
A safe haven: international demand for Swiss francs during the euro area debt crisis

By Raphael A. Auer ¹

How large was the international demand for CHF during the peak of the European debt crisis, through what channels was this demand realised, and what are the financial risks created by the rapid inflow of funds? Whereas the demand for CHF during earlier periods can be attributed to both domestic residents and non-residents, this paper focuses on the demand from non-residents and documents that from August 2011 to February 2013, parties from outside Switzerland accumulated CHF 132 billion via Swiss bank accounts and increased their exposure by a further CHF 42 billion through ownership of CHF-denominated bonds and shares of Swiss companies. Most of these positions were acquired through banks that are physically located in Switzerland, but foreign-owned. In particular, CHF 78 billion were accumulated through the Swiss branch offices of foreign-domiciled international banks, which caused the balance sheets of those branches to increase almost fivefold. Despite the large amounts involved, the financial stability of these branch offices would not be threatened should the safe-haven flows reverse sharply at some point in the future. The reason is that the inflows are almost entirely invested in sight deposit accounts at the Swiss National Bank (SNB) and can thus be withdrawn at short notice without creating financial turmoil.

¹ This paper draws on studies by Lukas Altermatt, Romain Baeriswyl, Marco Huwiler, and Pinar Yesin. I would like to thank them along with Adrien Alvero for excellent research assistance. The views presented in this paper are those of the author and not necessarily those of the Swiss National Bank.

1 Introduction

Political stability, sound fiscal and monetary policy, and the resulting steady macroeconomy make the CHF the quintessential safe-haven currency to which Swiss investors return and international investors flock in times of crisis.

The safe-haven nature of the CHF poses a challenge for the Swiss economy as the CHF tends to appreciate whenever a global crisis looms. This pattern has been especially pronounced in recent years. Against a backdrop of substantial appreciation during the 2008–2009 global financial crisis and the subsequent emergence of concerns about government solvency in some European countries, the Swiss currency skyrocketed in late 2010 and throughout the first three quarters of 2011 as the euro area debt crisis became increasingly severe.

The resulting overvaluation and the associated deflationary pressure led the SNB – in the face of interest rates close to zero and no other policy options – to impose a minimum exchange rate of CHF 1.20 against the euro on 6 September 2011, a policy that remained in place until 15 January 2015.

While the minimum exchange rate was being upheld, the SNB had to intervene whenever demand for the CHF exceeded supply at the minimum rate. In late 2011 and in 2012, the SNB intervened on foreign exchange markets to the extent of CHF 17.8 billion and CHF 188 billion respectively.²

How much did international investors' search for a safe haven drive the SNB's interventions after the introduction of the minimum exchange rate, through what channels was this international safe-haven demand realised, and what are the financial risks created by the rapid inflow of funds?

To answer these three questions, this paper quantifies the flight of international capital into the CHF for the period around the introduction of the minimum exchange rate up to the subsequent peak of the European debt crisis.

Overall, the analysis finds that from August 2011 to February 2013, parties not resident in Switzerland ('non-residents') increased their net CHF positions by CHF 132 billion via commercial banks. This increase was most intense around the Greek election in mid-2012, with non-residents' CHF positions increasing by around CHF 69 billion in the three months following April 2012.

In addition to engaging in business transactions with banks, non-residents can also obtain a CHF position by buying Swiss shares, bonds or other assets in Switzerland. Information collected by the SNB on the ownership of such assets by non-residents reveals that non-residents increased their CHF exposure in the period under review by a further CHF 42 billion through fiduciaries, raising their holdings of CHF-denominated bonds and ownership of Swiss companies.

Thus, the paper's first finding is that during the narrow period from August 2011 to February 2013, international investors were substantial counterparties of the SNB's interventions.

The revealed importance of non-residents during the period under review contrasts sharply with the patterns of capital flows prevailing in the time after 2007 and leading up to late 2011. During that period, both private capital inflows and outflows displayed a pronounced home bias (cf. Yesin (2015)). The associated repatriation of foreign assets by Swiss residents resulted in net capital inflows to Switzerland.

The paper's second finding is that foreign-owned banks played a prominent role in the build-up of non-residents' CHF positions. Most of these positions were accumulated through banks physically located in Switzerland, but owned by foreign parties.

² Cf. Swiss National Bank (2012 and 2013b). Without the minimum exchange rate, a net capital inflow to Switzerland from non-residents is by no means a necessary condition for a safe-haven appreciation. Since the exchange rate is a flexible price that can be volatile even if portfolio flows change only a little, the safe-haven status of a currency with a flexible exchange rate causes an appreciation but only small net capital flows. However, once the monetary authority introduces a binding minimum rate, further safe-haven effects are generated via quantities and thus lead to capital flows into the currency. Reynard (2008), Ranaldo and Söderlind (2010), and Grisse and Nitschka (2013) quantify the safe-haven factors that move the Swiss exchange rate.

In particular, CHF 78 billion of non-residents' positions were accumulated through the Swiss branch offices of internationally active foreign-domiciled banks. This amount is extremely large considering that, in early 2010, the combined balance sheet size of these branch offices was a mere CHF 21 billion, which subsequently increased to CHF 103 billion by the end of February 2013. Safe-haven flows thus caused the balance sheets of these branch offices to rise almost fivefold.³

The paper's third finding is that despite the large amounts involved, the stability of the Swiss banking system would not be threatened should these safe-haven flows reverse sharply at some point in the future.

The key finding regarding financial stability is that the size of positions that materialised through branches of foreign banks is not directly a cause for concern because the funds involved were not used to expand the domestic credit activity of branches, which would have transformed maturities or created other exposures. Rather, the funds are almost entirely invested in sight deposit accounts at the SNB. Since these funds are accessible on a short-term basis, the financial linkages can be resolved quickly, and a reversal of these safe-haven flows would not substantially threaten financial stability. The direct effect of reversing safe-haven flows is therefore likely to be small.⁴

This paper is structured as follows: Section 2 shows the channels through which international investors can obtain an exposure in CHF and examines how such exposures are reflected in Swiss or international statistics. Section 3 quantifies the importance of each of the potential channels, and section 4 contrasts the total uncovered amounts with the evolution of the SNB's foreign exchange rate reserves. Section 5 concludes.

³ Foreign-domiciled banks operate in Switzerland and Swiss corporations also engage in banking transactions with banks domiciled outside Switzerland. Because Swiss firms tended to accumulate CHF positions on their bank accounts abroad during the European debt crisis, this channel reduced the total CHF net position of non-residents in Switzerland.

⁴ However, the possible interest rate normalisation associated with a reversal of safe-haven flows might have indirect effects on financial stability.

2

How to trace non-residents' CHF positions in the data

Although anecdotal evidence for the flight into the CHF is abundant (cf., for example, Bollen (2011) or Mattich (2011)), quantifying the involved amounts and the channels through which the money flows is complicated by the fact that foreign investors do not report their overall position in CHF, or the way they have acquired it, to any public authority.

This section therefore discusses how Swiss datasets that include information on the CHF position of non-residents can be combined to quantify the overall exposure.

2.1. DEFINING NON-RESIDENTS' CHF POSITIONS, RESIDENCY VERSUS OWNERSHIP, AND THE TIME PERIOD OF INTEREST

This paper quantifies the amount by which international investors – i.e. those investors residing outside Switzerland – increased their exposure in CHF during the European debt crisis. ‘Domestic’ and ‘foreign’ is based on the principle of economic residency as defined in the System of National Accounts (cf. United Nations (2008)): a Swiss citizen residing in London is counted as a non-resident in the analysis, while a British citizen living in Zurich is counted as a Swiss domestic resident.⁵

This paper analyses monthly data from the beginning of August 2011 up to the end of February 2013. It thus includes a full month before the introduction of the minimum exchange rate on 6 September 2011.

The reason for choosing this start date is that the SNB had already put in place other measures to absorb the spiking demand for CHF before introducing the minimum exchange rate.⁶ Only when these alternative measures on their own proved insufficient to counter the safe-haven

⁵ With this definition of ‘non-residents’ CHF position’, any CHF purchase by a non-resident corresponds to an inflow of CHF funds from abroad, i.e. an international capital flow. This definition makes this paper comparable to international capital flow data. It also corresponds to the definition of cross-country exposures in the locational banking statistics of the Bank for International Settlements (BIS).

⁶ On 3 August 2011, the SNB aimed to bring the official target interest rate “as close to zero as possible” (cf. Swiss National Bank (2011a)) and expanded sight deposits from CHF 30 billion to CHF 80 billion. On 10 August, the SNB again expanded sight deposits to CHF 120 billion and also announced that it would conduct foreign exchange swap transactions to accelerate the increase in CHF liquidity (cf. Swiss National Bank (2011b)). On 17 August, the SNB yet again expanded sight deposits, this time to CHF 200 billion, noting that it would continue to employ foreign currency swaps (cf. Swiss National Bank (2011c)). Because the currency swaps substantially affected the balance sheets of both the SNB and its counterparties, the analysis of this paper starts on 1 August 2011.

pressure that led the Swiss franc to appreciate did the SNB’s Governing Board decide to introduce the minimum rate on 6 September.

The period analysed in this paper closes at the end of February 2013 since concerns about the stability of the euro area and, in consequence, international demand for CHF had levelled off substantially by that date. After the statement by Mario Draghi on 26 July 2012 (cf. Draghi (2012)) that the European Central Bank would do “whatever it takes to preserve the euro,” the yields of government debt in the euro area’s troubled economies decreased markedly. However, this did not happen at once, but only gradually. Yields continued to decrease until early January 2013 in Greece, Portugal and Spain, and until February 2013 in Ireland and Italy. The fear of a breakup of the euro area during this period of decreasing, yet still elevated, government yields could well have been a factor in the international safe haven flows into the CHF. The analysis of this paper thus ends in February 2013.⁷

2.2. POTENTIAL CHANNELS AND HOW TO IDENTIFY THEM IN OFFICIAL DATA

Identifying non-residents’ CHF positions is difficult because foreign authorities do not publish information on the CHF positions of their residents. Furthermore, while data on international capital flows are readily available, the currency denomination of such flows is not.

To overcome this problem, the analysis infers CHF positions by non-residents from statistics that their Swiss counterparties collect. For example, if a Spain-based private customer opens a CHF account at a Swiss bank, the Swiss bank will include the balance of this account as a CHF-denominated liability to a non-resident party in its balance sheet. The CHF position of foreign investors can thus be inferred from the balance sheet information of Swiss banks.⁸

How can non-residents increase their CHF positions against domestic counterparties? Chart 1 shows that if non-residents wish to raise their CHF holdings on bank accounts, they either go directly through a bank registered in Switzerland or they rely on a bank registered abroad. If the latter bank does not have a sight deposit account at the SNB, it passes on the CHF exposure to another bank that does. Through this process, nearly all non-residents’ CHF positions ultimately end up as either sight deposits held by a foreign-domiciled bank at the SNB or as CHF

⁷ Subsequent events in late 2014 and early 2015 have proved that the perception of the CHF as a safe haven persists. However, in as much as the nature of the euro area debt crisis has evolved since the start of 2013, and since geopolitical concerns might also have affected the international demand for CHF during late 2014 and early 2015, this period requires separate analysis that is left for future research.

⁸ These insights are obvious to any observer with knowledge of the concept of double-entry accounting. Any account balance that is an asset to one party is a liability to another, and the magnitude of the balance can be inferred from either of the two balance sheets.

liabilities of a bank registered in Switzerland against a counterparty based abroad.

Since non-residents mostly conduct such transactions through banks, increases in non-residents' CHF positions are thus reflected by increases in CHF liabilities against foreign counterparties in either the Swiss banking statistics or in the SNB's balance sheet. Building on Altermatt and Baeriswyl (2015), sections 3.1 and 3.2 of this paper examine Swiss banking statistics and the SNB's balance sheet in order to quantify non-residents' CHF positions.

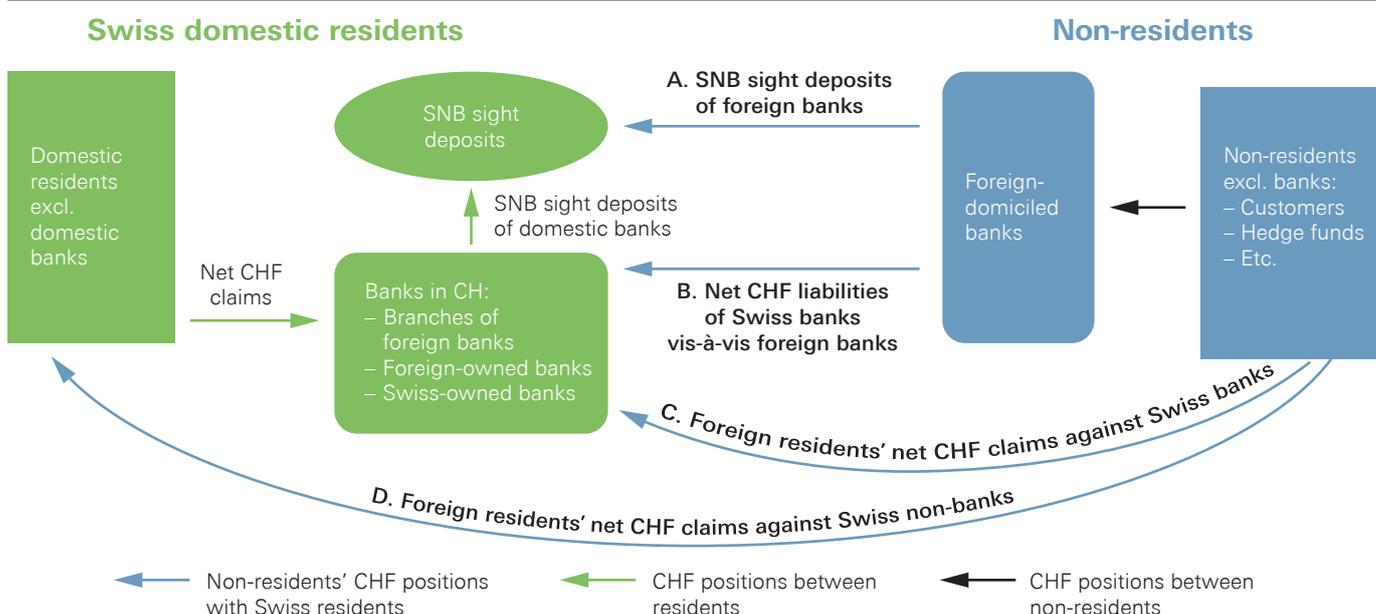
The data coverage of the banking statistics and the SNB balance sheet statistics is not complete (cf. chart 1, channel D). In addition to the problem that only on-balance-sheet positions are reported – thus omitting positions in derivatives – an important data limitation is that Switzerland is home to many multinational corporations engaging in banking transactions with non-Swiss banks (banks domiciled outside Switzerland). Such transactions are not recorded in the Swiss banking statistics because only foreign banks are involved. They are, however, recorded in the statistics of the banks' country of domicile. The latter are collected by the BIS's International Banking Statistics, which also

include information on whether funds are denominated in CHF. These data are analysed in section 3.2.2.

Data on CHF positions built up against Swiss non-banks are not included in the banking statistics either (cf. also chart 1, channel D). For example, if a non-resident customer opens a CHF account at a Swiss fiduciary, this transaction is not reflected in the banking statistics (a separate set of statistics for such transactions does exist, however). Furthermore, if non-residents acquire securities denominated in CHF (such as Swiss government or corporate debt), the increase in non-residents' CHF positions is not visible in the banking statistics. Section 3.3 quantifies the importance of such alternative channels.

Chart 1

DIFFERENT WAYS FOR NON-RESIDENTS TO INCREASE THEIR CHF EXPOSURE



Source: SNB

3

Tracing CHF demand by non-residents

This section quantifies the various ways in which non-residents obtain CHF exposures, using a variety of statistical data sources. Exposures arising from transactions that are conducted through banks domiciled in Switzerland are included in the Swiss banking statistics, while exposures from transactions that go through banks domiciled outside Switzerland are visible in the BIS's international banking statistics and the SNB's balance sheet. Finally, information on exposures that do not involve banks is included in data on the ownership of Swiss shares and bonds.

3.1. POSITIONS OF NON-RESIDENTS VIA BANKS LOCATED IN SWITZERLAND

All banks with a physical presence in Switzerland are overseen by the Swiss authorities and deliver information on their balance sheet exposures to the SNB. Quantifying

the business they undertake with non-residents is thus possible using the Swiss banking statistics.⁹

Non-residents increased their CHF positions in the period under review by engaging in transactions with three distinct categories of banks: branches of foreign banks, foreign-owned banks and Swiss-owned banks.

All three bank categories are Swiss residents as they are physically located in Switzerland. However, both branches of foreign banks and foreign-owned banks are owned by parties located abroad.

Chart 2 provides the definitions of these three bank categories and also explains the importance of each category for the accumulation of non-residents' CHF positions. Non-residents' on-balance-sheet CHF positions with respect to commercial Swiss banks located in Switzerland grew by a total of CHF 128 billion between August 2011 and February 2013.

⁹ The analysis of this section draws on Altermatt and Baeriswyl (2015), who document the counterparties of the various liquidity operations the SNB has implemented since the onset of the financial crisis in 2007. This paper builds on their basic insight, focusing however only on the impact of the minimum exchange rate, and explores the role of various bank types and their foreign customers as counterparties of the SNB after the adoption of the minimum exchange rate.

Chart 2

OVERVIEW OF INCREASE IN FOREIGN RESIDENTS' CHF POSITIONS FROM 08/2011 TO 02/2013

Bank location	Bank/account category	Description/hypothetical example	Increase In CHF billions	See section
Banks located in Switzerland	Branches of foreign banks	Branch offices of foreign-domiciled banking corporations such as 'J.P. Morgan Securities plc., London, Zurich office'	78	3.1.1
	Foreign-owned banks	Swiss-domiciled banks that are more than 50% foreign-owned. For example, 'Deutsche Bank (Switzerland) Ltd', which is not a branch office of a foreign bank	11	3.1.2
	Swiss-owned banks	'True' Swiss banks such as UBS or ZKB. Only bank offices located in CH are included (i.e., excludes 'UBS Frankfurt')	39	3.1.3
Foreign-domiciled banks (does not include branches of foreign banks in Switzerland)	SNB sight deposits by foreign-domiciled banks	Foreign-domiciled banks such as 'Barclays UK' that have a sight deposit account at SNB	9	3.2.1
	International accounts of Swiss residents with foreign-domiciled banks	Nestlé's CHF-denominated account at a UK-based bank	-5	3.2.2
All CHF positions taken on via the banking system			132	

Source: SNB

The most important bank category for meeting non-residents' CHF demand was that comprising Swiss branch offices of foreign-domiciled banks ('branches of foreign banks'). In total, non-residents' CHF positions increased by CHF 78 billion through these branches. The second category comprises banks registered in Switzerland that are not branches of foreign banks, yet are still majority-owned by foreign companies ('foreign-owned banks'). Non-residents' on-balance-sheet CHF positions built through foreign-owned banks rose by CHF 11 billion in the period under review. The third category is made up of 'true' Swiss banks, that is, banks that are both Swiss owned and located in Switzerland ('Swiss-owned banks'). Non-residents' on-balance-sheet CHF positions increased by CHF 39 billion through this category in the period under review.

Banking statistics do not include off-balance-sheet CHF positions that non-residents might have acquired through the use of derivatives. The analysis thus takes a detailed look at the balance sheets of the various bank types in order to gauge the likely off-balance-sheet CHF positions. It is vital to understand the incentives for building up off-balance-sheet CHF exposures since no official statistics on such exposures exist.

This analysis reveals that it is unlikely for branches of foreign banks or Swiss-owned banks to have engaged in sizeable off-balance-sheet CHF positions through derivatives, as their on-balance-sheet CHF exposures were almost perfectly hedged. Banks try to minimise the overall currency risk they carry. Because the examined banks are hedged through the offsetting of foreign and domestic CHF positions on their balance sheets, it does not make sense for them to engage in large off-balance-sheet CHF positions.

3.1.1. Swiss branches of foreign banks

Branches of foreign banks typically are the Swiss branches of foreign-domiciled banks, such as 'J.P. Morgan Securities plc., London, Zurich branch'. Such branches of foreign banks are registered in Switzerland and thus included in the Swiss banking statistics. The SNB's banking statistics guidelines note that branches of foreign banks are mostly branch offices of foreign-domiciled international banking corporations.¹⁰

These foreign-domiciled international banking corporations can deposit funds at the SNB if they have branch offices in Switzerland. To do this, the foreign-domiciled bank transfers funds to its Swiss branch office and the branch office then deposits the funds in its SNB sight deposit account. The branch's balance sheet subsequently records a CHF claim against a domestic counterparty (the SNB) and an offsetting CHF liability

against a foreign counterparty (the parent bank of the branch office).

Branches of foreign banks play an important role in channelling the build-up of CHF positions by non-residents. Plot I of chart 3 documents the movements in the CHF position that branches of foreign banks have taken against non-residents, while plot II documents the movements in the CHF position that branches of foreign banks have taken against domestic residents (domestic counterparties include the SNB).

Plot I shows movements in CHF-denominated assets (claims) and liabilities of branches of foreign banks with respect to non-residents. An example of a foreign CHF asset is a CHF loan to a firm located in Poland. Such carry trade loans were quite common before the financial crisis (cf. Auer et al. (2009)). Since these contracts are long term, the associated positions still exist (cf. Auer et al. (2012)). An example of a foreign CHF liability is a CHF deposit by the foreign-domiciled parent bank.

The net foreign CHF position of these banks, which is equal to 'foreign CHF assets minus foreign CHF liabilities' (solid blue line), decreased by CHF 78 billion after August 2011. This was because foreign CHF assets (dotted blue line) remained more or less unchanged, while foreign CHF liabilities (dashed blue line) surged. Since the net CHF liabilities of branches of foreign banks towards non-residents increased by CHF 78 billion, non-residents' CHF positions thus rose by the same amount.

Although branches of foreign banks built up CHF liabilities against foreign counterparties, they themselves did not take on any risk as there was a mirroring increase in net CHF claims against domestic residents. Plot II of chart 3 shows movements in CHF assets (dotted green line) against and CHF liabilities (dashed green line) towards domestic residents for branches of foreign banks. While domestic CHF liabilities remained more or less unchanged, domestic CHF assets surged, and so did the domestic CHF position (solid green line showing 'domestic CHF assets – domestic CHF liabilities').

In the aggregate, the total CHF exposure of branches of foreign banks remained close to zero. Plot III of chart 3 shows movements in the net foreign CHF position (blue line, taken from plot I), the net domestic CHF position (green line, from plot II), and the net overall CHF position (red line, equal to the sum of the net domestic position and the net foreign position) of branches of foreign banks.

Branches of foreign banks did not take on any net CHF exposure on their own as is shown in plot III, chart 3. Rather, they served as 'channel vessels' that took on total domestic CHF exposure worth CHF 78 billion and fully unloaded it onto their foreign counterparties (they may also have served directly as clearing banks).

¹⁰ It is worth noting that, because they are located in Switzerland, branches of foreign banks are categorised as domestic residents in Switzerland.

It is unlikely that branches of foreign banks took on sizeable off-balance-sheet net CHF positions through derivatives, as their on-balance-sheet CHF exposure was almost perfectly hedged. Branches of foreign banks precisely offset their decreasing net foreign CHF position with an increasing net domestic CHF position. Banks try to minimise the overall currency risk they carry; since branches of foreign banks are hedged already with their offsetting foreign and domestic CHF positions on their balance sheets, it does not make sense for them to engage in large off-balance-sheet CHF positions.

At the end of the period under review, almost the entire business activity of the branches of foreign banks consisted of channelling CHF liquidity to foreign counterparties (plot IV, chart 3). On the one hand, almost the only domestic CHF assets that these banks owned were sight deposits at the SNB. Plot IV of chart 3 shows movements in domestic CHF assets (green line taken

from chart 3) and compares it to the movements in these banks' SNB sight deposits (purple line). From August 2011 onwards, the overlap was almost perfect.

On the other hand, almost the only foreign CHF liabilities these banks had were those towards foreign-domiciled banks. Plot IV of chart 3 shows movements in foreign CHF liabilities (turquoise line) and compares these to the movements in foreign CHF liabilities towards foreign-domiciled banks (blue line, taken from plot I). Again, after August 2011, the overlap was almost perfect. The foreign CHF liabilities towards banks may actually be towards their parent companies. The ultimate counterparties might be private customers abroad, but information on this cannot be gained from Swiss banking statistics.

Chart 3 Plot I

FOREIGN CHF ASSETS AND LIABILITIES OF BRANCHES OF FOREIGN BANKS

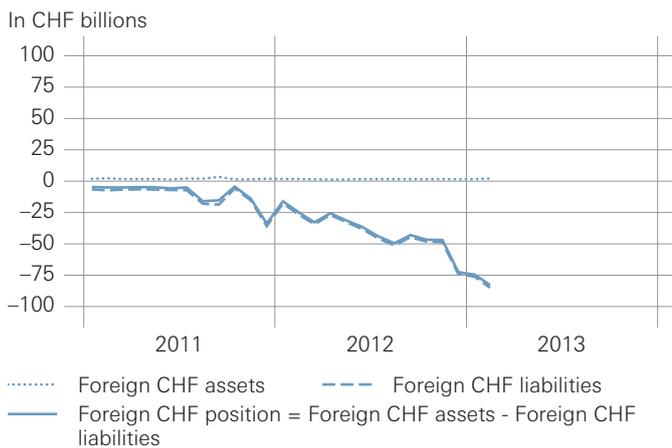


Chart 3 Plot II

DOMESTIC CHF ASSETS AND LIABILITIES OF BRANCHES OF FOREIGN BANKS

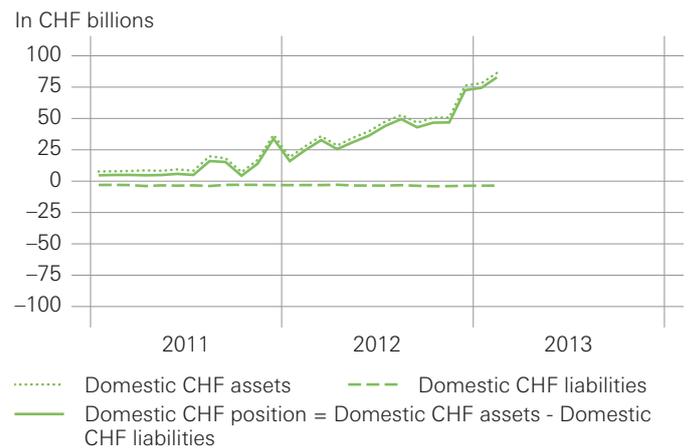


Chart 3 Plot III

OVERALL CHF POSITION OF BRANCHES OF FOREIGN BANKS

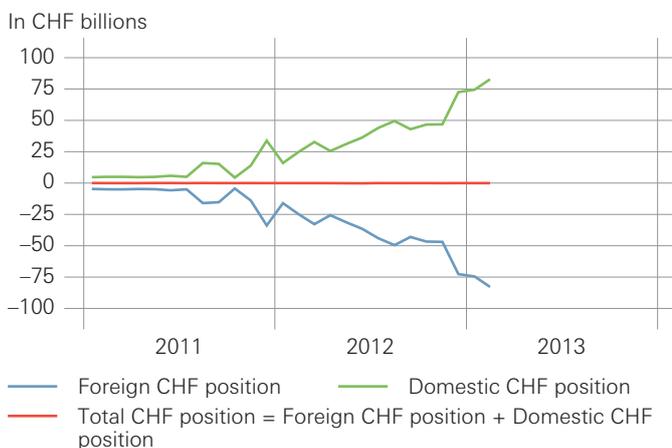
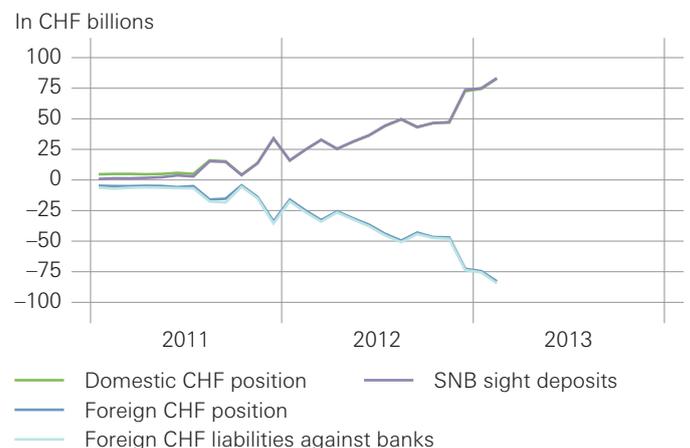


Chart 3 Plot IV

MAIN CHF ASSETS AND CHF LIABILITIES OF BRANCHES OF FOREIGN BANKS



3.1.2. Foreign-owned banks in Switzerland

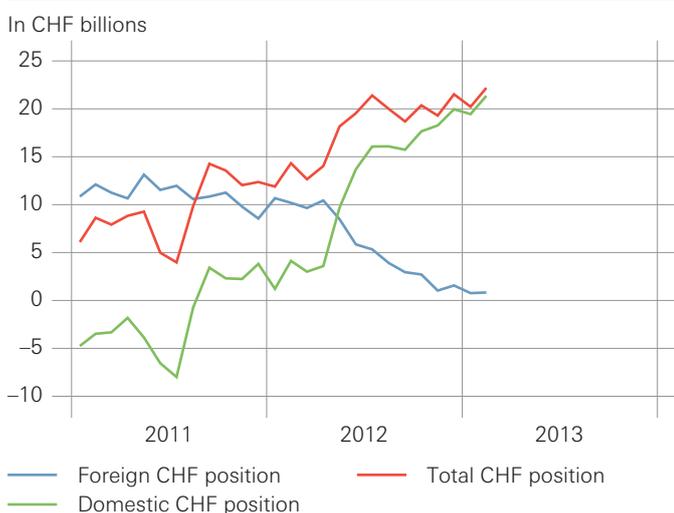
A second category is that of banks controlled by foreigners, yet physically located and registered in Switzerland. In the banking statistics, this category is referred to as ‘foreign-owned banks’. These are not branches of foreign banks since they are legally separate entities for their mother companies, but they are more than 50% owned by foreign parties. This category includes mainly subsidiaries of foreign-domiciled banks such as ‘Deutsche Bank (Switzerland) Ltd’.

Non-residents increased their CHF position with respect to foreign-owned banks by CHF 11 billion. Chart 4 shows movements in the net CHF position of foreign-owned banks with respect to non-residents (blue line), the net CHF position with respect to domestic residents (green line), and the net overall CHF position (red line, equal to the sum of the blue and green lines).

Foreign-owned banks accumulated an additional on-balance sheet exposure worth CHF 18 billion (cf. green line). After August 2011, they increased their net domestic CHF assets by CHF 28 billion (mostly on SNB sight deposit accounts), thus raising their net overall on-balance-sheet CHF exposure by CHF 18 (without rounding, this figure corresponds to the difference between CHF 28 billion and CHF 11 billion). Since these banks are owned by non-residents, these CHF 18 billion thus also increase the CHF exposure of non-residents (an exposure taken into account in section 3.3).

Chart 4

CHF POSITION OF FOREIGN-OWNED BANKS



3.1.3. Swiss-owned banks in Switzerland

‘True’ Swiss banks such as UBS are neither branches of foreign banks nor more than 50% foreign-owned.¹¹ These bank decreased their net foreign CHF position by CHF 39 billion between August 2011 and February 2013 (cf. chart 5, in particular the kink in the blue line in early 2012). This corresponds to a direct increase in non-residents’ CHF positions by CHF 39 billion.

These banks did not take on any CHF exposure on their own. The increase in the domestic CHF position (green line) offset the decrease in the foreign CHF position (blue line), so that the total CHF position of Swiss-owned banks in Switzerland at the end of the period under investigation was more or less equal to what it was before the minimum exchange rate was introduced. Because their on-balance-sheet total CHF exposure did not change substantially after August 2013, it is unlikely that Swiss-owned banks built up any large off-balance-sheet CHF exposure.

3.2. CHF POSITIONS WITH BANKS DOMICILED OUTSIDE SWITZERLAND

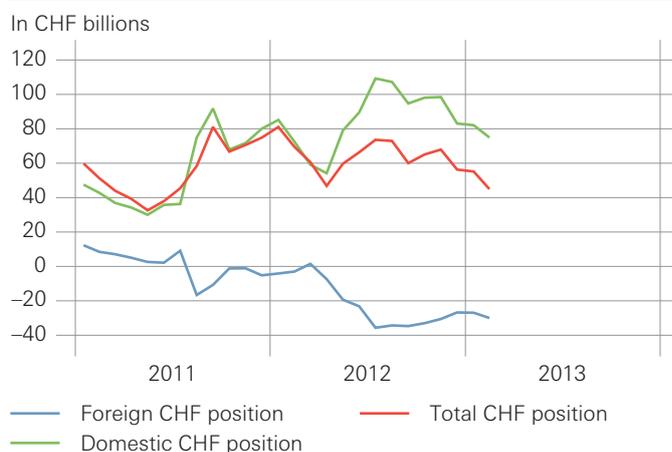
Banks domiciled in other countries and without a physical presence in Switzerland may also hold or owe CHF. These banks are not included in the Swiss banking statistics. However, if they hold CHF on a sight deposit account at the SNB, this exposure is included in the balance sheet of the SNB. By contrast, if the banks have a CHF exposure to a non-bank Swiss counterparty, they report it to their national authority, which in turn delivers these data to the BIS to be included in the BIS banking statistics. The lower

¹¹ Note that only branches located in Switzerland are included in this paper, in order for these statistics to correspond to statistics on international capital flows (i.e. this paper examines only banks which form part of the ‘domestic offices’ reporting entity in the SNB’s banking statistics. This corresponds to the definition of exposures as recorded in the BIS locational banking statistics).

Chart 5

CHF POSITION OF SWISS-OWNED BANKS

Includes only branch offices located in Switzerland



Source: SNB

rows of chart 2 list the two types of transactions that involve relevant CHF exposures.

3.2.1. SNB sight deposits of foreign-domiciled banks

The SNB is unique among central banks in that it allows banks domiciled abroad to participate in its repo system.¹² Consequently, banks that do not reside in Switzerland can also have a sight deposit account at the SNB even if they do not maintain a branch in Switzerland. Chart 6 displays the movements in sight deposits at the SNB for banks that are domiciled abroad and thus not registered in Switzerland. These banks are not included in the Swiss banking statistics. Information on their SNB sight deposits is, however, included in the SNB's balance sheet.

While the increase in such deposits was pronounced in relative terms, the overall increase was small. From August 2011 to February 2013, sight deposits of foreign-domiciled banks at the SNB increased by CHF 9 billion. Non-residents' CHF positions thus grew by CHF 9 billion through the use of SNB sight deposit accounts by banks domiciled abroad. An offsetting factor was that Swiss households and firms could hold CHF-denominated accounts with these foreign-domiciled banks.

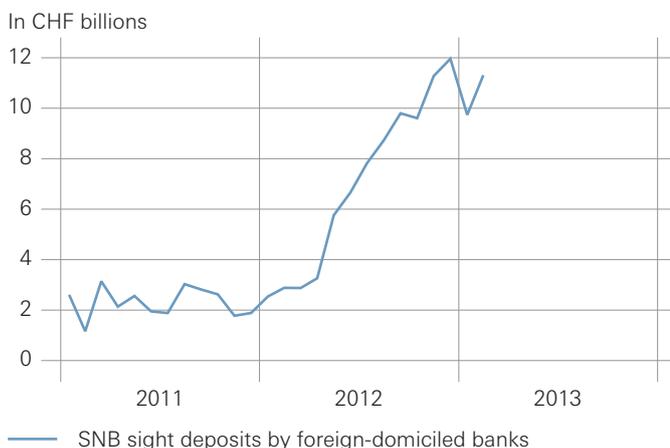
3.2.2. CHF-denominated accounts of Swiss non-bank private sector residents with foreign-domiciled banks

There is a further way in which residents of Switzerland and non-residents can interact through banks. Swiss companies operating internationally usually have accounts with non-Swiss banks, too, and some of these accounts are denominated in CHF.

¹² For a description, cf., for example, Auer and Kraenzlin (2011) and Auer et al. (2012).

Chart 6

SNB SIGHT DEPOSITS BY FOREIGN-DOMICILED BANKS



Source: SNB

From August 2011 to February 2013, banks domiciled outside Switzerland reduced their net claims against Swiss non-banks by CHF 5 billion, which means that the net position of non-residents has been overstated by this amount in the above analysis. Such CHF positions of banks domiciled outside Switzerland with respect to Swiss firms and private customers are visible in the BIS locational banking statistics (in the 'External positions of reporting banks vis-à-vis individual countries – vis-à-vis the nonbank private sector'). Chart 7 depicts the path of this exposure.

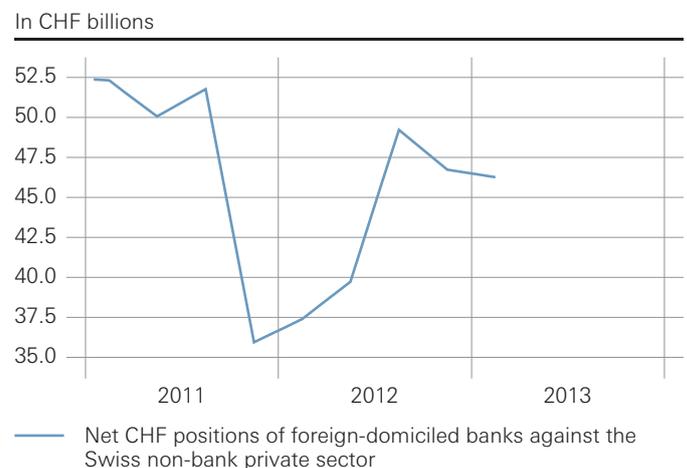
As shown in sections 3.1.1, 3.1.2., and 3.2.1, non-residents' CHF positions increased by CHF 78 billion via foreign branches, CHF 11 billion via foreign-owned banks (likely to be acting on the behalf of their owners domiciled abroad) and a further CHF 9 billion via the use of sight deposit accounts by foreign-domiciled banks. However, the resulting total build-up of non-residents' CHF positions via foreign-owned banks has to be adjusted downwards by CHF 5 billion because these foreign-owned banks were sometimes acting on behalf of their Swiss counterparties. This calculation indicates the complexities involved when defining what positions are ultimately to be deemed foreign in a world with both international banks and internationally active non-bank corporations.

3.3. FURTHER NON-RESIDENTS' CHF POSITIONS THAT ARE NOT VISIBLE ON BANKS' BALANCE SHEETS

Not all increases of non-residents' CHF positions are visible in the balance sheets of banks. For example, if a non-resident first exchanges euros for Swiss francs with the SNB, but subsequently uses these Swiss francs to acquire a holiday home previously owned by a Swiss resident, this increase in the CHF position of non-residents is not visible in the balance sheet of any bank.

Chart 7

CHF POSITIONS OF FOREIGN-DOMICILED BANKS AGAINST THE SWISS NON-BANK PRIVATE SECTOR



Source: SNB

If non-residents purchase Swiss assets, this forces domestic residents to hold more CHF on bank accounts. In an analysis restricted to the banking statistics, such transactions would thus lead to the erroneous conclusion that the counterparties of the SNB intervention are domestic residents.

Statistics on non-resident ownership of Swiss shares and bonds are included in the SNB's detailed yearly report on Swiss banks (cf., for example, Swiss National Bank (2013a)). This dataset includes information on the holdings of securities in bank custody accounts broken down by domicile of custody account holder, also detailing the type of security that is owned by non-residents.

Analysis of data on the ownership of Swiss assets by non-residents shows that the total CHF exposure accumulated by non-residents via these means is equivalent to CHF 42 billion. From August 2011 to February 2013, non-residents increased their holdings of CHF debt issued by non-banks by CHF 4 billion and invested around CHF 20 billion in the Swiss stock market. They also raised their effective CHF exposure by a further CHF 18 billion through the banks they owned.

Non-residents increased their holdings of CHF-denominated debt issued by Swiss non-banks by CHF 4 billion. Of this total, non-residents bought Swiss public debt worth around CHF 2 billion and raised their ownership of other debt products that are issued by Swiss residents and are CHF-denominated by CHF 2 billion. In contrast, the CHF position of non-residents via Swiss fiduciaries did not move substantially.

Non-residents bought approximately CHF 20 billion worth of Swiss shares. The SNB's detailed yearly report on Swiss banks (cf. Swiss National Bank (2013a)) includes information on the holdings of securities in bank custody accounts broken down by domicile of custody account holder. The total value of non-residents' portfolios of Swiss shares advanced from CHF 485 billion in August 2011 to CHF 650 billion in February 2013. However, most of this increase reflects valuation gains and not new purchases, as the broad Swiss stock market index (the Expanded SMI) rose by 40% in this period. Taking into account such valuation effects, it is possible to estimate the net purchase of shares by non-residents. From August 2011 to February 2013, the ownership share of non-residents in the Swiss stock market rose gradually from 58.5% to 60.8%. In view of both the precise way this percentage point increase in foreign ownership was accumulated and the stock market prices prevailing at each relevant moment, it can be concluded that CHF 20 billion of new funds were invested by non-residents in the Swiss stock market.

In addition, a further CHF 18 billion were accumulated domestically by foreign-owned banks in Switzerland. As demonstrated in section 3.1.2, banks located in Switzerland but owned by foreigners accumulated a CHF exposure of CHF 18 billion. Because these CHF 18 billion are owned by non-residents, they increase the latter's CHF exposure and are thus counted as assets owned by non-residents.

Two additional sources of non-residents' CHF positions which might be plausible are increases in CHF cash holdings by non-residents (for which no data exist) and investments in Swiss real estate.

Although data are sparse regarding the purchase of real estate by non-residents, anecdotal evidence suggests that a moderate part of the increased demand for CHF was met via this channel. When non-residents hold Swiss real estate for investment purposes, they mostly do so by investing in stock-market-listed real estate companies. Information on this is thus contained in the data on the holdings of securities in bank custody accounts, broken down by domicile of custody account holder (and already thus contained in the above figure of CHF 20 billion attributed to the purchase of Swiss shares).

Regarding direct real estate purchases, Credit Suisse (2014) concludes that sales and purchases of holiday homes by non-residents actually balanced out in 2011 and 2012. The same study, based on Wüest and Partner (2014), acknowledges that around 10% of commercial property sales may be accounted for by non-residents.

4 Total non-residents' CHF positions and comparison to the SNB's foreign currency reserves

How do non-residents' CHF positions relate to movements in the SNB's foreign currency reserves? Overall, the exposure of non-residents increased by a total of CHF 174 billion, of which CHF 132 billion are recorded on banks' balance sheets, while the remaining CHF 42 billion were accumulated via the purchase of Swiss securities or the ownership of Swiss companies.

Chart 8 shows cumulative changes in the CHF positions of residents and non-residents since 1 August 2011 and compares these changes to cumulative changes in the SNB's foreign currency reserves as of the same date. The blue line in chart 8 reflects the total net on-balance-sheet CHF position of non-residents with respect to the private Swiss banking system, which increased by CHF 128 billion (CHF 78 billion via branches of foreign banks, CHF 11 billion via foreign-owned banks, CHF 39 billion via Swiss-owned banks). The total on-balance-sheet increase in non-residents' CHF positions since August 2011 amounts to CHF 137 billion, since a further CHF 9 billion were directly deposited on sight deposit accounts at the SNB by foreign-domiciled banks. From these CHF 137 billion, one needs to subtract the CHF 5 billion identified in section 3.2.2, which leads to an overall

cumulative exposure of CHF 132 billion over the analysed time horizon (cf. also chart 2 for an overview).

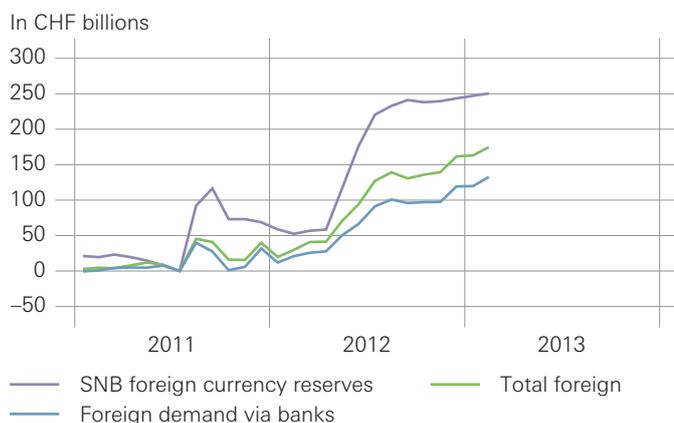
The green line also shows the further net investments of non-residents, amounting to CHF 42 billion via the purchase of Swiss assets or via the accumulation of CHF positions by foreign owned banks (cf. section 3.3).

In total, during the period under observation, non-residents thus absorbed a large part of the SNB's foreign exchange interventions. The SNB's foreign currency reserves increased by CHF 250 billion between August 2011 and the end of February 2013. Note that this figure of CHF 250 billion does not mirror the SNB's foreign exchange interventions precisely due to valuation effects and the foreign currency swap agreements the SNB engaged in during 2011. The SNB intervened on foreign exchange markets by buying CHF 17.8 billion worth of foreign currency reserves in 2011 and CHF 188 billion worth of foreign currency reserves in 2012. Since the SNB does not publish the precise timing of these interventions, chart 8 displays the movements in the SNB's foreign currency holdings as a proxy for the underlying interventions.¹³

It must also be remembered that the results of this paper highlight only a specific period and by no means imply that the upward pressure on the CHF witnessed in the last few years can be entirely attributed to the international search for a safe haven. If one adopts a longer time perspective, the decreasing risk appetite of Swiss residents, that led them to stop investing abroad and in some cases even repatriate their funds to Switzerland, was just as important, if not more.¹⁴

Chart 8

CUMULATIVE CHANGES IN CHF POSITIONS AND SNB FOREIGN CURRENCY RESERVES SINCE JULY 2011



Source: SNB

¹³ Note that the movements in the SNB's foreign currency reserves mirror the path of Target2 imbalances in the euro area, which were driven by a similar search for a safe haven (cf. Auer (2014)).

¹⁴ Cf. Yesin (2015) and also Auer and Tille (2015), who document how the Swiss financial account has coevolved with capital flows into the Swiss banking system since the early 2000s.

5

Conclusions

This paper traces the demand for CHF from outside Switzerland during the peak of the euro area debt crisis. Its three main results show that (i), in the period under review, non-residents were an important counterparty of the SNB's interventions, (ii) while deposits at Swiss-owned banks also increased strongly, substantial non-residents' CHF positions were accumulated through banks physically located in Switzerland, but owned by foreign parties, and (iii) the inflows that foreign branch offices received were directly deposited in sight deposit accounts at the SNB.

An important implication of these findings concerns the nature of how international safe-haven capital flows interact with financial stability in Switzerland, or more precisely the question of whether a sudden reversal of safe-haven flows would cause financial instability in Switzerland and therefore require policy action.

Specifically, the inflow of CHF 78 billion from abroad to foreign branch offices warrants attention. After all, this inflow caused the balance sheets of these branches to increase almost fivefold: in early 2010, the combined balance sheet size of such branch offices was a mere CHF 21 billion, which subsequently increased to CHF 103 billion by the end of February 2013.

Although the amounts involved are staggering, the paper's results imply that the associated risk to financial stability is likely to be limited. This is so because foreign branches directly deposited any inflow of funds in their SNB sight deposit accounts. They did not expand their domestic credit activity, and thus did not transform maturities or create other exposure. Because these funds are deposited on SNB sight deposit accounts, they are accessible instantly should safe-haven capital flows reverse.¹⁵

¹⁵ This discussion concerns only the direct effects of a reversal of safe-haven capital flows. A further, indirect, effect is that with receding safe-haven flows, the CHF would depreciate substantially, thus potentially requiring higher interest rates to guarantee price stability. The SNB's 2014 *Financial Stability Report* (cf. Swiss National Bank (2014)) discusses the implications of such an interest rate hike for financial stability, finding that this could cause considerable losses for domestically operating banks.

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