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# The Relationship between Portfolio Flows and Asset Prices in South Africa

## Abstract

Note: Although this Topical Briefing Note may be read as a standalone document, an earlier Topical Briefing titled "The Evolution of Portfolio Flows in South Africa" provides useful context on the dynamics and drivers of portfolio flows in South Africa. It is available at <a href="https://www.resbank.co.za/en/home/what-we-do/financial-stability">https://www.resbank.co.za/en/home/what-we-do/financial-stability</a>.

The increasing integration of South Africa into global financial markets, including its inclusion in major bond indices, has influenced the volume and volatility of portfolio flows, making the economy more susceptible to external shocks. This paper examines the relationship between portfolio flows and global and domestic asset prices, respectively, particularly bond yields, exchange rates, and equity markets. Portfolio debt flows are shown to exhibit stronger co-movement with global asset prices than domestic asset prices, while portfolio equity flows are shown to track the evolution of domestic equity prices relative to developed-market equities.



## Introduction

The dynamics of South Africa's financial markets, particularly the bond and equity sectors, play a crucial role in shaping the economy's resilience to external shocks. Understanding how global and domestic asset prices, such as bond yields and equity valuations, respond to both global and local factors is essential for assessing the overall stability and attractiveness of South African financial assets to non-resident investors.

The relationship between portfolio flows and asset prices is significant as it can provide an understanding of the extent to which non-resident flows can drive large movements in domestic asset prices, which can in turn affect market functioning and the balance sheets of domestic financial institutions. Conversely, the impact of asset prices on portfolio flows is also important given South Africa's structural deficits and consequent reliance on external financing. Foreign investors also play a significant role in both the domestic bond and equity markets, such that a sharp retrenchment by foreign investors in response to asset price changes may affect the functioning of those markets.

This paper analyses the relationship between South African non-resident portfolio flows and asset prices. First, it compares the key data sources for the analysis of South African portfolio flows. It then considers the co-movement between major global and domestic asset prices and portfolio debt flows and equity flows, respectively. Finally, it discusses the relevance of the paper's findings to current domestic policy.

## **Measuring South African portfolio flows**

A key issue with regard to the analysis of portfolio flows is identifying the appropriate data given the source and method of compilation of the different available datasets. For South Africa, the main sources of data that may be considered are balance of payments (BoP) data on net foreign liabilities; fund flows data from Emerging Portfolio Fund Research (EPFR); and net non-resident transactions data from the JSE. The most appropriate dataset for analysis will depend on the frequency of analysis and the extent to which South African flows data will be compared with other countries.

The benchmark data used in long-term academic studies is BoP data, which provides the country's official cross-border position as published by the South African Reserve



Bank (SARB). BoP data is also preferred for empirical analysis due to its well-established methodology. However, the highest frequency at which the data is published is quarterly with a lag, making it challenging to use the data for more timely analysis and for examining the relationship between portfolio flows and asset prices during shorter periods of market stress.

An alternative dataset with a higher frequency is based on fund flows. EPFR provides monthly flows data compiled from reporting investment funds that account for over 95% of assets under management (Koepke & Paetzold, 2022). These data are available at the country level, asset class level, and at high frequencies with fund flows estimates available at the daily level. Given the coverage, the dataset also allows for the comparison of South African flows with other countries. The main disadvantage of the EPFR dataset, however, is that it only covers flows from investment funds and excludes large institutional investors such as pension funds and hedge funds. Therefore, to the extent that institutional investors and investment funds adopt different investment strategies, it may not serve as an appropriate proxy for aggregate portfolio flows.

The JSE data on non-resident transactions in the domestic bond and equity markets is advantageous in that it is available at a daily frequency and covers all transactions with foreigners as counterparties in the domestic secondary markets. However, it is not actually flows data, as non-residents can purchase securities with funds that are already in the domestic financial system and sell securities without repatriating the proceeds. That is, transactions by non-residents are not necessarily accompanied by cross-border flows. Therefore, the correlation between official BoP data and transactions data must first be established before the transactions data can be used as a proxy for South African portfolio flows.

To determine the suitability of the higher-frequency data as a proxy for portfolio flows, we consider the pairwise correlations between the different datasets. Figures 1 and 2 show the 8-quarter rolling pairwise correlations between the datasets for equities and bonds, respectively for the period 2007Q1 to 2024Q1. The correlations vary notably over time and between the asset classes. For equity flows, the correlation between the JSE transactions and BoP net foreign liabilities data is consistently higher than the other pairwise correlations, with a median correlation of 0.887 compared with a median



0.152 for the EPFR-BoP correlation. While the median correlation between the JSE and BoP bond data of 0.62 is weaker than the EPFR-BoP correlation at 0.677, the substantial decline in the latter relationship from 2022Q1 impairs the appropriateness of EPFR data as a proxy for BoP flows data, while the correlation between the JSE and BoP data remains consistent. Therefore, the analysis that follows uses the JSE non-resident transactions data as a proxy for flows data, with the EPFR data used only for the comparison of South African fund flows with other countries.





Source: EPFR, JSE, SARB



#### Figure 2: Pairwise correlations between non-resident bonds datasets

Source: EPFR, JSE, SARB

## Bond-related asset prices and portfolio debt flows

This section explores the relationship between South African non-resident bond flows and asset prices, and how these relationships have changed over time amid global monetary policy shifts, risk sentiment, and domestic economic developments. The analysis highlights key periods of volatility, such as the 2013 taper tantrum, subsequent fluctuations in investor appetite, and the impact of South Africa's inclusion in major EM bond indices.



Figure 3: Non-resident bond flows and US Treasury yield co-movement

Non-resident bond inflows are largely directed into the SAGB market. From the beginning of the review period in 2012 until the end in mid-year 2014, the taper tantrum saw a retreat from risk assets as the US Federal Reserve announced plans to wind down its bond purchasing programme, and markets responded with sustained risk aversion. Net bond inflows, proxied by net bond purchases by non-residents, steadily declined until early 2015, in line with tightening global financial conditions – reflected by the rise in US Treasury yields (Figure 3) and EM local-currency sovereign yields (Figure 4) – as well as widening risk spreads, demonstrated by rising EM sovereign spreads to Treasuries (Figure 5) and the South African 5-year sovereign CDS spread.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> The co-movement between flows and the 5-year sovereign CDS spread is also likely an example of the relationship between global asset prices and SA bond flows, as CDS spreads have been shown to largely reflect changes in global factors common to multiple major EMs (Longstaff et al., 2011).



Source: JSE, Bloomberg LP, authors' calculations

Global sentiment towards "Fragile Five" bond markets such as South Africa's during this period was heavily influenced by US monetary policy (IMF, 2014).<sup>2</sup>



## Figure 4: Non-resident bond flows and EM local-currency sovereign yields co-movement

Source: JSE, Bloomberg LP, authors' calculations

Notably, stronger co-movement between South African bond flows and global asset prices compared with domestic asset prices was a frequent occurrence throughout the review period (Figure 6). The one-year rolling average of bond flows followed the same trend as EM sovereign risk spreads, proxied by the aggregate EMBI spread, with a decline in flows associated with an increase in risk spreads. This role of global asset prices is consistent with a dominance of push factors in the push-pull framework.<sup>3</sup> One divergence from the co-movement was an increase in average inflows between July 2015 and August 2016 while risk spreads increased. This period featured a recovery in South African inflows following sharp outflows in December 2014, when a plunge in oil prices and global growth concerns drove a sharp global risk retreat, and November to December 2015 amid heightened domestic political risk.

<sup>&</sup>lt;sup>3</sup> For a detailed discussion of the push-pull framework, please refer to the Topical Briefing titled "The Evolution of Portfolio Flows in South Africa", available at <u>https://www.resbank.co.za/en/home/what-we-do/financial-stability</u>.



<sup>2</sup> The "Fragile Five" refers to five EMs - Brazil, India, Indonesia, South Africa and Turkey with large current account deficits relative to peers, funded by foreign capital inflows and relatively low foreign exchange reserves at the onset of the 2013 taper tantrum. These factors rendered these economies vulnerable to the changing sentiments of foreign investors or vulnerable to "sudden stops" in domestic capital flows.



Figure 5: Non-resident bond flows and EM sovereign risk spreads co-movement

Source: JSE, Bloomberg LP, authors' calculations





Source: JSE, Bloomberg LP, authors' calculations

Another instance of divergence was towards the end of the review period when the economy experienced consistent negative but moderate average flows while risk spreads increased during the global monetary policy tightening cycle. Non-resident holdings of SAGBs had declined from 37.3% to 28.2% between January 2020, just prior to the Covid market shock, and December 2021, with foreign investors absorbing only marginal new issuance of sovereign debt as the domestic fiscal position



deteriorated. As a result, marginal global investors who could have reduced their exposure and driven increased bond outflows during this period had likely already retreated from the market, containing bond outflows to moderate levels.

Crucially, the evolution of net bond flows has differed from the trend in domestic prices because while non-resident bond purchases have seen extended periods of consistency with global risk and financial conditions, the long-term trend in domestic bond prices has largely been driven by domestic developments. In particular, South African sovereign yields have consistently increased since 2012 amid low growth, an increasing stock of sovereign debt and growing concerns regarding sovereign default risk and debt sustainability from around 2018 (Mamburu, 2024). Notably, the South African Rand (ZAR) also weakened substantially during this period (Figure 7).<sup>4</sup> While the fall in bond prices and associated rise in yields would have diminished the expected holding returns of domestic sovereign bonds, especially for foreign investors given the ZAR depreciation, bond flows fluctuated during this period.





Source: JSE, Bloomberg LP, authors' calculations

In line with empirical evidence on the impact of index-driven investments on the synchronisation of investment flows (Raddatz et al., 2017), the strong co-movement between South Africa and aggregate EM bond flows likely reflects the impact of

<sup>&</sup>lt;sup>4</sup> Despite the potential impact of currency hedging on the relationship between bond prices and the exchange rate, empirical evidence suggests that currency returns do matter for EM bond flows (Hördahl & Valente, 2022). On the other hand, to the extent that foreign-investor participation is not associated with flows, such as when non-residents fund their positions through funding from the repo market, this may weaken the suitability of transactions data as a proxy for bond flows.



index-driven flows given South Africa's inclusion in major EM bond indices such as the GBI-EM index family.<sup>5</sup> The volume of these flows is driven by external factors common to all index members such as aggregate global investor allocation to EM bonds (Arslanalp et al., 2020), and less sensitive to unique developments in member countries. The volume of index-driven bond flows to EMs is also substantial, with an estimated USD230 billion in assets under management tracking the GBI-EM Global Diversified index (JP Morgan, 2024). As a result, while the relevant domestic asset prices such as sovereign yields and the ZAR have weakened significantly since 2012, bond flows have fluctuated with only a slight negative bias. Nevertheless, as significant holders of SAGBs who are sensitive to exchange rate movements, non-resident investors may still react in the short-term to domestic developments that affect the ZAR, such that bond flows may exhibit short-term sensitivity to domestic developments.

This suggests that the steady support of index-driven flows may have helped offset the impact of a deterioration in the fiscal and growth outlook on bond flows, as well as on asset prices. However, it should be noted that since index-driven investment flows are more sensitive to global factors, they may also render an economy more vulnerable to external shocks through the increased responsiveness of portfolio flows to external conditions (Arslanalp et al., 2020). Thus, while index inclusion may have made flows and asset prices less responsive to adverse domestic developments during the review period, it may have simultaneously made the economy less resilient to external shocks.

Nevertheless, portfolio bond flows may still have an impact on the domestic bond market. This may especially be the case in instances of synchronised buying or selling by global investors, such as in response to a global shock that may cause a sharp retreat by foreign investors from the local bond market and a subsequent rise in bond yields amid the decline in foreign demand. The relationship between bond flows and asset prices may also be asymmetric, with a difference in co-movement during selloff episodes compared to periods of risk-on sentiment. However, isolating the relationship between flows and sovereign debt markets is challenging given that they are jointly determined (Pandolfi & Williams, 2019). There are also confounding factors that may



<sup>&</sup>lt;sup>5</sup> EM flows as reported by EPFR flows.

drive changes in both flows and the bond market, complicating the dynamics between the two.

The impact of confounding factors is evident when attempting to account for the impact of index changes and rebalancing on flows and domestic bond yields. Index changes, such as a country's inclusion in a benchmark bond index or its change in weighting as another country is added to the index, can be expected to have an impact on index-driven flows while funds tracking the benchmark adjust their holdings. In 2019, JP Morgan announced the inclusion of China in the GBI-EM index family at the maximum weighting of 10%, to be phased in over ten months from February 2020. While the inclusion was expected to contribute to outflows from other index members such as South Africa which saw its index weight decline by 0.98 percentage points (JP Morgan, 2019), the coincidence of the Covid market stress and South Africa's exclusion from the WGBI index in April 2020 complicated the task of isolating the direct impact of index-related flows on asset prices. Similarly, analysing the potential impact of India's inclusion in the GBI-EM index from June 2024 has also been complicated by election-related changes in sentiment in the South Africa bond market.

## Equity-related asset prices and portfolio equity flows

Domestic equity prices increased steadily throughout the review period, both in local-currency and US Dollar terms (Figure 8, left). This rise in domestic equity prices was in line with a global rise in equity prices during the period. The domestic equity performance was also driven by the significant increase in the share price of Naspers, a company that accounts for approximately 20% of the total market capitalisation of the JSE (Figure 8, right). The growth in Naspers' share price during this period was driven in turn by the rapid growth of the Chinese technology conglomerate Tencent, a company in which it has approximately a 29% stake.





Figure 8: Domestic equity prices in ZAR and USD terms vs Naspers and ALSI price

Source: Bloomberg Finance LP

Beyond the impact of Tencent via Naspers on the domestic equity market, we note that the JSE is characterised by the significant role played by large, foreign-domiciled companies that are listed on the exchange such as Anheuser-Busch InBev, British American Tobacco and Richemont; given the international footprint of these companies, their financial performance and how their shares trade may be unrelated to domestic conditions. To assess the contribution of such listings to the broad equity market's performance relative to domestic-oriented companies, we construct an index of foreign-domiciled shares, weighted by market capitalisation, and refer to this as the foreign shares index.<sup>6</sup> To generate an index of domestic-oriented shares, we regress the benchmark JSE All Share Index (ALSI) against the foreign shares index and preserve the residuals; this orthogonalised series - which we refer to as the domestic ALSI – is the part of the ALSI that is unrelated to the foreign-domiciled shares listed on the JSE. To the extent that the growth in the ALSI can be accounted for by foreign shares, it is possible that the benchmark equity index can be driven by factors outside of the domestic market, which can in turn drive a divergence between domestic equity prices and investment flows.

<sup>&</sup>lt;sup>6</sup> A focus on foreign-domiciled companies captures companies that have both considerable operations and equity listings in other countries, such that their stock price movements are also sensitive to developments in other equity markets.



As Figure 9 shows, the foreign stock index grew considerably since 2012, outperforming the benchmark ALSI, while the domestic ALSI lagged the benchmark ALSI. Thus, growth in the benchmark ALSI was likely driven by factors outside the domestic market, related to the foreign-domiciled shares on the exchange with considerable operations and additional listings outside the country. Consistent with the low-growth operating environment since 2009, growth in domestic-oriented shares has been more constrained.





With benchmark equity prices shown to be largely an outcome of external developments, we consider the extent to which portfolio flows are related to equity prices. While equity prices have increased since 2012 – notwithstanding the more moderate growth in the domestic ALSI – the foreign demand for shares listed on the domestic exchange has been notably weak. Equity inflows, proxied by net purchases of equities by non-residents, ranged between a monthly average of R0 to R2 billion until late 2015. Amid the global risk sell-off during this period, non-residents retreated sharply from the domestic equity market, in line with widening EM risk spreads. Since the global risk-off episode of late 2014 to mid-2016, equity flows remained largely negative, with the temporary reprieve in inflows in 2018 also in line with tightening EM risk spreads (Figure 10).

Source: Bloomberg LP, authors' calculations





Source: JSE, Bloomberg LP, authors' calculations





Source: EPFR

Consistent with the relationship between external factors and bond flows, equity flows have exhibited notable co-movement with some external factors as well. South African equity flows moved in line with aggregate EM flows until the recent global monetary policy tightening cycle (Figure 11), while the gradual decline in inflows mirrored the strengthening of the US Dollar. Foreign demand also moved in line with the gradual decline in the relative attractiveness of domestic equities: equity flows tracked the performance of domestic equities relative to DM equities (Figure 12). Thus, while



domestic equity prices have increased in absolute terms, their decline relative to DM equities has been associated with the steady outflows recorded in the equity market.<sup>7</sup>



Figure 12: Non-resident equity flows and South Africa equity prices relative to DM co-movement

Source: JSE, Bloomberg LP, authors' calculations

Given the observed performance of equity prices, it is likely that domestic-oriented shares constrained the growth in the broader equity market; the under-performance of the broad domestic market relative to DM equities was for its part consistent with deteriorating domestic equity flows. This gradual increase in equity outflows during the review period tracked the steady depreciation of the exchange rate since 2012 (Figure 13) – indeed, equity flows exhibited stronger co-movement with the ZAR than the fluctuations in bond flows during this period. Thus, while a formal empirical analysis would be necessary to determine a causal relationship between equity flows and the exchange rate, the persistent pressure that characterised equity flows in recent years was more consistent with the weakening of the ZAR than the fluctuations in the foreign demand for domestic bonds.

<sup>&</sup>lt;sup>7</sup> Consistent with the strong co-movement between SA and EM equity flows as measured by EPFR, EM equity prices relative DM equities exhibited a similar trend as domestic equities relative to DM equities.





Figure 13: Non-resident equity flows and ZAR co-movement

Source: JSE, Bloomberg LP, authors' calculations

These observations point to South Africa's vulnerability to external shocks. Given the significance of foreign-domiciled shares with external operations and additional listings in the domestic equity market, equity flows are likely vulnerable to external shocks through the conditions that these companies may be exposed to. In particular, the historical co-movement between the benchmark index and the share price of Naspers suggests that any sharp movement in the Naspers share price will have a marked impact on the benchmark index. To the extent that a change in the Naspers share price is related to adverse developments specific to its exposure to China via its stake in Tencent, it is possible that the performance of the domestic market relative to DM equities would also experience a decline, which may induce an increase in equity outflows. Given the recent international experience with the impact of sanctions imposed on Russian companies (Cohn, 2022) and increased state oversight on the Chinese technology sector (Bloomberg, 2021), just the prospect of changes in the outlook for Tencent may weigh on domestic equity flows via demand for Naspers. Despite the challenges associated with analysing the causal relationship between capital flows and asset prices, a formal econometric analysis that models the transmission from external conditions to equity flows and the exchange rate would provide useful insights on the significance of this vulnerability to the financial system.

## **Policy discussion**

It is evident that portfolio flows play a critical role in South Africa's economic development and financial stability. As a commodity-exporting EM, South Africa depends on non-resident investments to help fund its structural current account deficit and enhance market depth and liquidity. With the country still facing structural challenges in growth and infrastructure, these inflows remain crucial for supplementing domestic savings and facilitating investment. However, South Africa's reliance on these flows introduces substantial risks. While portfolio inflows can facilitate growth and investment, excessive dependence poses several risks. One of the primary concerns is increased vulnerability to external shocks.

As a result, the role that resident investors play in stabilising South Africa's financial markets, especially during periods of global risk aversion, is significant. For instance, after the onset of the Covid-19 pandemic, foreign investors steadily withdrew from SAGBs. However, resident investors consistently stepped in, absorbing new issuances and providing essential liquidity. This support has helped to cushion the impact of capital flight, stabilising asset prices and mitigating excessive volatility in the exchange rate. The BIS (2020) emphasises that fostering a deep domestic institutional investor base will be essential for further reducing the vulnerability of EMs to external financial shocks. This might include strengthening domestic economic fundamentals and improving institutional frameworks. Additionally, recognising the dual nature of portfolio flows - as both a source of liquidity and a potential driver of instability - will be vital in steering the economy towards stable growth.

South Africa's ongoing capital account liberalisation, which has brought about both opportunities and difficulties, is another important factor likely influencing portfolio flows. On the one hand, a more open capital account with respect to non-resident flows enhances South Africa's attractiveness as an investment destination. For residents, increased offshore exposure diversifies their holdings, reducing the impact of adverse domestic developments on investment returns. However, these benefits come with significant risks, such as potentially increased pressure on the exchange rate and less liquidity in domestic capital markets. The impact of changes in the capital account on the resilience of the domestic financial system therefore warrants further analysis.



## Conclusion

The evolution of South Africa's portfolio flows highlights a delicate balancing act leveraging foreign capital for economic development while managing external vulnerabilities. The patterns observed over the past decades emphasise the importance of a strong domestic investor base, the risks associated with capital flow volatility, and the broader implications of capital account openness. As global financial conditions continue to change, South Africa's ability to navigate external shocks will remain a key determinant of its financial resilience and economic trajectory.



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