

## **Gaps in Capital Flows Surveillance: Dealing with Flow and Valuation Effects in Non-Resident Equity Holdings**

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### **Abstract**

Since the Global Financial Crisis, capital flows have risen in both magnitude and volatility, exposing economies and financial markets to greater risk of boom-bust cycles. The need to monitor capital flows has thus become more important to policymakers, making it imperative to have in place a robust capital flows surveillance framework. Yet, information gaps exist in cross-border capital flows data in the form of frequency, granularity, or both. In Malaysia's case, for example, while the International Investment Position (IIP) data on non-resident equity holdings is granular enough to separate changes in equity holdings into price valuations and actual flow, data is only available on a quarterly basis. To address this gap, information is extracted from Bursa Malaysia's<sup>1</sup> non-resident holdings of equity, which is a stock data. The change in these stock figures cannot simply be interpreted as flows because it is essentially the result of two different effects: namely movements in price valuations of the asset (valuation effect) and the actual trading of the asset (flow effect). Here, a method used by EPFR global is adapted to separate these two effects, as both give different types of information that can be analysed.

**Key Words:** [capital flows, EPFR, non-resident holdings, valuation effect]

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<sup>1</sup> Formerly known as the Kuala Lumpur Stock Exchange, it operates a fully integrated exchange that clears arrange of securities.

## **I. Introduction**

While the movement of international capital in its ideal form allocates capital to productive uses and is thus welfare enhancing, past experiences have shown that large and volatile capital flows can be fraught with risks and potentially become destabilising. As global financial markets become more integrated, the risks of international capital flows might be amplified.

In light of this, the role of capital flows monitoring has become more important than ever. It is imperative that regulators equip themselves with a robust capital flows surveillance framework to aid in the early identification of risks. However, one recurring issue faced by policymakers, especially in emerging markets, are information gaps arising from the nature and availability of cross-border capital flows data. In order to enhance the surveillance of capital flows, these information gaps need to be closed in the best way possible using both internal and external data sources.

This paper attempts to close one such gap that exists in the Malaysian equities data. To obtain more timely equity flows data, a method used by EPFR Global is applied to decompose the stock of non-resident holdings of Malaysian equities into valuation and flow effect. This stock of non-resident equity data has been collected on a more frequent basis since 1998 hence a longer and more frequent time-series of equity flows can be constructed using this particular method.

The rest of the paper is arranged as follows. Section II describes the issue regarding stock data of non-resident equity holdings. Section III introduces the methodology of the new measure on Malaysian equities data. Section IV presents the results of the new measure. Section V discusses the robustness of the measure with section VI covering some concluding remarks and areas of further discussion.

## **II. The importance of separating the ‘valuation effect’ and the ‘flow effect’ in changes of non-resident holdings of equity**

To understand the behaviour of a segment of the market, be it an individual or group of investors, it would be necessary to disentangle the factors behind the changes in their total value of shares held, otherwise known as market capitalisation. A change could be driven by actual trading of shares by the investors in question. For example, when non-residents purchase RM100 worth of shares, total non-resident market capitalisation increases by RM100. Alternatively, non-residents do not buy any new shares, but the value of their shares already held increases by RM100, driven by activities of other investors—resident investors—thereby also increasing market capitalisation by RM100.

Understanding the change in market capitalisation of non-resident shareholders is helpful information for policymakers in assessing equity market activity and deciding on the appropriate policy response if needed. A change in market capitalisation due to significant trading by non-residents (flow effect) would warrant a different set of policy considerations than those due primarily to changes in the value of shares held arising from movements in equity prices (valuation effect).

Here, it is worthwhile to note that there is some form of interaction between the flow and valuation effect. Equity prices change according to market demand and supply for equity (flow) which are, in turn, motivated by the expected value of the shares (value). The expected value could change due to developments in a range of factors,

from company- or industry-specific news to wider macroeconomic trends. Expected value can also be influenced by trading conditions itself, engaging in a feedback loop where strong buying interest in an asset causes expected value to rise which attracts even more buying interest. The interactions between these two elements contribute towards changes in market capitalisation. Despite this interaction, both flow and valuation effects merit individual scrutiny and relay different types of analytical information, which is explored further in Section IV below.

### III. Methodology

Adaptating of a technique used by EPFR Global, applied on mutual funds in extracting fund flows data from the total outstanding value of the portfolio, the goal of this exercise is to decompose a change in **non-resident market capitalisation** into two components:

- (i) **Flow effect ( $FE_t$ ):** The change in non-resident market capitalisation is driven by their trading activities which ultimately results in them entering or exiting the equity market
- (ii) **Valuation effect ( $VE_t$ ):** The change in non-resident market capitalisation is driven by movements in the value of shares already held (influenced by fundamental and idiosyncratic factors that exist in the market)

The idea is to be able to arrive at a hypothetical value of non-resident market capitalisation, if one were to assume no trading occurred in between the current period,  $t$ , and the period before,  $t-1$ . With such a valuation figure available, deriving the fund flow figure would just be the difference of the actual market capitalisation at time  $t$  and the hypothetical value. If actual was larger than hypothetical, non-residents were most likely buying shares, and vice versa.

To attain the hypothetical value, an estimate of the underlying assets is first needed. This can be obtained by calculating the net asset value at time  $t$  ( $NAV_t$ ), or per share value of the underlying assets. This is simply the value of non-resident market capitalisation at time  $t$  ( $V_t$ ), divided by the total number of units of shares held ( $N_t$ ) by non-residents.

$$NAV_t = V_t/N_t \quad (1)$$

The  $NAV_t$  provides an indication of the average value of the underlying assets held by non-residents. With the  $NAV_t$ , the second step is to calculate the hypothetical value ( $HV_t$ ) of the portfolio now, assuming that no buying or selling of stocks by non-residents occurred between  $t-1$  and  $t$ .

$$HV_t = N_{t-1} * NAV_t \quad (2)$$

$HV_t$  is essentially the 'assumed' current market capitalisation if no trading occurred, and any difference from the actual market capitalisation in the previous period ( $V_{t-1}$ ) is purely a valuation effect ( $VE_t$ ). This is since the assumption imposed is that there is no change in the number of stocks from the previous period.

$$VE_t = HV_t - V_{t-1} \quad (3)$$

Now, the difference between this hypothetical value and actual value of market capitalisation now ( $V_t$ ) provides an inference on the flow effect ( $FE_t$ ).  $FE_t$  reflects actual money flowing in or out of the equity market from the buying and selling of shares, removed of any valuation effects.

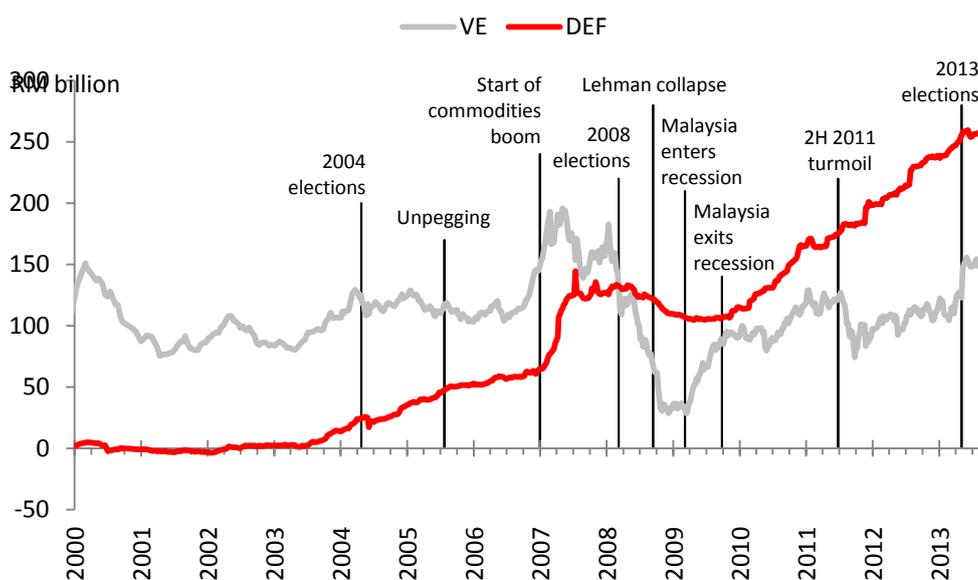
$$FE_t = V_t - HV_t \tag{4}$$

When the actual realised market capitalisation,  $V_t$ , is larger than the hypothetical value,  $HV_t$ , it would be evidence that the non-residents were accumulating shares, while the opposite would indicate that they were offloading shares.

#### IV. Results and findings

The Derived Equity Flow (DEF) refers to the cumulated flow effect,  $FE_t$ , over the entire sample. Comparing Malaysia's DEF against the cumulated valuation effect (Chart 1) suggests that non-residents did not enter the market immediately after the Asian Financial Crisis of 1997,<sup>3</sup> and the increase in market capitalisation was explained by upward equity price valuations as the economy recovered. The volume of non-resident equity flows began to increase at a faster pace from 2003, which coincided with the run-up to expectations of unpegging of the Malaysian ringgit (implemented in July 2005) as well as the ongoing liberalisation of foreign exchange administration rules. These flows increased rapidly throughout 2007, with a subsequent reversal and deep valuation losses in 2008 as the Global Financial Crisis unravelled. Interestingly, during the uncertainties over the euro area sovereign debt crisis in 2H 2011, the drop in the value of non-resident shareholdings was due more to a decrease in the value of their underlying assets rather than the reduction of their holdings. This is reasonable given that Malaysia's non-resident holdings are generally in the form of strategic and passive investors, with non-resident investors usually accounting for only about quarter of daily total trading volume.

Chart 1: Malaysia's DEF and VE



<sup>3</sup> The reason for this could be due to the capital flow management measures implemented by the authorities as a response to the Asian Financial Crisis. While these controls were fully removed in 1999, there was some inertia and non-residents only began to re-enter the market starting 2002/2003.

In addition, DEF seems to generally correspond with known events likely to have impacted non-resident shareholdings. For example, in periods before an imminent election, there would generally be less inflows, with non-residents holding off investments until the uncertainty of results have cleared. This happened in the 2004, 2008, and 2013 elections. It was then followed by a strong resumption of inflows in two out of the three elections<sup>4</sup> when the expected results prevailed, while there were sizable outflows in the election when results were unexpected. Similarly, DEF recorded outflows in periods of unexpected shocks, such as the Japanese earthquake in March 2011, causing a rise in risk aversion and selling by non-residents.

## V. Robustness checks

An inherent weakness in estimates derived using this method is that its accuracy is dependent on the lag between the two periods that data is recorded. Given that only an end-period value of the underlying assets and end-period number of shares held is recorded, the trading activities and change in prices in between the periods are not captured. However, given the relatively higher frequency of data, this is somewhat mitigated, although, of course, a daily or even more frequent data would improve the accuracy of the estimate. It is also mitigated by general equity market behaviour, namely that rational investors will accumulate shares when the expected value of the shares are on a rising trend and vice versa, thus the trend in the equity fund flow can generally capture the underlying trend of equity flows. In Malaysia's case, this is generally the case as passive investors make up the majority of portfolio investors in domestic equities<sup>5</sup>.

Additionally, DEF has a high correlation with the more accurate but less timely IIP. Unlike the IIP, which is on a quarterly basis, DEF can be calculated on a weekly basis. However, DEF and the IIP have a full-sample correlation<sup>6</sup> of 0.9 when DEF is converted into quarterly data. When compared to the country flows dataset of EPFR Global that represents a subset of total equity flows<sup>7</sup>, the two have a full-sample correlation<sup>8</sup> of 0.5.

## VI. Conclusion and further areas of discussion

The DEF is a simple yet effective tool in deriving a reliable estimate of non-resident equity fund flows, despite some weaknesses. It has generally been able to explain the trends in non-resident equity investor behaviour and provides better insight into which periods they have responded through active trading and which they have taken a more passive role. This method is especially useful for emerging economies which might have difficulties, in terms of resources or other restrictions, to attain timely and accurate equity flow data. However, this derived estimate is still not superior to a database where the transactions of every non-resident is recorded and netted off on a timely basis. A helpful improvement in this estimate would be to find a way to account for the price movements and trading activities in between the period that is recorded.

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<sup>4</sup> 2004 and 2013

<sup>5</sup> According to EPFR Global data, passive investors make up 76% of total equity flows to Malaysia since 1996. EPFR Global defines the passive investor type in its country flows to include only funds that are tied to an index/benchmark and seek to mirror the index/benchmark's performance. On the other hand, the active investor type includes only funds that are actively traded and whose allocations/investment decisions are not tied directly to an index/benchmark.

<sup>6</sup> 1Q 2008 to 4Q 2012

<sup>7</sup> EPFR Global reports equity flow figures that is calculated from the investment funds that it surveys

<sup>8</sup> Jan 2001 to May 2013

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