FLATTENING YIELD CURVE AMIDST RAPID INFLOWS:  
THE MALAYSIAN EXPERIENCE

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Abstract:
Movements in the yield curve reflect the interplay of monetary policy action, various macroeconomic conditions as well as the demand and supply conditions in the bond market. We examined the observed periods of flattening of the Malaysian yield curve, paying additional attention to flattening episodes that took place since active efforts have been made to develop the bond market beginning in the early 2000s as well as foreign exchange liberalisation in 2004. We also assessed the possible factors that have contributed to the compression in yields. This working paper also studied, both qualitatively and quantitatively, the various impacts of increased foreign participation in the domestic bond market. Specifically, it has been found that foreign participation in the ringgit bond market is statistically significant in determining the long-term sovereign yields. Finally, this paper analyses the policy implications arising from the flattening yield curve phenomenon in Malaysia.

JEL Classification: E44, E58, F21, G15, G18

Keywords: Bond Market, Yield Curve, Portfolio Flows, Foreign Investors

The views expressed in this working paper belongs to the authors and do not represent the views of Bank Negara Malaysia. The working paper series serve to generate further discussions and elicit comments and feedback.

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1. Introduction

One of the lessons from past crises affecting emerging markets was the need to have a sound and relatively deep domestic capital market. As such, there has been a steady trend in emerging market countries, including Malaysia embarking on measures towards this direction. Furthermore, as these countries’ fundamentals grew stronger, gradual liberalisation of the financial system was also implemented. Consequently, as these markets become more developed and more integrated with one another, the dynamics between various events and factors have led to various unique circumstances and phenomenon in the domestic capital market.

In Malaysia, the flattening of the yield curve, particularly the Malaysian Government Securities (MGS) yield curve, or narrowing in the maturity spread is one of the interesting conditions that have been observed in the ringgit bond market. For the discussion throughout this paper, we define an episode of yield curve flattening as a period when the maturity spread for MGS with maturities longer than 5-year narrowed to a point where it is close to zero or turned negative. These episodes of flattening of the yield curve have been triggered by a confluence of factors. In the early years of the domestic bond market, the leveling of the yield curve has been largely driven by domestic factors particularly domestic monetary policy. More recently, however, as the market becomes more liberalized the flattening of the yield curve has been mainly influenced by the increase in foreign investors’ participation in the ringgit bond market, particularly during periods where there is a marked surge in portfolio inflows brought about by these investors.

This paper aims to conduct a thorough analysis on the occurrences of flattening yield curve in Malaysia, providing information on the factors driving the phenomenon during each episode. The paper also aims to study the impact of rising foreign participation in Malaysia’s bond market in recent years, both from a

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3 Maturity spread: Difference between the yields of two securities of different maturity, typically measured as the different between long-term yields less short-term yields
quantitative and qualitative perspective. Finally, the paper looks at past policy responses to the phenomenon of the flattening yield curve and considers possible policy options going forward.

Our analyses indicate that the periods of yield curve flattening prior to 2002 were largely impacted by domestic investors’ responses on domestic monetary policy. On the other hand, following pro-active efforts to develop the ringgit bond market and foreign exchange (FX) liberalisation measures\(^4\) that took place in early 2000s, episodes of flattening yield curve were subsequently driven by sudden prominent increases in portfolio inflows entering the domestic bond market. One of the key factors that have been attracting portfolio inflows into the ringgit bond market is the large size of Malaysia’s bond market and advanced development relative to other regional bond markets. Empirically, we find that foreign investors’ participation in the domestic bond market has a statistically significant impact in contributing to the decline in bond yields. We also observed that to date, minimal policy responses is warranted to address the impact of the flattening yield curve in the short-run, but nonetheless, measures to continue to deepen the ringgit bond market should remain.

The remainder of the paper is structured as follows. Section 2 looks at the broad explanations and factors affecting the yield curve. Section 3 discusses on Malaysia’s experience with the flattening yield curve phenomena pre- and post-liberalisation while section 4 attempts to quantify the impact of rising portfolio inflows and increasing foreign investors’ participation on domestic bond yields. Section 5 enlists the policy responses that have been undertaken by BNM to address the phenomenon and possible measures going forward. Section 6 concludes.

\(^{4}\) See Appendix 3
2. Overview on Factors Impacting the Yield Curve

There are three theoretical explanations\(^5\) to the various shapes of the yield curve prevailing at any point in time. An upward sloping yield curve, a shape that is typically observed, reflects investors’ expectation for the economy to grow in the future and this is generally consistent with the expectation of higher inflation and interest rates in the future. In addition, the positive slope also incorporates the liquidity premium for holding longer-term bonds. A steep yield curve, indicated by the yield spread between long-term yield and short-term yield exceeding that of the historical average, typically occurs after a recession, and shows that economy is expected to expand quickly in the future. An inverted yield curve occurs, that is when yields of the longer-term bonds exceeds that of the shorter-term bonds, indicates investors’ expectations of slower economy growth in the future. Numerous works have been published to show the predictive power of an inverted yield curve as an indicator for recessions, particularly in the US, such as those of Estrella and Mishkin (1996), Estrella and Trubin (2006) and Wright (2006). Finally, a flat or a humped yield curve reflects uncertainties over the outlook of the economy. A flattening of the yield curve that is caused by a larger increase in the short-end of the yield curve, also known as a ‘bear flattening’ reflects policy tightening or increase in demand for short-term bonds whereas a ‘bull flattening’ which is due to yields on the longer-end declining at a larger magnitude relative to the short-end implies a shift in investors’ preference to the longer-term bonds.

While theoretical reasoning does help to explain the shape of the yield curve at any point in time, bond yields and concurrently the yield curve are also affected by various factors; both that are externally as well as structurally driven. Analysing the determinants of government bond yields in G-7 countries, Hauner and Kumar (2006) showed that capital inflows have been contributing to the rising level of liquidity in

the sovereign bond market and lower yields. Hol (2006) showed that bond yields in Scandinavian countries are affected by both domestic macroeconomic conditions as well as international economic conditions.

Of greater interest, the growing presence of foreign investors in emerging markets amidst liberalization of capital flows, would certainly have an impact on how the shape of the yield curve evolves. Earlier studies on emerging market bond yields have shown that external factors play an important role in determining the yields’ movements. Baldacci, Gupta and Mati (2008) estimated that emerging markets with larger capital inflows experienced smaller increases in their bond yields during periods where their fiscal deficit expands. Hartelius, Kashiwase and Kodres (2008) established that while macroeconomic fundamentals are important, expectations on US interest rates and changes in those expectations are also a key determinant in 33 emerging markets’ bond yields. Moreover, the size and level of development of a country’s debt market also play an integral factor in determining the prevailing form of the yield curve. Comparing the movements in 16 emerging markets’ bond spreads in the 1990s against the period between 1870 and 1913; Mauro, Sussman and Yafeh (2002) showed that changes in spreads in the more recent period i.e. 1990s, where the markets are more developed tend to be mostly related to global events. Challe, Le Grand and Ragot (2007) showed that a larger volume of transactions and activities in the bond market pushes both the level and slope of the yield curve.

3. Malaysia’s Experience with the Flattening Yield Curve

Since the early 1990s, there have been several episodes where the MGS yield curve moved away from the normal upward sloping curve. During these times, there was a noticeable flattening of the yield curve and at times accompanied by a brief inversion of the yield curve [Figure 3.1 and Figure 3.2].

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6 Argentina, Brazil, Canada, Chile, China, Egypt, Hungary, Japan, Greece, Mexico, Portugal, Queensland, Russia, Sweden, Turkey and Uruguay

7 Panel dataset of 17 OECD countries
Figure 3.1: MGS Maturity Spread

Source: BNM

Figure 3.2: Periods of Flattening MGS Yield Curve
In the 1990s to early 2000s, periods where the MGS yield curve flattened were largely driven by domestic factors. Specifically, there were three distinct periods of yield curve flattening; (i) between 1992 and 1993, (ii) between 1995 and 1997 and (iii) between 2000 and 2003. In the first two periods, the tightening stance of BNM’s monetary policy resulted in the short to medium-end of the yield curve to record a more marked increase than the longer-end, lessening the steepness of the yield curve. In the third episode (between 2000 and 2003) there was a shift in investors’ preference towards fixed income investments, particularly long-term MGS which subsequently resulted in long-term yields declining.

Since early 2000s, the phenomenon of flattening yield curve in the ringgit bond market has largely been driven by a marked surge of portfolio inflows into the ringgit bond market [Figure 3.3]. Broadly, portfolio flows contribute to the flattening of the yield curve in two channels. The first channel is the indirect channel which normally occurs in the early phase of a portfolio surge. Initially, foreign investors entering the MGS market would invest in the short to medium-term securities. The concentration of foreign funds in securities of short to medium tenures (e.g. 1 to 5-year) subsequently would trigger some of the domestic institutional investors to shift their preference towards longer-tenured securities, which are viewed to be less expensive. Due to lower level of liquidity in the longer-end of the yield curve, a small increase in demand in long-term securities would lead to marked decline in yields.

Over time, as the stream of portfolio flows become more sustained, it contributes to the flattening of the yield curve through a more direct channel. As the prices of short to medium term securities become more expensive, eventually the demand for MGS would become more broad-based with a stronger demand for long-term securities by non-residents. Again, the relatively lower level of liquidity in the longer end of the yield curve, magnified the decline in long-term yields [Figure 3.4].

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8 During this period, the yield spread spiked momentarily, before resuming its narrowing trend
9 Bond prices and its prevailing yields have an inverse relationship.
To date, there have been three observable periods which reflected this development; (i) in the first half of 2007 (ii) in the first half of 2010 and (iii) gradually in 2012 throughout the first half of 2013. During the first half of 2007, portfolio flows went into all tenures, pushing the entire yield curve below the overnight policy rate (OPR). As expected, the impact of the portfolio flows, was more pronounced on the longer-end, thus leading to a flat yield curve. Similarly, the leveling of the yields curve in 2010 and 2011 was also due to a marked increase in the demand by foreign investors for longer-term securities. The effect of yield curve flattening during these two periods were also slightly impacted by short-term yields rising as a result of normalization of the Overnight Policy Rate (OPR).
Malaysia’s experience with episodes of flattening yield curve has also been observed by other countries, both in developed and emerging markets. In the US for example, the Operation Twist was announced by the Fed in 1961, involving planned action by the Fed to flatten the yield curve. The plan was intended to lower longer-term yields to stimulate investment while concurrently raising short-term yields to attract foreign capital and strengthen the US dollar (Rampell, 2009). Of late, this phenomenon has been more prevalent in other emerging markets with a relatively developed bond market such as Korea, Thailand, Australia, New Zealand and Singapore which have also seen its yield curve flattening in 2007 and 2010, as a result of higher entry of portfolio inflows [Figure 3.5].

Figure 3.5: Maturity Spread* for Selected Countries

Shaded areas indicate periods of flattening yield curve
*10-year yields - 1-year yields
Source: Bloomberg
3.1. Flattening of the Yield Curve in Malaysia post Liberalisation: Portfolio Flows and Other Factors

Portfolio flows into the domestic market in 2000s were very much influenced by two key developments in the Malaysian capital market. Firstly, large scale efforts were undertaken by BNM and other regulatory authorities since 2000 to develop the ringgit bond market resulting in the domestic bond market emerging as one of the biggest and most advanced in the region [Figure 3.6]. Secondly, the Malaysian financial system went through successive stages of FX liberalisation in 2004 creating a more accessible and integrated financial market in Malaysia. The confluence of these two developments has since led to a rising trend in portfolio inflows into the ringgit bond market and concurrently an increase in the holdings of ringgit debt securities by foreign investors.

Figure 3.6: Size of Local Currency Bond Market in %
GDP (As at 1Q 2014)

Source: AsianBonds Online

In addition to the liberalization and development of the domestic bond market, another key factor that has been attracting flows into the domestic bond market is the expectations among foreign investors of ringgit appreciation. Periods of large inflows into the domestic bond market occurred simultaneously with a build-up in investors’ expectation of a sustained strengthening of the ringgit. In addition, the stream of inflows in these periods was partly triggered by investors’ ongoing search for yields due to the high liquidity environment in advanced economies as well as
portfolio diversification. After the collapse of Lehman Brothers in 2008, this search for yields was further compounded by additional injection of global liquidity brought about by unconventional monetary measures implemented in advanced countries. Amid the levels of interest rates in advanced countries at historical lows, this added further impetus for foreign investors to enter the domestic bond market. In 2011, the onset of the sovereign debt crisis in Europe has led to increased interest among investors for emerging market bonds, including ringgit denominated bonds, further contributing to the decline in long-term yields. Additionally, the gradual implementation of Basel III beginning in 2013 may force financial institutions to hold and demand more safe assets, which naturally comprises of mainly government bonds (Iorgova, et al., 2012), putting downward pressure on the long-term yields.

The impact of foreign funds on the yield curve has also been compounded by some structural issues in the domestic bond market. Despite the rapid growth of the ringgit bond market following large scale efforts undertaken by BNM, some structural issues of the domestic bond market may at times lead to the size of inflows being too large to be absorbed quickly by the market in a short period of time. While the private debt securities (PDS) or corporate bond market remains on a gradual expansion, the Malaysian bond market is still very much a sovereign market and the MGS remains to date, the largest supply of investible bonds in the country. Occasionally, there would also be some significant demand for quasi-government issuances e.g. Khazanah bonds as well as those that carry government guarantees, which potentially attracts foreign funds, but the amount of available securities remains small to accommodate a marked and rapid surge of inflows. The limited supply of investible bonds could also be exacerbated by the fact that issuances of MGS with maturities exceeding 10 years are relatively smaller compared to short and medium tenured securities\textsuperscript{11}. Consequently, this structural mismatch between demand and supply of ringgit denominated bonds has also contributed to the

\textsuperscript{11} Efforts to widen the maturity of government securities in Asia in general, have been hampered by a prominent presence of banks which for liquidity management purposes would typically prefer shorter to medium term instruments over longer-term instruments (Goswami and Sharma, 2011)
compression of longer-end yields in Malaysia, particularly during periods of large stream of foreign inflows.

In addition to the limited supply of investible bonds, the large presence of institutional investors could have also magnified the impact of yield compression during periods of heavy inflows [Figure 3.7]. Firstly, these institutional investors normally adopt a buy-and-hold strategy which tend to result in a more captive market that could lower the liquidity in the domestic bond market. Consequently, any marked surge in liquidity in the market such as those coming from portfolio inflows would magnify its impact on yields. Moreover, given that these institutional investors are also large holders of MGS and other highly rated securities\textsuperscript{12}, this further widens the mismatch between the market’s demand and supply, especially during periods of large capital inflows.

\textbf{Figure 3.7: Breakdown of MGS Holdings}

![Figure 3.7: Breakdown of MGS Holdings](chart.png)

Source: Bank Negara Malaysia

\textsuperscript{12} While asset allocations of pension and provident funds are decided by its respective investment panel, given that these institutions are large holders of liabilities (individuals’ contributions) there is still a need for them to apportion a certain amount of their investment portfolio on safer assets such as government securities and higher-rated or government-guaranteed private debt securities.
3.2. Potential Implications Arising from the Flattening Yield Curve and Rising Foreign Participation in the Ringgit Bond Market

One possible effect of the flattening of the yield curve is the ineffectiveness of the transmission of monetary policy particularly to the longer end of the yield curve. The outcome of this situation would lead to the monetary stance not being adequately reflected in the financial prices, particularly on financial instruments where rates are priced off from the sovereign yields. Felman, et al. (2011) highlighted that to the extent that yield curves are driven by external developments, there is a risk that monetary independence would be reduced. Evidence of this effect can be seen in the downward trend of the interest rate swaps (IRS) [Figure 3.8], even as the OPR was tightened, particularly in 2011. Similarly, in 2007, PDS yields for higher rated bonds mirrored the flattening movement of the MGS yields, evidenced by narrowing its maturity spread, despite the unchanged stance in monetary policy [Figure 3.9].

![Figure 3.8: 10-year MGS Yields, IRS and OPR](image)

Source: Bank Negara Malaysia

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13 The IRS is one of the determinant of pricing for is hire purchase rates.
14 Khazanah bonds, AAA and AA rated PDS
Higher portfolio inflows also increased the level of volatility in the domestic bond market. Given the potentially speculative nature of portfolio flows, which are prone to abrupt changes in sentiments, this has contributed to situation where the level of yields changed significantly within a short period of time. While the trend in volatility in general has been rising post-FX liberalisation, it is observed that volatility in yields reached its highest level during times where there is a large reversal of portfolio flows in the domestic bond market [Figure 3.10]15. Given the current global economic conditions of prolonged period of low interest rates coupled with undiminished level of uncertainties, any swing in investors’ perception of risk assessment could potentially lead to an escalation of short-term spikes in volatility (Iorgova, et al., 2012). Peiris (2010) postulated that increased foreign participation in local currency bond markets would lead to greater yield volatility especially during periods of sudden withdrawals. Felman, et al. (2011) also concurred with the view of

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15 One interesting point to note is that the yield volatility was much higher during the global financial crisis (GFC) in 2008 relative to the ‘taper tantrum’ episode in the second half of 2013. Two possible explanations could be postulated; firstly, the size of outflows relative to the peak size of cumulative inflows was larger during the GFC period. Secondly, long-term institutional investors could have also sold MGS during the same period.
a potential risk of rising volatility as portfolio inflows into the bond market increases, as evidenced from the collapse of Lehman Brothers in 2008.

**Figure 3.10: Volatility of Yields**

![Volatility of Yields Graph](image_url)

Source: EPFR Global; Bank Negara Malaysia, author's calculation

Where financing is concerned, there is a dual impact of the rising portfolio flows into the bond market. During periods where large portfolio inflows compressed long-term yields downwards, this may create an incentive for firms to raise financing through issuances of debt securities given the downward trend of borrowing costs. This was partially reflected in 2007 when there was a marked increase in PDS issuances when long-term PDS yields were on a downward trend [Figure 3.11]. Conversely, during periods where there is a noticeable reversal of portfolio flows and the overall volatility in the market is elevated, this would bring about difficulty for firms that require financing, as borrowing costs would be at an elevated level (Peiris, 2010). While regulations in Malaysia’s PDS market provide flexibility for firms to plan for their issuances\textsuperscript{16}, nonetheless, the swift entry and exit of portfolio flows into the ringgit bond market and its impact on yields certainly presents an additional layer of challenge for prospective PDS issuers.

\textsuperscript{16} PDS issuers in Malaysia have at least six months of grace period to conduct their first issuance, upon receiving approval from the Securities Commission (SC)
The preceding discussions provide indications that the rising presence of foreign investors in the ringgit bond market exerts a strong influence on the decline in long-term yields, subsequently causing the yield curve to flatten. This section attempts to provide an empirical evaluation of the impact of foreign investors’ involvement in the ringgit bond market on long-term MGS yields.

There have been several studies in the past that attempt to quantify the direct relationship between foreign portfolio inflows or foreign investors’ participation and local currency bond yields, both in developed and emerging markets. Warnock and Warnock (2009) studied the factors contributing to the decline in long-term yields in US in the 1990s and identified that apart from inflation expectations and volatility, foreign inflows into the US bond market is also statistically significant in lowering the 10-year US Treasury yields. In their estimation using data from 1984 to 2005, 12-month inflows of 1% of GDP is associated with a 19 basis points reduction in 10-year Treasury yields. Balakrishnan, et al. (2011) studied the role of non-resident investments in explaining asset price or interest rate movements in emerging market
economies. Using a fixed effect panel data estimation for eight countries\textsuperscript{17}, their results showed that, on average, each percentage point increase in non-resident participation reduces long-term bond yields by about 5 basis points. Peiris (2010) also performed similar estimation and the results are consistent with those of Balakrishnan, et al.(2011). Additionally, using the GARCH\textsuperscript{18} approach, Peiris (2010) also estimated the impact of foreign participation in government bond markets on the volatility of long-term bond yields in emerging markets and found that greater foreign participation does not necessarily result in increased volatility in bond yields and, in fact, could even dampen volatility in some instances. Marcilly (2009) used country specific VAR\textsuperscript{19} method to determine the causality between foreign inflows and the local currency of 10-year government bond yields in Indonesia, India, Malaysia and Thailand. The results from the study showed that causality mainly goes from the 10-year yields to stock of foreign investments in Indonesia and Malaysia. The results also showed that given a shock of 1% in foreign investments, the impact on yields would be two months after shock, but nonetheless being statistically insignificant.

Our estimation focuses on determining quantitatively the impact foreign investors’ participation in Malaysia on the long-term MGS yields. For this analysis, our dependent variable is the 10-year and the 1-year MGS yields. For completeness, we also performed the estimation on the 10-year maturity spread.

Two types of variables were considered to represent foreign investors’ involvement in the ringgit bond market. The first one is foreign investors’ holdings of ringgit bonds as a percentage of total outstanding bonds. The second possible variable that can be used to reflect foreign participation in the financial market is the non-resident flows on the bond market. As holdings data are stock data, using flows data could possibly allow us to capture the dynamic behaviour of portfolio inflows and its impact on yields.

\textsuperscript{17} Brazil, Indonesia, Korea, Malaysia, Mexico, Poland, Thailand and Turkey
\textsuperscript{18} Generalised Autoregressive Conditional Heteroskedasticity
\textsuperscript{19} Vector Autoregression
In an attempt to capture the impact of foreign investors’ participation, non-resident holdings data is used. The data on holdings is available on a quarterly basis from 1996, encompassing pre and post FX liberalisation period. In addition, we also performed estimation on portfolio flows by taking the change in non-resident holdings to see if there are any differences in its impact on MGS yields.

4.1. Estimation using non-residents’ holdings of MGS data

For our estimation, we adopted the empirical model used in Warnock and Warnock’s (2009) study of relationship between international capital flows and US interest rates and Peiris (2010) estimation of foreign participation on local currency bond yields in emerging markets. The model was, however, modified slightly in view of data availability as well as incorporating some control variables that are more specific to MGS yields. Our model is written as the following:

\[ r_t^{LT} = \alpha + \beta_1 r_t^{ST} + \beta_2 \pi_t + \beta_3 l_t + \beta_4 g_t + \beta_5 x_t + \beta_6 v_t + \beta_7 f_t \]  

(1)

where \( r_t^{LT} \) denotes the dependent variable, either the nominal 10-year or 1-year MGS yields, \( r_t^{ST} \) is the nominal 3-month Malaysian Treasury bills (MTB) yields (controlling for impact of monetary policy), \( \pi_t \) is rate of inflation (controlling for inflation expectations), \( l_t \) is the turnover ratio\(^{21}\) of the bond market (controlling for market’s liquidity), \( g_t \) is a measure of the government’s sovereign risks, in this case, the fiscal deficit as a percentage to GDP, \( x_t \) denotes the annual GDP growth, \( v_t \) is the MOVE index\(^{22}\) (controlling for volatility), and finally, \( f_t \) is foreign investors’ holdings of MGS as a percentage of total MGS outstanding.

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\(^{20}\) McCauley (2008) cautioned on the use of holdings data as a proxy for foreign investors’ participation. Firstly, biasness issues exist with using foreign holdings data as some domestic agents hold local currency securities on behalf of foreign agents. Additionally, a number of foreign investors may avoid investing directly in the local bond market by entering the derivatives market instead.

\(^{21}\) Turnover ratio = MGS turnover / Total outstanding bonds

\(^{22}\) The Merrill Option Volatility Expectations Index (MOVE©) reflects market estimate of future Treasury bond yields volatility
From model (1), we expect the nominal 3-month MTB yields, inflation, sovereign risks, economic growth, and the MOVE index to have a positive relationship with the dependent variable. Turnover ratio and foreign investors’ holdings of MGS are expected to show negative association with the dependent variable. We also postulated that a larger foreign investors’ holdings coefficient on the estimation with the 10-year MGS yields as the dependent variable relative to the 1-year MGS yields, would support our conjecture that the presence of foreign investors do contribute to the flattening yield curve incidences.

We ran our initial estimation using the full sample of quarterly data since 1996 on the three dependent variables; MGS 10-year and 1-year yields, as well as the 10-year maturity spread. The estimation results showed that foreign investors’ holding of MGS is statistically significant in determining the level of both the 10-year and 1-year MGS yields. We also observe a larger coefficient for the estimation on the 10-year yields. In addition to foreign investors’ holdings, the liquidity conditions, as represented by the turnover ratio and the 3-month MTB yields are also important determinants of the MGS yields. Additionally, the inflation variable does play a role in determining the MGS 1-year yields, implying that inflation expectations affect investors’ sentiments in the short-term.

The results, however, do not appear to be statistically robust and diagnostic checks highlight the presence of instabilities in the model. From the plot of the 10-year MGS yields, it appears at first glance that there is a structural break at the end of 2001 [Figure 4.1], consistent with the time which BNM took on aggressive efforts to develop and deepen the domestic capital market. Further statistical analysis also confirmed the presence of a structural break in the data. As such, we re-estimated our model using the sample period beginning in 2002. To take into account the liberalization measures undertaken by BNM in 2004 as well as for robustness checks purpose, we also re-estimated for the sample period 2004-2013.
Estimation using sample data beginning in 2002 and 2004 also yielded similar results relative to the estimation using the full sample size [Table 4.1]. Foreign investors’ participation in the MGS market, based on the foreign holding of MGS is statistically significant in determining the level of both the 10-year and 1-year MGS yields. Furthermore, similar to earlier estimation, the coefficient on the 10-year MGS yields estimation is larger than the 1-year MGS yields. A one percentage point increase in foreign investors’ holdings of ringgit bonds (as a percentage of total outstanding bonds) is associated with a 1 basis points decline in the 10-year MGS yields, and a 0.4 basis points decline in the 1-year MGS yields. Consistent with the estimation utilizing a longer sample period (1996), liquidity conditions and the short-term MTB yields also has a statistically significant relationship with MGS yields, while inflation has a statistically significant association with the 1-year MGS yields.

The results from our estimation are in line with the findings of studies by Balakrishnan, et al. (2011) and Peiris (2010). Interestingly, in all the estimations that were done, the coefficient for the liquidity conditions in the bond market is markedly larger than other statistically significant variables, including foreign holdings of MGS. Furthermore, comparing the liquidity coefficient between the estimations on the 10-year and 1-year MGS yields, the coefficient on the long-term
yields is also larger than on the 1-year MGS yields. The results, to some extent, reinforces the idea in the channels that was presented earlier that the liquidity conditions, specifically lower liquidity conditions magnifies the impact of foreign investors involvement in the MGS market.

It is also observed from the estimations on the 10-year MGS yields, the coefficient for the 3-month MTB yields has a negative sign implying that, on average, the short-term rates have been moving in opposite directions with the long-term MGS yields. This may suggest that policy rate may not be effective in influencing long-term rates, especially at times of high portfolio inflows. Nevertheless, further investigation needs to be done on the monetary policy transmission in Malaysia to understand the relationship between short-term and long-term rates.

We should note at this point, however, that while the estimation results do suggest that a one percentage point increase in foreign holdings of MGS is associated with a 1 basis point decline in the 10-year MGS yields is statistically significant, it is not necessarily economically significant. Nonetheless, while a 1 basis point increase in MGS yields may not seem to be large given the variations in the 10-year MGS yields between 2004 and 2013, the impact could be amplified by the liquidity conditions in the MGS market. This could eventually entail some economic impact.

We also augment our estimations in two added dimensions. Firstly, we replaced the holdings data, with net foreign flows data by taking the change in non-resident holdings to see if there are any differences in its impact on MGS yields. Secondly, in recent times, a large portion of the discussion surrounding portfolio flows among policy makers in emerging markets have been centered on analyzing the impact of a portfolio outflows or reversal on financial markets. The discussion also includes government bond yields, whereby the impact of outflows is usually assumed to be asymmetric relative to inflows. With this in mind, we performed a separate estimation in which we included both a slope and intercept dummy variables to represent periods when there are portfolio outflows from the MGS market.
While our estimation using foreign flows data using sample data from 2002 did show the correct sign, the flows data, nonetheless does not have a statistically significant association with either the MGS 10-year and 1-year yields. One possible explanation could be attributed to the use of quarterly data instead of a higher frequency data which may have tamper down the dynamic behavior of foreign flows and its subsequent impact on MGS yields. Turning to the results of our estimation incorporating the dummy variables for foreign outflows, both the slope and coefficient dummy variables have a statistically insignificant relationship with MGS yields. This could possibly be due to limited historical data on periods of outflows to date. Going forward, it is hoped that with more data and observed period of outflows, the results would provide a better insights on the different dynamics and impact that outflows may contribute to MGS yields.

Table 4.1: Summary Regression Results
Estimation period: 2002Q1-2014Q1

<table>
<thead>
<tr>
<th></th>
<th>MGS10Y (1)</th>
<th>MGS1Y (2)</th>
<th>MGS10Y (3)</th>
<th>MGS1Y (4)</th>
<th>MGS10Y (5)</th>
<th>MGS1Y (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>5.952***</td>
<td>0.516***</td>
<td>6.016***</td>
<td>0.564***</td>
<td>6.046***</td>
<td>0.582***</td>
</tr>
<tr>
<td>Control Variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term yields</td>
<td>-0.563***</td>
<td>0.904***</td>
<td>-0.638***</td>
<td>0.862***</td>
<td>-0.572***</td>
<td>0.899***</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.063</td>
<td>0.036***</td>
<td>0.500</td>
<td>0.027</td>
<td>0.068</td>
<td>0.036**</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>-1.698***</td>
<td>-0.208</td>
<td>-1.952***</td>
<td>-0.344</td>
<td>-1.814***</td>
<td>-0.282</td>
</tr>
<tr>
<td>GDP</td>
<td>0.066***</td>
<td>0.012</td>
<td>0.0784***</td>
<td>0.019</td>
<td>0.064***</td>
<td>0.012</td>
</tr>
<tr>
<td>MOVE</td>
<td>0.001</td>
<td>0.0001</td>
<td>0.002</td>
<td>-0.0002</td>
<td>0.002</td>
<td>-0.001</td>
</tr>
<tr>
<td>Fiscal deficit /GDP</td>
<td>0.032**</td>
<td>0.009*</td>
<td>0.035**</td>
<td>0.01**</td>
<td>0.032**</td>
<td>0.008*</td>
</tr>
<tr>
<td>Dummy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy*Foreign hdgs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For robustness and completeness purposes, we also performed the estimation using higher frequency monthly data. Results using the monthly data also showed

Note: ***, ** and * denote statistical significance at the 1, 5 and 10 per cent level.

---

23 Since 2002, only two observable periods of large and sustained outflows have been recorded; during the global financial crisis in 2008 and the recent ‘taper tantrum’ episode in May 2013.
that foreign holdings are statistically significant in affecting the level of MGS yields. Moreover, estimation using higher frequency monthly data, using monthly net foreign flows figures also indicated that it is statistically significant in determining the MGS yields. As expected, the coefficient for the liquidity conditions variable is the largest for the estimations, particularly on the 10-year MGS yields [See Appendix 2].

5. Policy Implications

To some extent, the flattening of yield curve amidst strong portfolio inflows appears to affect the monetary transmission into the economy. However, despite the marked decline in long-term yields during periods of yield curve flattening, higher portfolio inflows would not fully nullify BNM’s ability to influence the economy. Unlike in the US and other economies where the bulk of financing is sourced from the capital market, financing in Malaysia still relies heavily on bank lending. Retail lending rates in Malaysia are mainly influenced by banks’ funding costs, i.e. money market rates, which has a higher degree of passthrough to the lending rates (Abdul Majid, 2010). One exception is the decline in hire purchase rates, which are derived from IRS. However, it should also be noted that, these rates have also been suppressed by the intense competition among banks in the car loan market. Balakrishnan, et al. (2011) showed that based on their estimation, higher presence of foreign investors does not curtail the effectiveness of the policy rates altogether as their results showed that more than half of a 25 basis points increase in policy rates gets transmitted across the yield curve into long-term rates.

There could be significant impact of portfolio reversals on the domestic financial markets, particularly on the level of volatility and its consequential impact to the economy. Due to limited historical data on periods of portfolio outflows, the impact of portfolio outflows remains an ongoing challenge to quantify. It can be postulated nonetheless, that while the impact of portfolio outflows on sovereign yields will be larger compared to the impact of portfolio inflows amidst increased risks aversion
during periods of outflows, the magnitude of the impact would also depend largely on the triggering factors for the outflows in the first place. Nevertheless, at present, there is an adequate demand for ringgit denominated bonds, particularly from domestic institutional investors to absorb any aggressive sell-off activities from foreign investors during periods of marked reversal. From its GARCH analysis, Peiris (2010) estimated that in Malaysia, yield volatility generated from greater foreign participation, is partly alleviated by the presence of large domestic institutional investors. Additionally, these periods of reversal have been temporary and the yield curve would eventually normalise as negative sentiments in the ringgit bond market improve. Prasad and Rajan (2008) further argued that over the long-run, the relationship between yields volatility and foreign participation may be much weaker. They postulated that to the extent that increase in foreign investors drives up market liquidity and continues to demand strong corporate governance and improved transparency, it will have a mitigating impact in price volatility in the long-run.

The utilization of capital flow management measures (CFM) has not been completely ruled out by policy makers. The surge of capital inflows to emerging economies in recent years triggered by the various unconventional monetary easing measures in the advanced economies in have led to the revival of the discussion on the use of capital flow measures (CFMs), including capital controls. Realizing that these inflows could have undesirable impact including exchange rate overshooting and inflating asset price bubbles, many emerging economies, including regional countries have considered and introduced various capital flow management measures to mitigate these spillover effects. Although, Malaysia has been less active relative to other countries in the region in recent years in deploying CFMs, given certain conditions in the economy, the adoption of certain CFMs may be warranted and justified. It has to be noted, however, that the implementation of CFMs, particularly simultaneously by various countries has to be treaded carefully, given the externalities and spillover effects that it could create which could aggravate global imbalances and slow other needed reforms (Ostry, et al., 2010).
Nonetheless, in the long run, the efforts to further deepen the ringgit bond market would reduce the flattening and volatility impact on the long-term yields. BNM together with other institutions such as the Securities Commission (SC) continue to play an active role in developing the ringgit bond market. Strong infrastructure and regulatory framework has been put in place together with various initiatives\(^\text{24}\) to promote further growth in the bond market. Malaysia also participates in regional economic and financial initiatives such as Asian Bond Market Initiative and Asian Bond Funds\(^\text{25}\), aimed at broadening and deepening the domestic and regional bond markets. Further development in the ringgit bond market would also include increasing the number of investible securities which is essential in absorbing large stream of portfolio inflows. While steps have been taken to widen the maturity of MGS\(^\text{26}\), more attention should be given towards deepening the PDS market going forward. Gyntelberg, Ma and Remolona (2005) argued that while in the past authorities in Asia have emphasised on expanding the corporate bond market despite the issuances being heavily concentrated on quasi-government issuers or those with government guarantees, this may have been done at the expense of improving transparency and timeliness of information in the corporate bond market. Expanding the corporate bond market beyond high rated and government guaranteed securities would spread out the current heavy concentration on MGS yields.

6. **Concluding Remarks**

\(^{24}\) See Appendix 4


\(^{26}\) Based on MGS Auction Calendar, see [https://fast.bnm.gov.my/fastweb/public/MainPage.do](https://fast.bnm.gov.my/fastweb/public/MainPage.do)
Since 2002, episodes of flattening of the MGS yield curve have been dominated by the abrupt surges in portfolio inflows entering the domestic bond market.

We have studied Malaysia’s experience with yields compression particularly when it was driven by rising portfolio inflows or the growing presence of foreign investors as well as its implications to the economy. Our analyses suggest that since 2002, periods of flattening yield curve in Malaysia have mainly been led by an increase in portfolio inflows. The fall in long-term yields is further augmented by some structural issues existing in the ringgit bond market, particularly liquidity conditions, which are natural in a bond market that is still growing such as Malaysia’s.

In our estimation, we have found that a higher presence of foreign investors in the domestic bond market, whether it is represented by foreign investors’ holdings of debt securities or the level of net portfolio inflows, is statistically significant in contributing to the decline in long term yields declining between 1 to 2 basis points. The relationship is consistent with different permutation of variables used.

This environment of large and sudden inflows appears to impact the effectiveness of monetary transmission as evident from the negative relationship estimated between short-term yields and long-term yields. Nevertheless, the impact of monetary policy on the economy would not be nullified as financing in the economy still depend largely on bank borrowings which is priced-off the money market rates. Moving forward, however, measures to further deepen the bond market should continue to be introduced to ensure that the market would be able to absorb the demand for ringgit bonds.

In the near-term, it would be to study closely measures that could specifically address the structural issues in the ringgit bond market. In addition, it will also be worthwhile to look into the asymmetric effect of portfolio inflows and outflows on
the sovereign yields, especially at times of heightened volatility in the financial market.
REFERENCES


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Appendix 1: Description of Data Sources Used in Estimation

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unit</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-year MGS yields</td>
<td>Percent</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>5-year MGS yields</td>
<td>Percent</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>10-year Private Debt Securities yields</td>
<td>Percent</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>- AAA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- AA</td>
<td></td>
<td></td>
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<tr>
<td>- A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-month MTB yields</td>
<td>Percent</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>CPI (yoy growth)</td>
<td>Percent</td>
<td>Department of Statistic Malaysia</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>Ratio</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>GDP (yoy growth)</td>
<td>Percent</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>VIX</td>
<td>Index</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>MOVE</td>
<td>Index</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>Fiscal deficit</td>
<td>Percent (of GDP)</td>
<td>Ministry of Finance, Malaysia</td>
</tr>
<tr>
<td>IPI (yoy growth)</td>
<td>Index</td>
<td>Department of Statistic Malaysia</td>
</tr>
<tr>
<td>Debt-to-GDP</td>
<td>Percent</td>
<td>Ministry of Finance, Malaysia</td>
</tr>
<tr>
<td>Foreign holdings</td>
<td>Percent (of total bonds outstanding)</td>
<td>Bank Negara Malaysia</td>
</tr>
<tr>
<td>Bond flows</td>
<td>RM billion</td>
<td>Bank Negara Malaysia</td>
</tr>
</tbody>
</table>
Appendix 2: Summary Regression Results using Monthly Holdings Data

Summary Regression Results - Monthly
Estimation period: 2002M1-2014M6

<table>
<thead>
<tr>
<th></th>
<th>MGS10Y</th>
<th>MGS1Y</th>
<th>MGS10Y</th>
<th>MGS1Y</th>
<th>MGS10Y</th>
<th>MGS1Y</th>
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<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>C</td>
<td>1.241***</td>
<td>0.375***</td>
<td>1.230***</td>
<td>0.298***</td>
<td>1.271***</td>
<td>0.387***</td>
</tr>
<tr>
<td>Control Variable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lagged dependent var</td>
<td>0.793***</td>
<td>0.437***</td>
<td>0.808***</td>
<td>0.573***</td>
<td>0.796***</td>
<td>0.434***</td>
</tr>
<tr>
<td>Short-term yields</td>
<td>-0.094*</td>
<td>0.514***</td>
<td>-0.102***</td>
<td>0.374***</td>
<td>-0.099**</td>
<td>0.517***</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.012</td>
<td>0.025***</td>
<td>0.005</td>
<td>0.016**</td>
<td>0.008</td>
<td>0.026***</td>
</tr>
<tr>
<td>Liquidity ratio</td>
<td>-1.117***</td>
<td>-0.104</td>
<td>-1.181***</td>
<td>-0.271</td>
<td>-1.187***</td>
<td>-0.115</td>
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<td>Growth</td>
<td>0.002</td>
<td>0.001</td>
<td>0.002</td>
<td>0.002*</td>
<td>0.002</td>
<td>0.0004</td>
</tr>
<tr>
<td>Volatility</td>
<td>~0</td>
<td>-0.001***</td>
<td>~0</td>
<td>-0.001***</td>
<td>~0</td>
<td>-0.001***</td>
</tr>
<tr>
<td>Sovereign risks</td>
<td>0.002</td>
<td>0.001</td>
<td>0.002</td>
<td>0.001</td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td>Dummy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.034</td>
<td>-0.027</td>
</tr>
<tr>
<td>Dummy*Foreign hdgs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.002</td>
<td>0.001</td>
</tr>
<tr>
<td>Foreign participation variable</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Foreign holdings</td>
<td>-0.002</td>
<td>-0.004***</td>
<td></td>
<td>-0.002</td>
<td>-0.004</td>
<td></td>
</tr>
<tr>
<td>Net flows</td>
<td></td>
<td></td>
<td>-0.002***</td>
<td>-0.006*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample size</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.820</td>
<td>0.949</td>
<td>0.832</td>
<td>0.939</td>
<td>0.824</td>
<td>0.949</td>
</tr>
</tbody>
</table>
Appendix 3: List of Foreign Exchange Liberalisation Measures Announced in 2004

<table>
<thead>
<tr>
<th>Foreign Exchange Administration Rules</th>
<th>Liberalisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Foreign Exchange Contracts by Residents and Non-residents</td>
<td>To allow businesses and individuals to effectively manage their risks, residents and non-residents may enter into forward foreign exchange contracts with licensed onshore commercial and Islamic banks (licensed onshore banks) and approved merchant banks without prior permission of the Controller of Foreign Exchange (the Controller) to buy or sell foreign currency against ringgit or another foreign currency as follows:</td>
</tr>
</tbody>
</table>

- Residents are now allowed to enter into forward foreign exchange contracts to hedge the following:
  a) Foreign currency exposures of permitted overseas investments;
  b) Payment for permitted overseas investments;
  c) Repayment of principal and payment of interest for foreign currency credit facilities (onshore or offshore) which are payable within 24 months; and 
  d) or offshore) which are payable within 24 months; and 
  e) Anticipatory receipts from exports and anticipatory payments for import of goods and services, 
  f) based on the value of export receipts and import payments of the preceding 12 months.

With the above flexibility, residents may now effectively hedge all committed and anticipatory inflows and outflows of their current account transactions (i.e. payments for export and import of goods, services and income) and committed inflows and outflows for capital account transactions (e.g. payments for overseas investments and extension of
credit facilities to non-residents or repayments of credit facility from non-residents) as well as safeguarding the value of their overseas investments.

- Non-residents are now allowed to enter into forward foreign exchange contracts for the following committed flows of funds:
  
  a) Repatriation of investment proceeds from Malaysia; and
  
  b) Purchase of ringgit assets in Malaysia.

<table>
<thead>
<tr>
<th>Maintenance of Foreign Currency Accounts (FCA) by Residents and Conversion of Ringgit into Foreign Currency for Credit into FCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rules on the maintenance of FCA by residents are also liberalised further to facilitate effective cash flow management and to promote business efficiency.</td>
</tr>
</tbody>
</table>

- Residents are now free to open FCA with licensed offshore banks in Labuan and overseas banks for any purpose, except for the retention of export receipts. With this flexibility, residents may retain their foreign currency receipts (other than export proceeds) in FCA maintained with licensed onshore banks, licensed offshore banks in Labuan and overseas banks with no overnight limits imposed on these accounts.

- Resident companies maintaining FCA with licensed offshore banks in Labuan and overseas banks are required to submit monthly statement, Statement OA, to the Controller.

- Residents may also convert ringgit into foreign currency for credit into these FCA maintained with licensed onshore banks, licensed offshore banks in Labuan and overseas banks as follows:
  
  a. Any amount for residents (companies and individuals) without any domestic credit facilities;
  
  b. Up to RM10 million per calendar year on a corporate group basis by resident companies with domestic credit facilities; and
  
  c. Up to RM100,000 per calendar year by resident individuals with domestic credit facilities.
Residents are now free to retain any amount of export receipts in FCA maintained with licensed onshore banks. The limits imposed on export FCAs are, accordingly, uplifted.

With the removal of the limits, effectively all FCA maintained with licensed onshore banks (except for FCA for overseas education and employment purposes by residents with domestic credit facilities) are free from any overnight limits.

The aggregate overnight limits on FCA for overseas education and employment purposes maintained by residents with domestic credit facilities remain as follows:

a) US$150,000 for FCA maintained with licensed onshore banks or licensed offshore banks in Labuan respectively; and

b) US$50,000 for FCA maintained with overseas banks.

| Domestic Credit Facilities to Non-resident Controlled Companies (NRCCs) | The RM50 million limit on extension of credit facilities to a NRCC by residents as well as the 3:1 gearing ratio requirement imposed on NRCC for its domestic borrowing exceeding RM50 million are abolished. With the abolishment, residents are now free to extend any amount of ringgit credit facilities to NRCCs. |
| Investment Abroad | As part of efforts to further enhance management of funds and provide diversification of business opportunities, the rules on investment abroad by residents have also been liberalised.

- Residents with no domestic credit facilities are now free to invest any amount abroad. The investment may be made through the conversion of ringgit or from foreign currency funds retained onshore or offshore. Overseas investment funded by foreign currency borrowing will be limited to only RM10 million equivalent at any one time.

- Residents with domestic credit facilities are also... |
free to invest abroad their foreign currency funds maintained onshore or offshore. In addition, they are allowed to convert ringgit into foreign currency up to the following limits for overseas investments:

a) Up to RM10 million per calendar year by companies on a per corporate group basis; and

b) Up to RM100,000 per calendar year by individuals.

For companies converting ringgit for overseas investments, they must have a minimum shareholders' funds of RM100,000 and must be operating for at least one year. In addition, they may finance overseas investment with foreign currency borrowing up to RM10 million equivalent at any one time.

• The limit that can be invested abroad by unit trust management companies is also increased to 30% from 10% of the Net Asset Value (NAV) attributed to residents. Fund/asset managers may now invest abroad any amount of investment of resident clients without any domestic credit facilities and up to 30% of investments by resident clients with domestic credit facilities. The funds may be pooled for investment abroad. Such investments must be in line with the Securities Commission’s prudential guidelines.

• Resident insurance companies and takaful operators may also invest abroad up to 30%, increased from 10%, of the NAV of the investment-linked funds that they market. These investments are subject to compliance with prudential insurance and takaful regulations issued by Bank Negara Malaysia.

• The above flexibilities are subject to prior registration of any overseas investments exceeding the equivalent of RM50,000 with the
| **Foreign Currency Credit Facilities** | To enhance expediency in managing business in Malaysia, the limit for residents to obtain foreign currency credit facilities from non-residents, licensed onshore banks and licensed merchant banks in Malaysia is increased from the current limit of RM5 million equivalent.  
- Resident companies on a corporate group basis may now obtain foreign currency credit facility up to an equivalent of RM50 million in aggregate.  
- Resident individuals are allowed to obtain foreign currency credit facility up to an equivalent of RM10 million in aggregate.  
- The above flexibilities are subject to prior registration of any foreign currency credit facility exceeding RM1 million equivalent with the Controller.  
- Residents may prepay their foreign currency credit facilities subject to the registration of such prepayments with the Controller prior to effecting the payments.  
- Residents may also utilise up to an aggregate of RM10 million equivalent of their foreign currency credit facilities to finance overseas investment activities. |
| **Activities by Approved Operational Headquarters (OHQs)** | In line with the relaxation on residents for retention of export proceeds and overseas investments as well as freedom to obtain domestic credit facilities by NRCC, OHQs may now:  
- Retain any amount of export receipts in their FCA maintained with licensed onshore banks;  
- Obtain any amount of ringgit credit facilities from domestic sources; and  
- Finance their overseas investment activities, including extension of credit facilities to non-residents, by converting up to RM10 million into foreign currency per calendar year if they have domestic credit facilities. |
Appendix 4: List of Bond Market Development Measures

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Initiatives</th>
</tr>
</thead>
</table>
| Introducing an efficient and facilitative issuance process | • Release of Guidelines on Offering of PDS- 2000  
• Introduction of a shelf-registration scheme- 2000  
• Release of Guidelines on the Offering of Asset-Backed Securities (ABS) – 2001  
• Release of Asset Securitisation Report to provide detailed information on ABS issuance including surveys and structures – 2002  
• Introduction of Guidelines on the Offering of Islamic Securities to set common standards between conventional and Islamic PDS – 2004  
• Introduction of a web-based Fully Automated System for Issuing/Tendering (FAST) – 2005 |
| Broadening the issuer and investor base | • Universal brokers allowed to trade in the over-the-counter (OTC) bond market- 2002  
• Introduction of a tax-neutral framework and tax deduction on issuance expenses for ABS – 2003  
• Islamic PDS are accorded various tax incentives (e.g. stamp duty waiver, tax deductions on issuance expenses) and a tax-neutral framework – 2003, 2005  
• Multilateral development banks, multilateral financial institutions and multinational corporations are allowed to raise ringgit-denominated bonds-2004  
• Removal of withholding tax on interest income derived from investments by non-residents in all ringgit-denominated bonds- 2004  
• Allowing a wider group of investors to have access to the information memoranda and trust deeds of ringgit-denominated bond issues database to facilitate decision making – 2005 |
<p>| Improving liquidity in the secondary market | • Non-financial institutions are allowed to enter into repurchase transactions with financial institutions – 2000 |</p>
<table>
<thead>
<tr>
<th>Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>The Securities Borrowing and Lending Programme is introduced via the Real Time Electronic Transfer of Funds and Securities (RENTAS) system – 2001</td>
</tr>
<tr>
<td>-</td>
<td>ISCAP is introduced to facilitate securities lending by major institutional investors to Bank Negara Malaysia for use in market operations – 2005</td>
</tr>
<tr>
<td>-</td>
<td>Introduction of callable MGS and MGS switch auction to increase the amount of benchmark securities and further enhance trading in the secondary market – 2006, 2007</td>
</tr>
</tbody>
</table>

**Improving price discovery process**

- Establishment of Bond Information and Dissemination System (BIDS) as a central information platform to enable reporting of all bond market transactions and wide dissemination of information – 1997 (further information on the Malaysian bond market can be obtained from the following websites: [https://fast.bnm.gov.my](https://fast.bnm.gov.my); [http://rmbond.bnm.gov.my](http://rmbond.bnm.gov.my); [http://iimm.bnm.gov.my](http://iimm.bnm.gov.my))
- Release of Guidelines on the Registration of Bond Pricing Agencies to provide independent and objective fair value prices, on a daily basis, for all ringgit-denominated bonds traded in the OTC bond market – 2006
- Daily publication of indicative yield-to-maturity of Government securities (conventional and Islamic) – 2005

**Establishing an reliable and efficient benchmark yield**

- Introduction of an annual auction calendar for MGS to enhance transparency and facilitate longer-term planning by issuers and market participants – 2000
- Revision of the principal dealers system every two years – to enhance principal dealers’ function as market makers for benchmark papers – 2006

**Facilitating the introduction of risk management instruments**

- Introduction of Guidelines on Regulated Short-selling of Securities – 2005