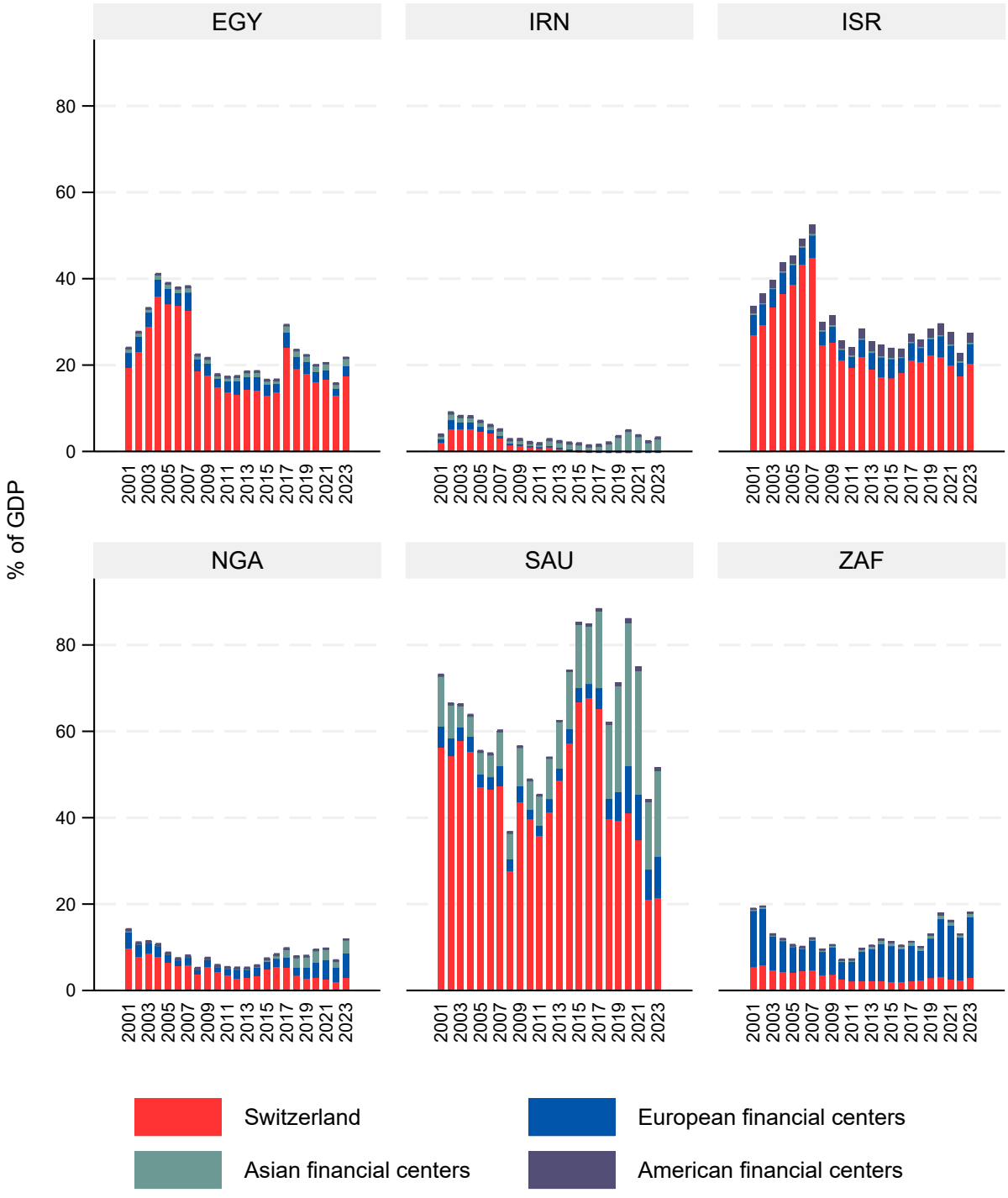
Notes: These figures plot the (weighted) average development of offshore wealth in % of GDP for different world regions.

Figure A.10: Offshore Financial Wealth by World Region II



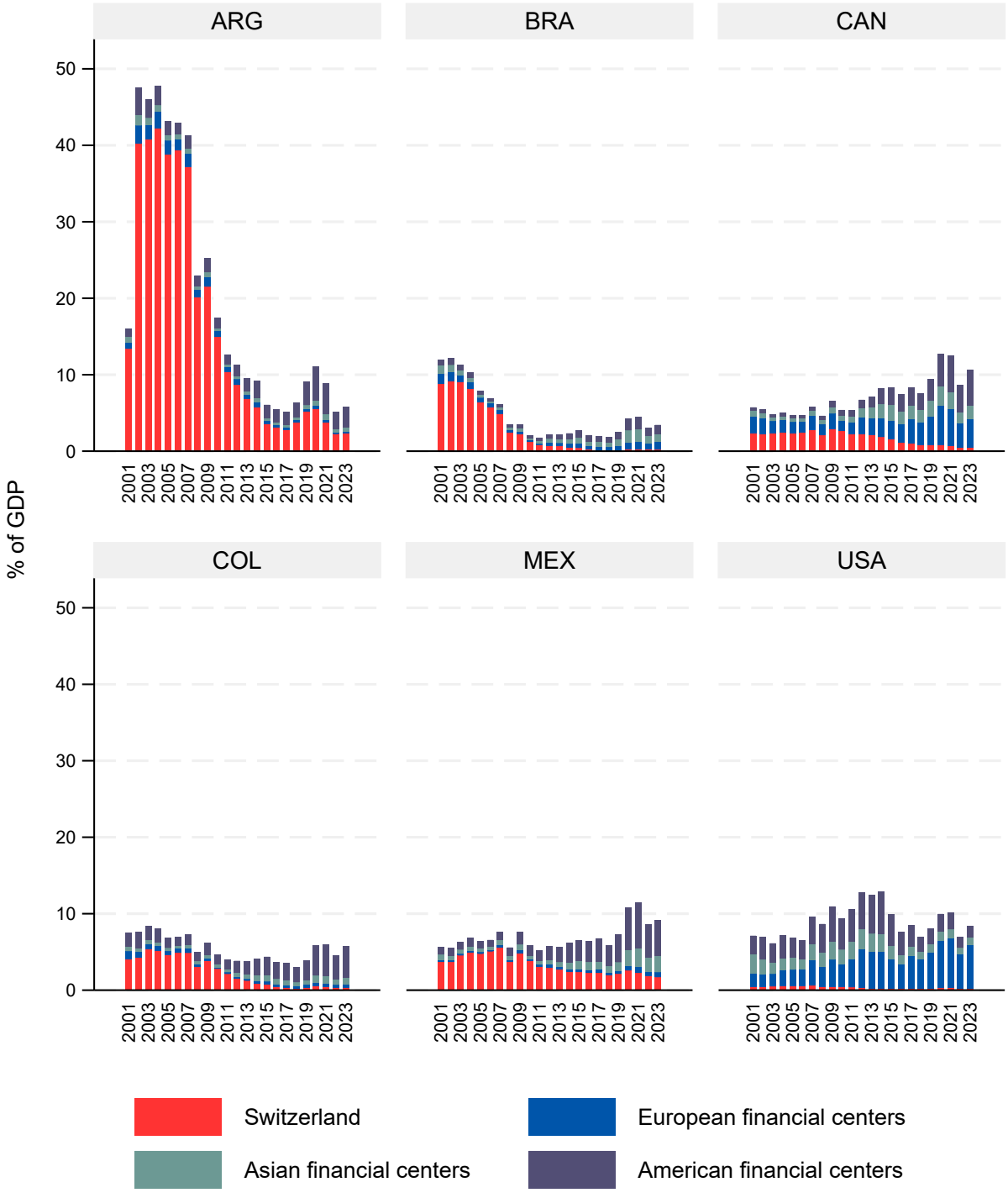
Notes: These figures plot the (weighted) average development of offshore wealth in % of GDP for different world regions.

Figure A.11: Offshore Wealth by Country: Africa and Middle East



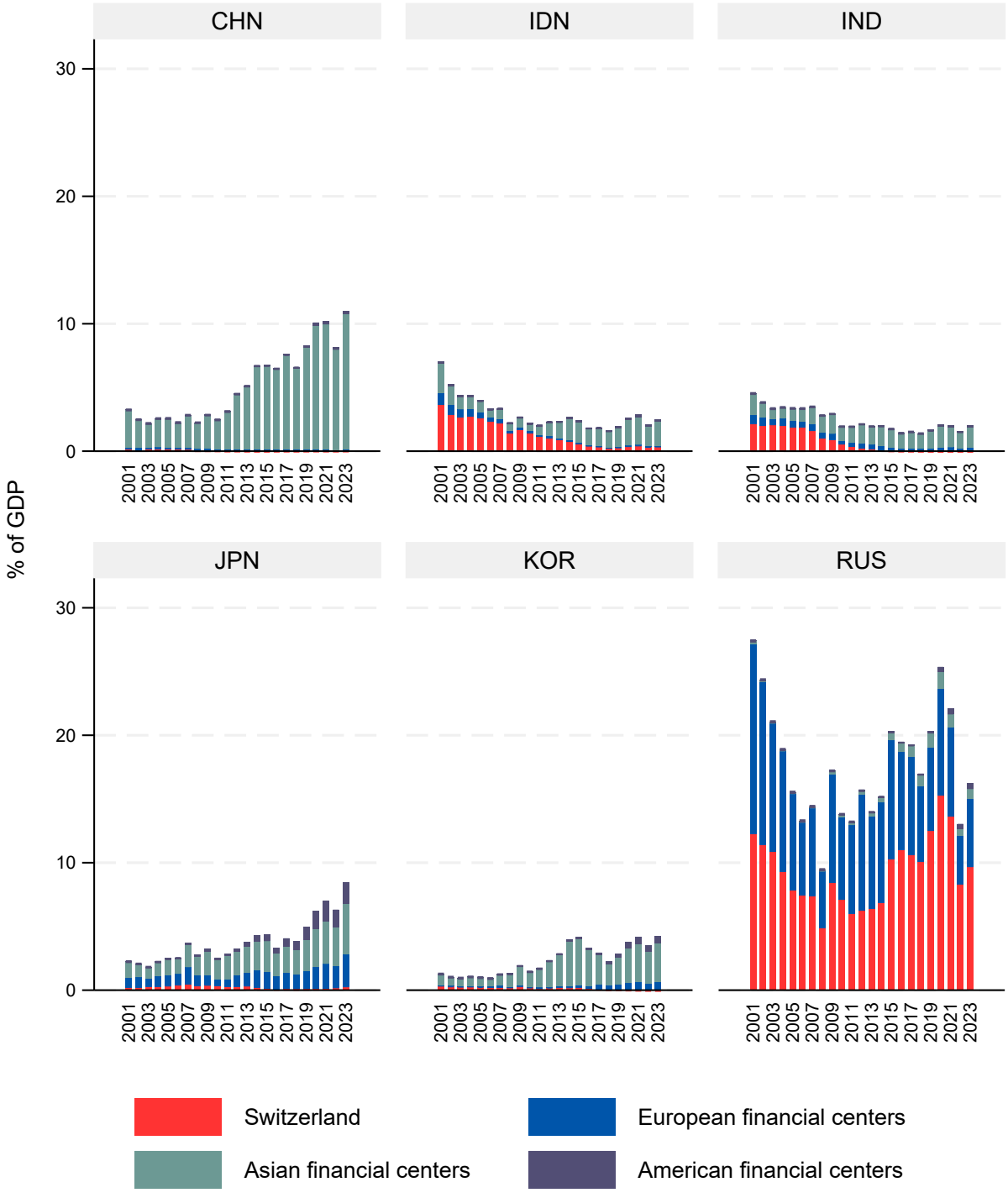
Notes: These figures plot the development of offshore wealth in % of GDP for the six largest African and Middle Eastern economies.

Figure A.12: Offshore Wealth by Country: Americas



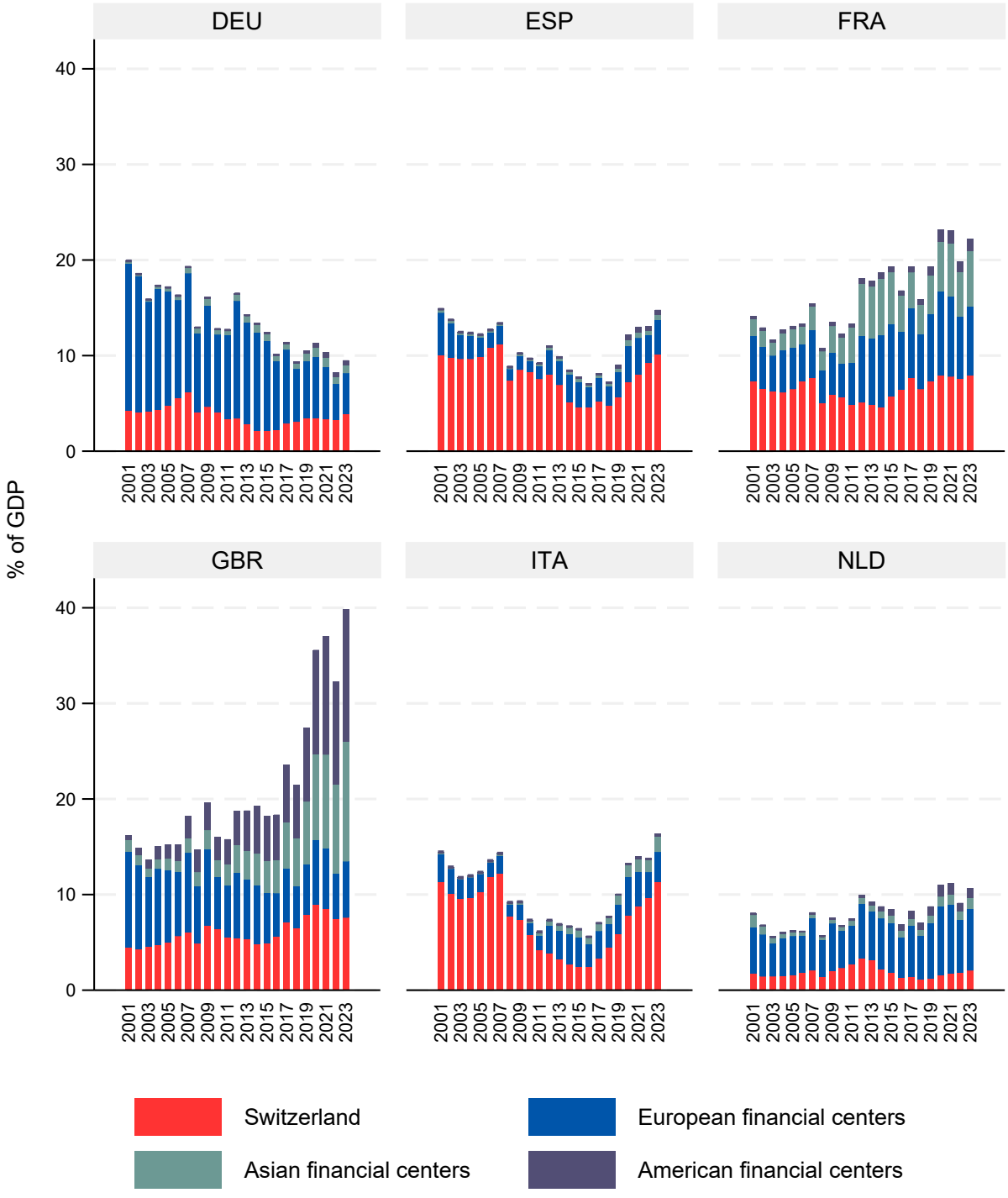
Notes: These figures plot the development of offshore wealth in % of GDP for the six largest American economies.

Figure A.13: Offshore Wealth by Country: Asia



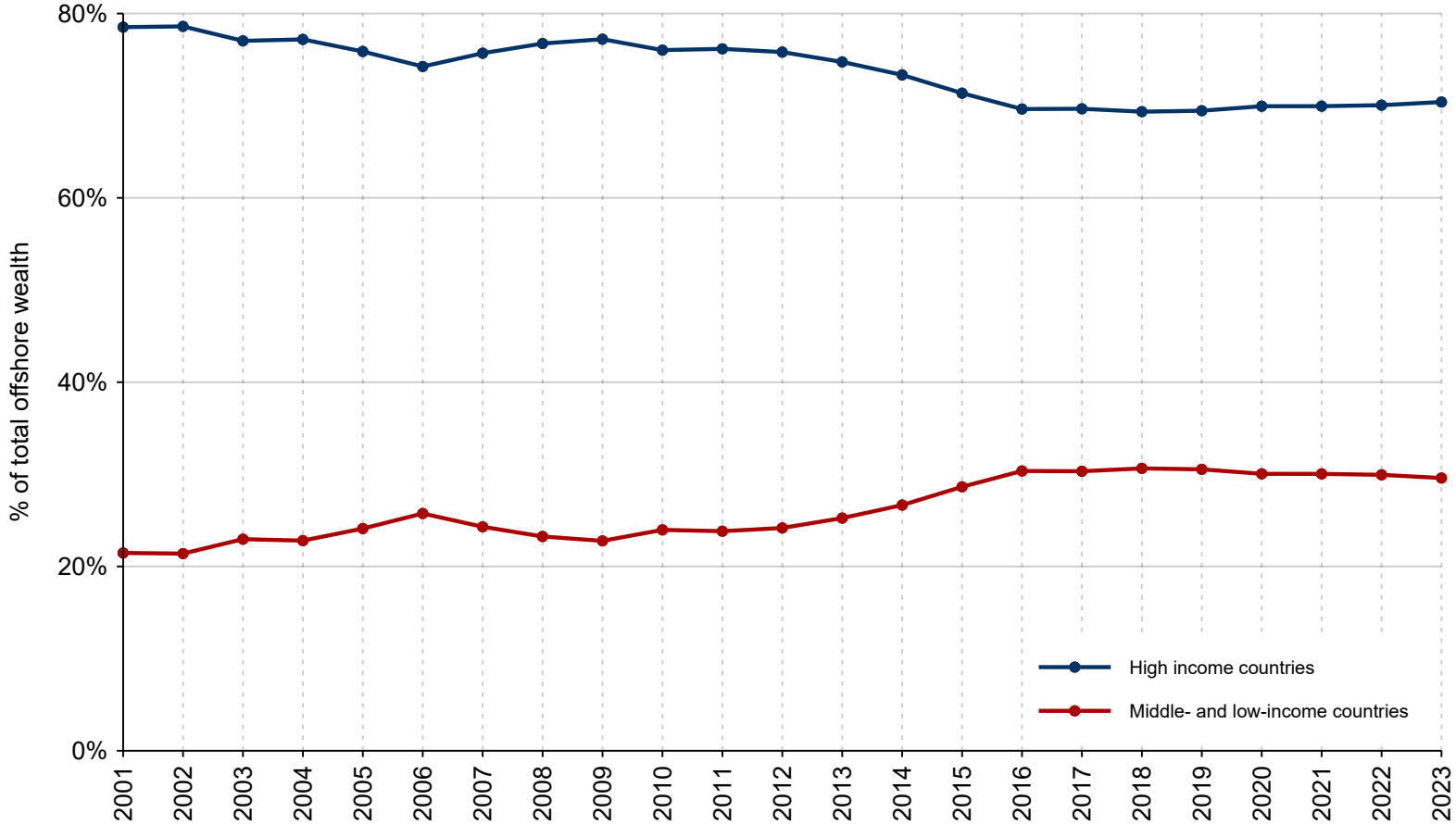
Notes: These figures plot the development of offshore wealth in % of GDP for the six largest Asian economies.

Figure A.14: Offshore Wealth by Country: Europe



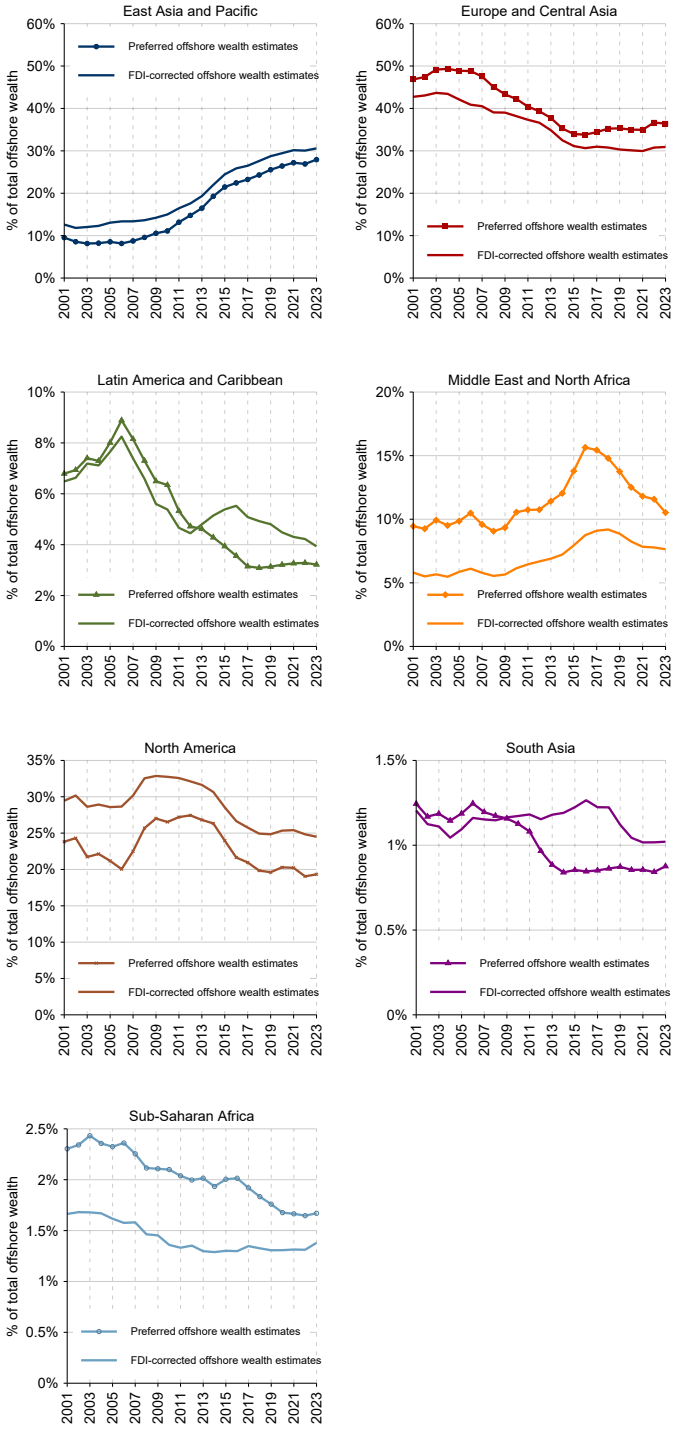
Notes: These figures plot the development of offshore wealth in % of GDP for the six largest European economies.

Figure A.15: FDI-Corrected Shares in Offshore Wealth of High-Income vs. Middle- and Lower-Income Countries



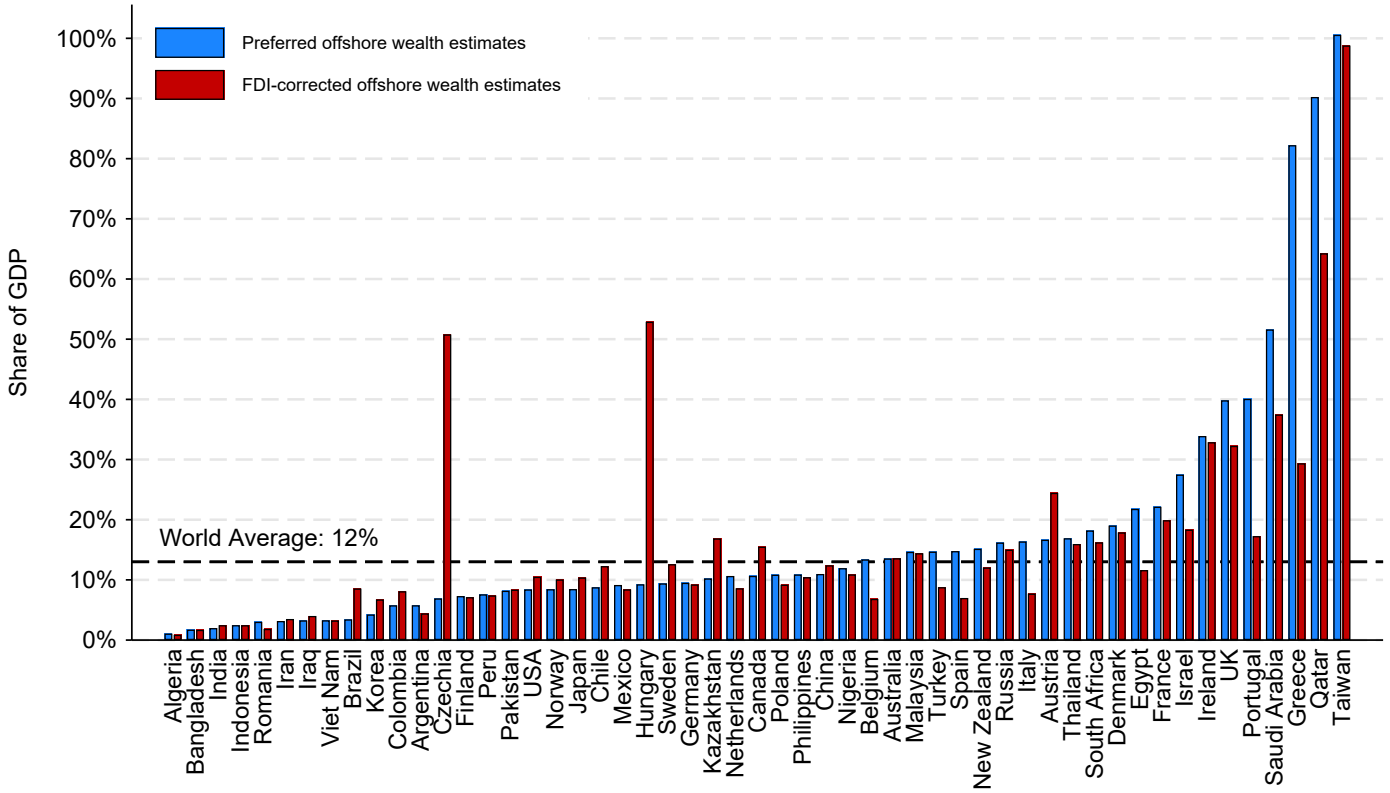
Notes: This figure plots the shares of high-income vs. middle- and lower-income countries in global offshore wealth according to our FDI-corrected country allocation of Swiss deposits owned by other financial centers. Income level groups are defined using the World Bank classification as of 2022. We categorize upper-middle income, lower-middle income, and unclassified countries within the middle and lower-income group.

Figure A.16: Offshore Wealth Robustness Estimates by World Region



Notes: These figures plot the development of offshore wealth by world region in % of total offshore wealth. In addition to the preferred offshore wealth estimates, we plot an alternative distribution in which we reallocate Swiss fiduciary deposits owned by financial centers using data on inward FDI received by these financial centers.

Figure A.17: Offshore Wealth in 2023: FDI-Corrected Estimates for Large Economies (% of GDP)



Notes: This figure plots two alternative series of offshore financial wealth estimates by country for 2023. The blue bars refer to our preferred estimate where we reallocate Swiss fiduciary deposits owned by financial centers to other countries assuming a constant propensity to use shell companies across countries. The red bars present an alternative method where we reallocate Swiss fiduciary deposits owned by other financial centers based on each country's share in these financial centers' inward foreign direct investment.