

Áron Gereben and István Mák: Potentials and limitations of non-governmental forint-denominated bond issues by non-residents*

This article deals with forint bonds issued by non-residents. We present the role of such bonds in financing the external debt in the domestic currency, as well as the typical cash flows associated with their issue and the related interest rate swaps. By buying so-called euroforint bonds issued by highly rated, generally supranational organisations foreign investors take the exchange rate risk of the external debt, while the domestic banking system obtains long-term forint financing at a fixed interest rate. Over the past 10–15 years, the Eurobond market has largely contributed to the ability of New Zealand and South Africa to finance their balance of payments deficit, while eliminating the need to burden domestic actors with the inherent exchange rate risk. However, in the case of the forint the market of this instrument has remained relatively immature.

In the second part of the article, we examine how and why South Africa and New Zealand have been able to successfully tap the Eurobond market, and what conditions should precede such an upswing in euroforint issues. We conclude that the euroforint bond market has remained immature primarily due to the inability of Hungarian banks, characterised by constrained foreign exchange liquidity, to satisfy the foreign currency financing needs of bond issuers through interest swaps, and consequently, they are also unable to draw on their fixed interest forint funds. This can be attributed to the fact that in previous years Hungarian banks financed a part of their FX loans by local currency deposits, and – seeking to hedge their exchange rate exposure – they buy foreign currencies and offer forint on the FX swap market. While euroforint bonds could be considered as an attractive target for a specific group of investors, their interest rates are not competitive compared to the yields attainable by speculation on the foreign exchange market.

INTRODUCTION

Over the past years, foreign currency lending has expanded strongly in Hungary, and has led, amongst other things, to the accumulation of a sizeable net external debt by domestic economic agents – and in particular households – in the form of substantial open forint-foreign exchange positions. This foreign exchange position has contributed significantly to the financial vulnerability of the country over the past two years, and has also imposed constraints on economic policy. Although the weakening of the forint should drive up net exports, the depreciation of the nominal exchange rate increases the debt burden of companies and households, which are indebted in foreign currency and have no foreign exchange income; this in turn leads to a decline in capital investments and consumption, and thus may ultimately have a contractionary impact (Krekó and Endrész, 2010).

Analysing countries with a similar level of external debt, we found that the permanent and sizeable external financing

need arising on the part of the domestic sectors (household and non-financial corporate sector) is not always accompanied by an increase in their exposure to foreign exchange rates. This situation occurs when the funds raised by domestic banks abroad are denominated not in a foreign currency, but rather in their own domestic currency, and thus exchange rate risks are assumed by foreign investors. This is only possible with the existence of an instrument, denominated in the domestic currency, which – on the basis the related risk and return – can be taken into consideration by a wide circle of investors, including non-residents in the process of portfolio building. Typically, such instruments include Hungarian local currency government securities denominated in forint, central bank bills and FX swaps. Foreign investors with lower risk appetite may deem forint bonds issued by a foreign non-governmental organisation, called *euroforint bonds*,¹ a more attractive financial instrument.

In the following sections, we first give an overview of the role of the Eurobond markets in financing the economy, and of

* The views expressed in this article are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

¹ The name originates from the New Zealand dollar bonds enjoying great popularity with investors since the mid-1990s. These bonds are called eurokiwi bonds, referring to the dollar denominated bonds issued by non-residents (eurodollar bonds) on the one hand, and the popular name of the New Zealand dollar (kiwi) on the foreign exchange market. A Kauri bond is a New Zealand dollar-denominated bond issued in New Zealand by non-residents. These bonds are in favour with investors as they are accepted as security for the repo transactions of the Reserve Bank of New Zealand. However, this latter instrument falls outside the scope of this article.

the market of bonds issued by non-residents for non-residents in that specific currency. We present the motives of issuers and investors, and examine how attractive targets these bonds can be for those pursuing a *carry trade* strategy² compared with other financial instruments. Based on previous years' volume and price figures, we try to identify the reasons leading to the long-standing popularity of certain currencies and to the marginal role of others on this market.

MACROECONOMIC ROLE OF THE EUROBOND MARKET

The vast majority of small, open economies, including Hungary, struggling with a high balance of payments deficit and consequently with high levels of external debt, have no or only limited capacity to borrow abroad in their own currency. Although in most cases the state is able to secure the inflow of funds in its own currency (that is, in forint) to a certain extent – 20-25 percent of Hungarian government securities denominated in forint are held by foreign investors – in these countries, the substantial majority of the external debt owed by the private sector is denominated in a global currency (dollar, euro, yen). This also means that in these countries, indebted economic agents run a considerable exchange rate risk: the depreciation of their own currency increases the amount of their debt calculated in their own currency which carries a high economic policy risk.

The phenomenon that small, open, emerging economies are generally unable to finance their external debt in their domestic currency is dubbed the “original sin” in the economic literature (Eichengreen–Hausman, 1999). Even if foreign investors are willing to buy assets denominated in the domestic currency of the given country (e.g. in Hungary's case, forint) generally, the government is the single domestic actor with an appropriate credit risk rating and ability to offer a sufficiently large volume of securities on the market viewed by foreign investors as attractive, low risk and liquid. The agents of the private sector, including the banking systems, are too risky, individual issuers have relatively low funding need, and are not known enough to be classified by the foreign investors as creditworthy in their own currency, therefore they can usually only draw on foreign capital in a foreign currency.

The existence of Eurobond markets allows a group of investors who would otherwise not be willing to assume such a risk to take on the exchange rate risk of the external debt from the economic agents of a given country. On this

market, well-capitalised issuers with high, often AAA ratings – international (supranational) financial institutions (World Bank, European Investment Bank, European Bank for Reconstruction and Development), national development institutions, global banks – issue bonds denominated in the currency of small, open economies. The reputation and excellent credit rating of the issuers make these securities appealing to final investors who would not otherwise buy bonds registered by the issuers of the given country and denominated in their domestic currency. The funds raised by the high-graded issuer and denominated in the currency of the given country reach the financial intermediary system operating in that country – through the financial transactions detailed in the following sub-sections – and thus, ultimately the exchange rate risk arising when the small, open country borrows funds abroad is taken by a foreign agent, the bondholder. In effect, assuming that balance of payments deficit is a given, the significance of the Eurobond markets in terms of the macroeconomy lies in allowing the given country to finance its external deficit in its own currency instead of a foreign one. Ultimately, the Eurobond market serves as a potential way to escape “original sin”.

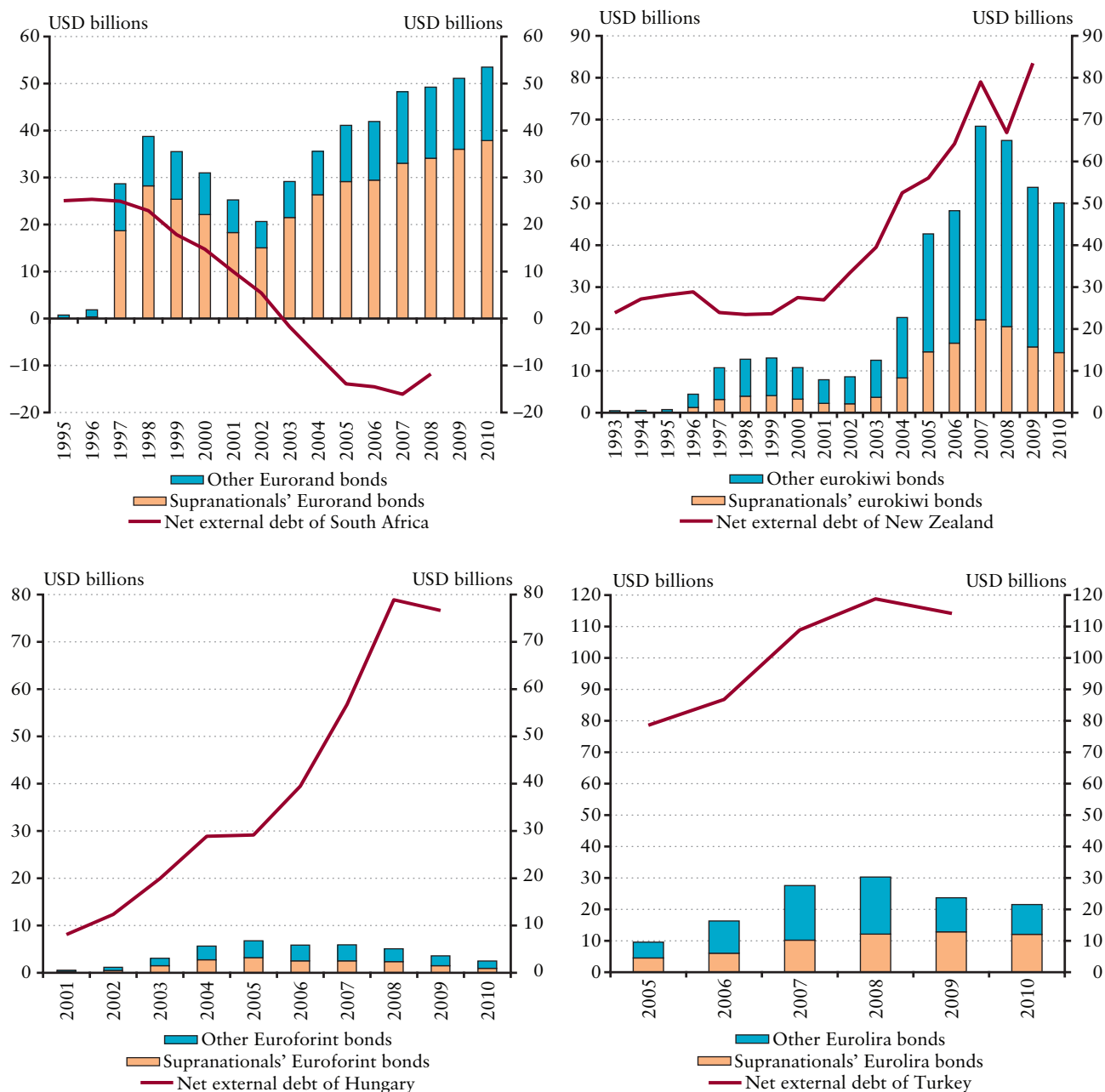
The deepening integration of the financial markets since the mid 1990s facilitated the issue of bonds denominated in the currencies of emerging countries by the abovementioned institutions. Nevertheless, in the case of most emerging countries the aggregate value of the portfolio of Eurobonds issued in their domestic currency is marginal compared to the net external debt of the country in question. However, in some countries – for example, New Zealand, Australia and South Africa – Eurobond-type issues have reached a level where the foreign agents can make a considerable contribution to financing the net external debt. Concurrently, domestic companies and households take out credit in their own currency, bearing interest lower than would have been without issuing Eurobonds.

In South Africa and New Zealand, the outstanding Eurobonds cover a sizeable part of the exchange rate risk of these countries' net external debt (Chart 1). The appeal of the bonds was probably increased by the fact that the currency of both countries has been the target of carry trade in recent decades. Although these two countries have bond portfolios which are of a similar size (40-50 billion dollars) and we can thus assume that investors have easy access to both markets, there is a major difference in terms of their size compared to the external debt of these countries. It should be noted that during the period under

² *Carry trade* in the widest sense means that an investor takes out credit in a currency with relatively low interest rate, and uses the funds to purchase assets denominated in another currency having a higher yield. To realise an extra return, the investor always assumes the risk of exchange rate fluctuations. For more details on the topic, please refer to the article by Kisgergely (2010).

Chat 1

Net external debt³ and amounts of Eurobonds issued of New Zealand, South Africa, Hungary and Turkey



review the net financing need of the general government was lower in New Zealand, and thus investors seeking to take up positions in New Zealand dollar appreciated the instruments, which were no less liquid than sovereign bonds but carried no credit risk.

By comparison, in the case of two other countries (Turkey and Hungary) with currencies bearing similarly high interest, both the volumes of the issues and their ratios to

the external debt are much lower than in New Zealand and South Africa.

THE ISSUE PROCEDURE IN THE CASE OF A SUPRANATIONAL ISSUER

In order for the Eurobonds to actually perform their role in the real economy as described above, that is, allowing the funds raised by international financial institution in the

³ Net external debts do not include special purpose vehicles.

given currency to reach the borrowers in the same economy, generally further financial instruments are needed. Sometimes the issuing international institution lends the borrowed funds directly to the credit institutions of the given country. This, however, seldom happens. In most cases the issuer ultimately intends to obtain euros or dollars, and uses derivative transactions to convert the borrowed funds.

The example below illustrates this case. We assume that an international financial institution issued forint-denominated Eurobonds (euroforint bond). However, it actually seeks to obtain funds denominated in euro at long maturity and floating interest rate. The interest rate and currency mismatch can be eliminated with interest rate swaps.

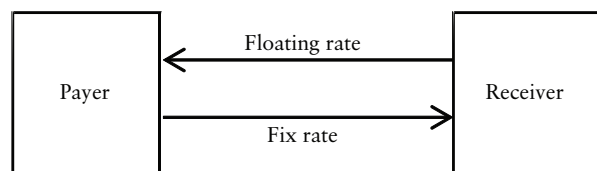
For this, the issuer needs to conclude two swap transactions – with identical maturity dates to that of the bond issued – with another financial institution, generally with the investment bank acting as the lead manager for the bond issue. In the course of the first swap, an interest rate swap (IRS) transaction, the issuer receives a fixed forint interest used to cover its interest payment obligation deriving from

the bond issue on the one hand, and pays a floating forint interest (typically corresponding to the 3-month BUBOR), on the other. If the yield of the bond⁴ is lower than the fixed interest established in the interest rate swap transaction, the issuer may interpret the difference as a quasi commission-type income received in consideration for its reputation and AAA rating.

The second swap transaction is a so-called cross currency basis swap, whereby the issuer, having incurred a floating forint interest payment obligation, swaps this interest with a floating euro interest rate against a fee (cross currency basis swap spread). Whether the fee is paid or received by the issuer depends on the positive or negative value of the cross currency basis swap spread for the currency pair in question. Thus, in net terms, the issuer received a fixed forint interest and pays a floating euro interest. Concurrently, the counterparty of the forint interest rate swap transaction will receive a floating forint from the bond issuer and pays a fixed interest therefore. Similarly, the counterparty bank of the cross currency basis swap will pay a floating forint interest and receive a floating euro interest.

Definition of interest rate swap and cross currency basis swap

An interest rate swap is a contract between two parties to exchange their interest payment obligations in a specific currency. During the term of the swap one of the counterparties pays a floating interest rate (generally specified as a short-term inter-bank reference yield, e.g. the 3-month LIBOR, and a pre-determined premium⁵) to the other, who in turn pays a fixed interest. The transaction does not involve the exchange of the notional principal underlying the swap, in practice only the difference in interest payments is credited. The party paying the fixed rate (payer) profits from an increase in the short-term reference rate, while the party receiving the fixed interest (receiver) profits from a decrease in the rate.

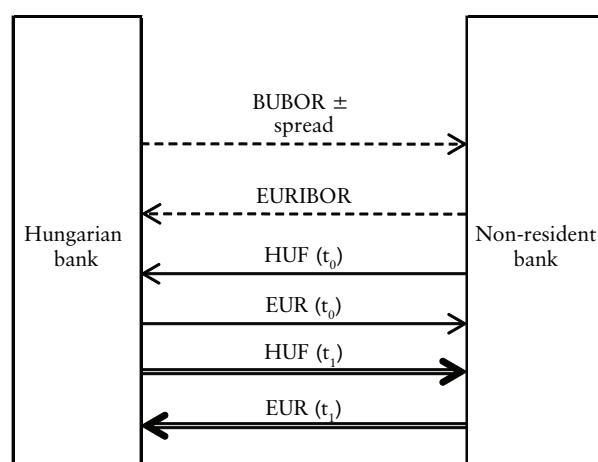


In a cross currency basis swap, at the time of concluding the transaction the underlying forint and foreign currency amounts are exchanged at the prevailing spot exchange rate. One of the parties pays the short-term inter-bank reference rate in currency "A", while the other pays the inter-bank rate of the corresponding maturity in currency "B". At the time of concluding the transaction, the parties specify a fixed (annualised) fee payable by one of the parties to the other on the due dates of interest payments. This fee is called the cross currency basis swap spread, the value of which is expressed in basis points and added to the interest paid in the floating currency (e.g. in the case of a EUR/HUF transaction, HUF). The amount of the spread depends on the extent of the counterparty risk on the one hand, and on the relative demand for the currencies on the other. In the event that the forint is in relatively high demand among Hungarian banks, foreign banks expect a premium for satisfying this demand for forint through the cross currency basis swap. Conversely, if Hungarian banks show relatively higher demand for euro than forint from their foreign counterparties,

⁴ High-grade issuer, benchmark-size issues, and Euroclear eligibility are the main factors that contribute to the relatively low yield of those bonds.

⁵ On the inter-bank market interest rate swaps are generally quoted LIBOR-flat, i.e., the premium beyond the LIBOR and the fixed interest rate are netted.

the cross currency basis swap spread will be negative. Forint cross currency basis swap spreads have been negative for years, which is fully consistent with the fact that Hungarian banks would prefer financing foreign currency credit with foreign currencies, while setting no demand for forint.

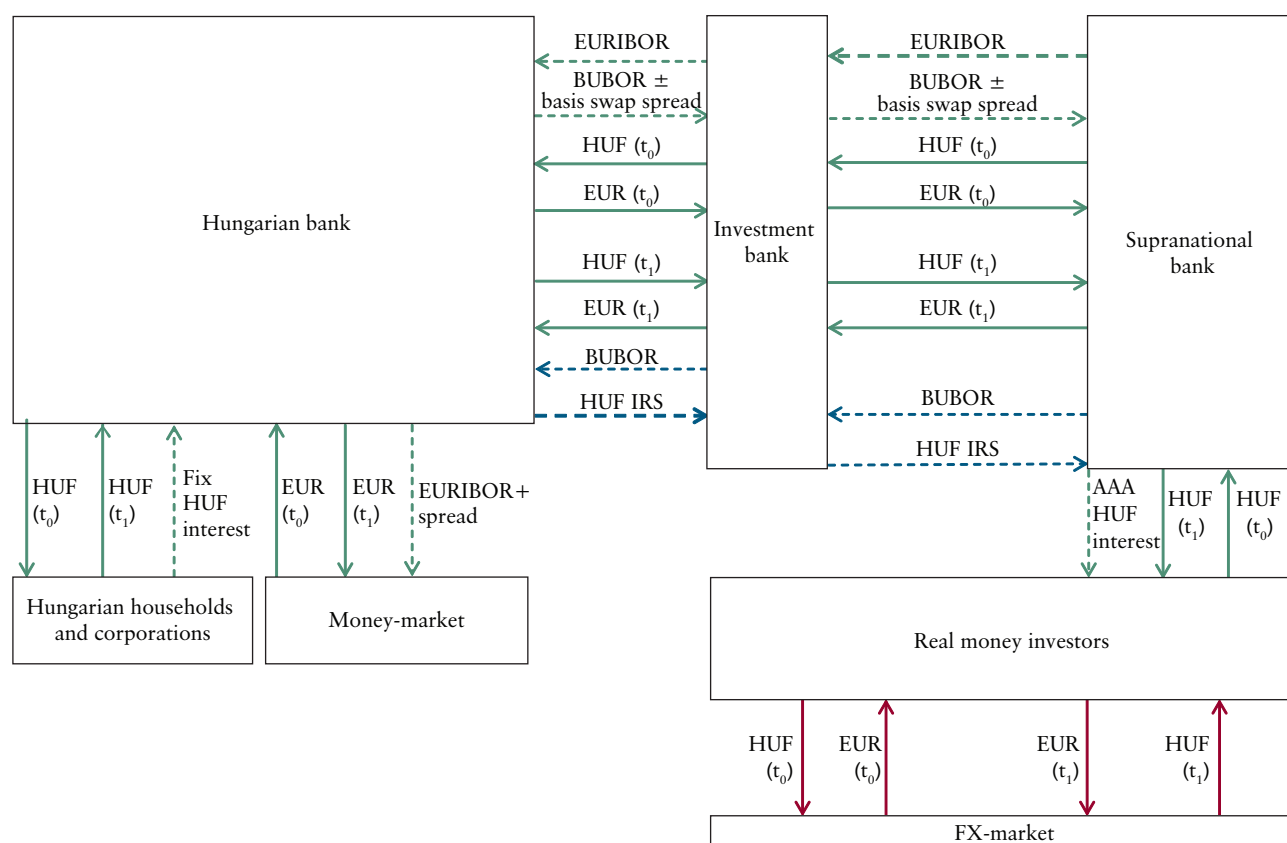


If we assume that the issuer concludes both swap transactions with Hungarian banks, we find a potential method for the Hungarian banking system to borrow funds abroad. In this case, the Hungarian bank pays a fixed forint interest during the term of the interest rate swap, and exchanges the received floating forint interest with a floating euro interest income by way of the basis swap. Thus, if a Hungarian bank borrows a euro credit bearing a floating interest rate on the

inter-bank market, it will finance it with the euro payment leg of the swap, and in net terms it will only be obliged to pay the fixed forint interest and the spreads on the EURIBOR and the BUBOR rates. Consequently, these swaps helped the domestic bank to ultimately undertake a long-term forint debt with fixed interest rate by borrowing a euro-denominated credit with floating interest, which is much easier to access and finance.

Chart 2

Typical cash flows in euroforint bond issues



As a result of the above transaction, the lending operations of the Hungarian bank, already in possession of fixed rate forint funding, can shift to the placement of forint credit. Households and companies prefer taking out fixed interest credit in their domestic currency, and this demand can be satisfied with the credit products of the domestic bank bearing a fixed interest. For this, the bank needs to have available funds denominated in its domestic currency, for which it pays a fixed interest to minimise the interest rate risk.

It is worth noting that the borrowed forint can be used for purposes other than financing forint credit placed with a fixed interest rate as well, e.g. for the purchase of other forint instruments, among others, government securities, without assuming an exchange rate risk.

Investors buying the bond obtain the currency required for the purchase on the spot foreign exchange market. Typically, these are investors seeking to buy assets yielding high interest, thus they pursue a carry trade strategy; at the same time, they are not allowed to carry high risk assets (e.g. securities of emerging market governments) due to their risk management rules or for other reasons in their portfolio.

Taking a specific example, the model illustrated by Chart 2 will operate as follows: the supranational issuer can issue a 3-year forint bond with a 6.5 percent yield. At this time, the fixed leg of the forint interest rate swap with corresponding maturity amounts to 7.25 percent, while the forint-euro cross currency basis swap spread is -100 basis points. The issuer will realise a 0.75 percent interest gain on an annual level on the difference between the 6.5 percent and the 7.25 percent, as against the 100 basis point interest expense arising from the cross currency basis swap, which means that under these conditions the bond issue and the associated transactions result in an annual loss of 25 basis points. If the cross currency basis swap spread decreased to -50 basis points, the issuer could attain a 25 basis point profit on the transaction.

If the issue is carried out under the above conditions, it will yield the following results:

- *Domestic households* and companies can take out credit denominated in the domestic currency and bearing a fixed interest rate (or at least with long interest payment periods) at possibly more favourable prices than otherwise.
- *The domestic bank* can place mortgage loans denominated in the domestic currency and with long interest payment periods, while the cost of funds will correspond to the sum of the fixed rate of the swap transaction and the basis

swap spread. The bank could in fact finance the mortgage loan denominated in its domestic currency with a foreign currency, however, that would create an open exchange rate position for the bank. At the same time, in the course of the transaction discussed above, the exchange rate risk is assumed by the ultimate investors.

- *The international financial institution* obtains funds in dollar or euro on which it pays a floating interest rate. In addition, as a commission-type income (that may be construed as a premium for reputation/good credit rating) it will also receive the difference between the yield of the bond and the yield of the swap of the currency with corresponding maturity.
- *The foreign ultimate investors* will hold bonds ensuring a fixed yield, at a rate similar to that offered by the securities of emerging market governments, however – as they were issued by a bank rated AAA – they are practically risk-free. In addition, they take up a long exchange rate position in the given currency.

DEVELOPMENTS IN THE EUROFORINT BOND MARKET COMPARED TO INTERNATIONAL TRENDS

In the second half of the 1990s Eurobond issues denominated in high yielding currencies expanded dynamically worldwide. The largest volumes were issued in Turkish lira, South African rand and Australian and New Zealand dollar. In case of all four currencies, bond issuers are dominantly supranational banks. Currently, these institutions have an outstanding amount of bonds issued coming out at nearly 700 billion dollars, 70 percent of which was issued in the low yielding currencies of advanced economies. The rest of the outstanding bonds is comprised of high yielding currencies of advanced and emerging countries. Of them, we will discuss New Zealand and South Africa in greater detail.

From among high interest Eurobonds, the market of securities issued in New Zealand dollar boasts the longest history, and even at present the market of the so-called eurokiwi bonds (see Footnote 1) serves as reference for this securities type. The first issues took place late 1980s, and during the decades since then there have been two larger waves of issues: in the second half of 1990s and then again, in the years after the turn of the century the annual volume of securities issued approached 10 billion New Zealand dollars. The bonds issued had an average of three- to four-year maturity. The considerations behind the issues are clearly evidenced by the – not too close – correlation between the volumes issued and the 2 and 3-year interest

Table 1**Currency composition of bonds issued by supranational institutions⁶***(August 2010)*

Developed market currencies		Emerging market currencies	
EUR	37.5%	ZAR	2.97%
USD	33.6%	TRY	1.18%
AUD	6.26%	BRL	1.04%
GBP	6.1%	RUB	0.54%
JPY	4.4%	PLN	0.28%
CHF	1.7%	MXN	0.23%
NZD	1.18%	CZK	0.20%
CAD	0.95%	HUF	0.09%
Other	1.58%	Other	0.13%

Source: Bloomberg.

rate swap spreads, that is, high volume issues took place at times when the potential issuers could anticipate a considerable income from the difference between the interest on the bond and the yield realised on the interest rate swap. As a rule, issuers used the obtained New Zealand dollar liquidity – through interest rate swaps – to finance New Zealand banks (Drage et al., 2005).

South Africa started the issue of eurorand bonds late 1995. Until 1997 the market showed relatively modest expansion, in 1996 bonds worth 1 billion USA dollars were issued. The breakthrough came in 1997, when the value of eurorand bonds, including 10- and 30-year securities reached as high as 15 billion dollars (IMF, 1997). The issuers used the rands received for purchasing South African instruments (government securities). In the past years, evolution of the eurorand market has continued, and the currently outstanding bond portfolio exceeds the value of eurokiwi bonds outstanding.

Compared to these countries, the market of euroforint bonds only saw a slight development over the past ten years. The portfolio of bonds issued in forint by foreign economic agents abroad amounted to just approximately 520 billion forints at the end of March 2010. Nearly 70 percent of this portfolio comprises plain vanilla bonds, the rest consists of ABSs, CDOs and securities tied to various indices. As for the issuers, basically three groups can be distinguished: international organisations, financial institutions operating a subsidiary in Hungary and banks pursuing business operations independently from Hungary.

Financial institutions operating a subsidiary in Hungary account for 10 percent of euroforint bond issues. In their case (e.g. Erste, Citigroup, KBC, Unicredit) the issues could

have served to hedge their asset-side forint exposure (loan from the parent company).

The bonds issued have an average term of 3 years, while the average volume of the individual series is 7 billion forints, being somewhat higher in the case of supranational banks and lower for the other issuers. Forint bonds issues by supranational financial institutions account for nearly 55 percent of the entire market. This ratio is essentially the same as in the case of the currencies of other emerging economies. We can reasonably assume that similarly to the case of the other examined countries, the appearance of issues by supranationals also stimulated the market in Hungary.

The question arises why has the euroforint bond markets remained relatively immature compared to the eurokiwi and eurorand markets. One of the most notable reasons is that of the transactions described above, *cross currency basis swap* became available in Hungary only after foreign exchange liberalisation. At the same time, as demonstrated below, on the one hand, during the period elapsed since, the pricing of the interest rate swaps shown in the financing model has scarcely allowed potential issuers to realise a profit on the issue, while on the other hand, lead manager banks incurred a loss on the interest rate swaps already concluded due to the subsequent evolution of short-term forint and euro interest rates.

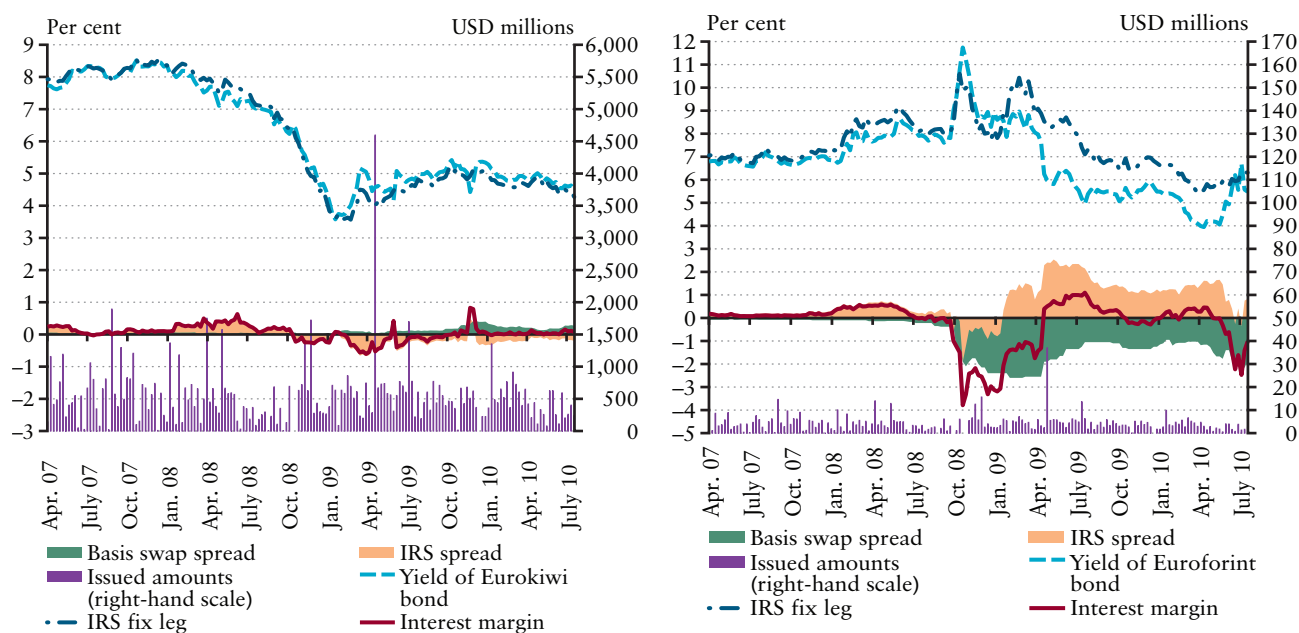
MOTIVES OF THE ISSUERS

Beyond inter-bank borrowing, the fund-raising operations of supranational banks are also complemented by the cross currency interest rate swaps described above. In the course of the latter, bond issue generally takes place without a pre-defined issue plan and without targeting a specific currency basket.

⁶ EBRD, EIB, World Bank.

Chart 3

Yields on 3-year bonds issued in New Zealand dollar (on the left) and forint (on the right), vs. interest rate swap yields and bond issue volumes



Forrás: Bloomberg.

Issues are primarily determined by demand, that is the requirements of the ultimate bondholders. It is only worthwhile for a bank to issue a bond denominated in a high interest currency if the associated transactions can drive the cost of financing below the level of the interest on alternative dollar or euro financing. In a cross currency interest rate swap transaction, the supranational issuer receives the fixed leg of the New Zealand interest rate swap and pays the 3-month USD LIBOR. The difference between the fixed leg of the interest rate swap and the yield of the bond, adjusted by the cross currency basis swap spread will reduce the cost of funds for the bank by a fixed amount, which in this case corresponds to the 3-month USD LIBOR.

If the balance of these cash flows exceeds the sum paid as interest on the issued bond, the margin will be positive. At the time of making the decision on the issue, the question arises whether the amount of the 3-month USD LIBOR and the bond yield will exceed the New Zealand interest rate swap yield and the interest of the credit – tied to LIBOR – placed. In case of issues of bonds with a 3-year maturity during the period preceding the bankruptcy of Lehman Brothers, interest rate swap transactions reduced the cost of funds by an average of 20 basis points annually in the case of New Zealand dollar (see Chart 3).

Though this level falls behind the 30-60 basis points typically attained in the second half of the 1990s – the period of rapid

expansion in eurokiwi issues – the volume of issues has not decreased substantially. Since October 2008 the spread has been mainly negative, and this resulted in a fall in the volume of issues. In the case of forint issues, the spread was considerably higher in the past three years, at 35-40 basis points on average in 2007–2008, then falling to around 0 basis point from the second quarter of 2009. Nevertheless, forint-denominated bonds were issued less frequently and in lower amounts than eurokiwi bonds. Though the negative interest margin poses a tangible barrier to the issuers, during periods when issues failed to increase despite a positive margin, the reason behind the relative unpopularity of these transactions should be sought on the demand side.

MOTIVES OF HUNGARIAN BANKS

Currently, the conditions for raising fixed-interest forint funds abroad are still unfavourable in the Hungarian banking system, even if domestic companies and households would generate demand. To realise the forint borrowing transaction described in this article, Hungarian banks should have substantial excess foreign currency liquidity or should at least be able to raise such funds on the international inter-bank market. Currently, the majority of Hungarian banks is in the opposite position.

In the balance sheet of the Hungarian banking system, there is a discrepancy between the currency composition of assets

and liabilities; this situation has evolved during recent years because the expanding foreign currency lending is mainly offset by forint deposits on the liability side. Accordingly, domestic banks have an exposure against forint (*long* foreign currency, *short* forint position) in their balance sheet. Closing of the entire open position is ensured by FX swap transactions. However, from the bank's perspective the forward leg of the foreign exchange swap transactions – appearing as an off-balance sheet item – represents foreign currency liability and a concurrent receivable in forint, thus it results in the closure of the total open foreign exchange position (balance sheet and off-balance sheet) (Table 4).

Thus, in previous years Hungarian banks have acted as borrowers of an increasing amount of foreign currency by using FX swap transactions (Chart 4). This strong demand for foreign currency and supply of forint has been clearly reflected in the evolution of a cross currency basis swap spreads since October 2008 as a result of the decline in inter-bank euro liquidity, and later the reduced risk propensity limits towards the Hungarian banking system. The negative cross currency basis swap spread means that a Hungarian bank with abundant forint liquidity will pay lower interest on the forint received in the course of a cross currency basis swap than the short-term inter-bank rate. In other words, a Hungarian bank experiencing tension in foreign currency liquidity would only be willing to lend euros to a foreign bank if it received the short-term EURIBOR interest and the forint funds borrowed in the transaction secured an extra income offsetting the effects of giving up its euro liquidity.

The Hungarian banking system would only be capable of integrating this transaction in the financing model specified in the section entitled “The issue procedure in the case of a

supranational issuer” if its open foreign exchange positions recognised in its balance sheet decreased markedly by either downsizing the volume of foreign exchange loans or by increasing the foreign currency liabilities. Although this is not possible in the short run, in the longer term this barrier most likely be removed by the gradual decrease in the FX-loan portfolios.

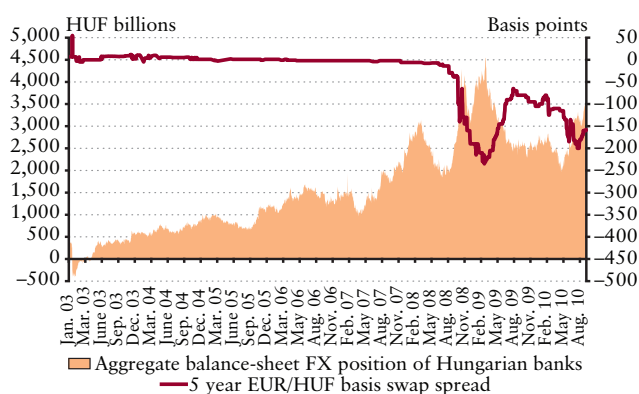
MOTIVES OF INVESTORS

According to anecdotal information, Eurobonds are purchased by institutional investors with a conservative risk profile on the one hand, and small investors of developed countries, on the other. Typically they are willing to take no or only minimal credit risk, but at the same time, seeking to realise a higher interest they are not deterred by an exchange rate risk. They primarily seek foreign currencies supported by a credible and prudent economic policy which mitigates the risk of sudden exchange rate depreciation. Another advantage is a clearly defined factor which influences the exchange rate, e.g. commodity prices offers the potential for the appreciation of the given currency in the long run.

Below we provide a more detailed analysis of three currencies in which supranational banks issued eurokiwi-type bonds. Seeking the explanation for the varying interest of investors in these three currencies, we compare the bonds denominated in forint which is relevant to us, the quasi traditional New Zealand dollar-based bonds and the South African rand-based bonds issued in a considerable volume.

We compare the performances and risk levels relating to bonds issued by supranational banks, with those of portfolios comprising the government bonds of these countries, as well as with those of the *carry trade* positions taken up in respect of the examined currencies. We simulate these three investment strategies in respect of the three currencies based on monthly data for the period between January 2007 and August 2010 and converted to US dollar. We provide three explanations for the investor attitude towards eurokiwi-type bonds. Our first hypothesis is that bond buyers possibly find bonds issued in high yield currencies but also having a relatively stable exchange rate more appealing. Secondly, we assume that AAA-rated bonds denominated in the currency of countries with riskier government securities are higher in demand than those of countries where the government securities are nearer to the AAA rating. We derived this assumption from the fact that investors who may only carry low-risk (e.g. rated AA or higher) securities are able to undertake a risk in New Zealand dollar by buying government securities, but can only do so in forint by buying low-risk euroforint bonds. Thus, euroforint bonds could yield a higher margin for them

Chart 4
Evolution of the foreign currency demand of Hungarian banks and cross currency basis swap spreads



Source: Bloomberg, Reuters, MNB.

Table 2**Comparison of investment strategies in the case of the three examined currencies**

	AAA-rated eurobond investment		Government bond investment		Carry trade on the FX-market	
	Annualized return	Sharpe ratio	Annualized return	Sharpe ratio	Annualized return	Sharpe ratio
NZD	2.34%	0.10	5.85%	0.29	8.36%	0.41
HUF	1.17%	0.05	2.69%	0.10	5.38%	0.30
ZAR	-6.27%	-0.27	-0.97%	-0.05	9.65%	0.47

Source: Bloomberg, Datastream.

than eurokiwi bond. Furthermore, we also assume that regardless of the above mentioned two factors, among Eurobonds, securities with a higher Sharpe-ratio⁷ will be preferred.

We map the motives and alternative investment options of the investors by examining the abovementioned three strategies. The results verified our first hypothesis only partially. Eurokiwi bonds boasted the highest Sharpe ratio (Table 2), which is consistent with the fact that they attract the most intense interest among investors, based on the frequency and amount of these issues. Based on the volumes issued and their inherent risk level, we expected that eurorand bonds would ensure a more favourable yield than euroforint bonds. However, this assumption was not underpinned by evidence, which may imply that the buoyant demand for eurorand bonds is significantly influenced by factors which cannot be identified with quantitative methods. In addition, it may be reasonable to deduce that the demand for eurorand bonds is driven by market actors which are able to hedge the tranche of the yield arising from exchange rate fluctuations. These investors are probably South African residents.

Our assumption that bond buying investors possibly prefer bonds issued in currencies yielding high interest, but also having a relatively stable exchange rate was not verified. The yield realised by those pursuing a carry trade strategy significantly exceeded that of Eurobond investments. This may imply that *carry trade* strategies are played in the foreign exchange market rather than on the Eurobond market.

The findings seem to support our assumption that in the case of countries issuing government securities with weaker ratings, investors may find Eurobonds more appealing. During the period under review, New Zealand government bonds were rated 'AAA', South African government securities

'A+' while Hungarian government securities were downgraded from 'BBB+' to 'BBB-'. During this period, of the three government securities portfolios, a positive yield could be realised on the forint and New Zealand dollar portfolios, while those holding South African government securities incurred a loss. For those investors whose risk management principles did not set an effective restriction as to credit rating, buying government securities proved to be a more valuable investment than buying Eurobonds, in the case of all three currencies. This also means that those investors for which credit rating posed an effective limitation could only by AAA-rated Eurobonds, nevertheless, the performance of their portfolio did not significantly differ from that of the government securities portfolios.

CONCLUSIONS

Despite the small number of issuers, eurokiwi-type bonds have a relatively liquid market. Although hypothetically this market allows domestic sectors to hedge the exchange rate risk of external debt, there are only a few examples for its actual realisation among small, open economies. In the case of countries where issuers were able to achieve a positive interest margin on the transaction in recent years, the volume of the outstanding bond portfolio is relatively high. Although in the case of Hungary there is a significant surplus between the bonds to be issued and the interest rate swap yields with corresponding maturities, issuers would sustain a loss on bond issues due to the deeply negative value of the cross currency basis swap spread. As for cross currency basis swaps – reflecting the strong need of the banking system for liquid foreign currency – have been in the negative band for years in Hungary. Any positive development could only be observed in the event of a fundamental change of the key underlying factors; however, this is unlikely to happen over the short run as it would require a change in the sign of the open balance sheet positions of the banks, which can only take place

⁷ The Sharpe ratio is a measure of the excess return per unit of volatility on an asset carrying a risk. In other words, from among investments having the same volatility (identical risk) the one yielding the highest return will have the highest Sharpe ratio. This investment will compensate the investors to the largest extent for the given risk taken. A negative Sharpe ratio indicates that the given investment secures a lower return than a risk-free yield.

concurrently with phasing out their foreign exchange loan portfolio. There are several reasons for not applying this financing method in Hungary instead of intensifying foreign exchange lending operations in the previous years. On the one hand, borrowers having compared the levels of exchange rate risk and interest rates found foreign currency loans more attractive than forint loans which, though they carried no exchange rate risk, were characterised by somewhat higher interest rates. On the other hand, investors showed a modest interest in euroforint bonds on the international financial market, largely attributable to the sizeable supply of Hungarian government securities offered to market agents intending to take up a forint position. Thus, only a relatively narrow set of investors – forced by their risk management rules – could opt for euroforint bonds only.

Over the long run, the Hungarian banking system will only be able to tap the euroforint market and draw on forint funds with longer re-pricing periods abroad if becoming indebted in forint becomes attractive for domestic borrowers, and concurrently foreign savers and investors consider macroeconomic prospects sufficiently reliable and appealing to assume the exchange rate risk.

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