The SNB Observatory

Profit distribution

Stefan Gerlach, Yvan Lengwiler and Charles Wyplosz

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Our Purpose

Monetary policy is important. It has broad effects across the economy, affecting young and old, poor and rich, savers, home buyers, firms and workers, profits and wages, the business cycle, and the long-term prosperity of the country.

Public debate about monetary policy is vital not only for basic democratic reasons, but also for the SNB to explain its views, and to listen to the views of the public it serves. The SNB Observatory aims to promote such a constructive debate based on facts and economic science.

The SNB Observatory is currently run by Stefan Gerlach, Yvan Lengwiler, and Charles Wyplosz.

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ZUSAMMENFASSUNG

Das rasche Wachstum der ausländischen Investitionen der SNB hat ihre Gewinne im letzten Jahrzehnt erhöht. Doch der Anteil, der ausgeschüttet wird, ist gesunken. Der grösste Teil ist in den kontinuierlichen Aufbau des Eigenkapitals der Zentralbank geflossen. Dies ist nicht nachhaltig, da das Eigenkapital unter den derzeitigen Rahmenbedingungen unbegrenzt wachsen würde, was Ausschüttungen auf Dauer verunmöglichen würde. Allerdings sind Anlagen in fremden Währungen risikoreich und die SNB ist verpflichtet, die Ausschüttungen zu glätten. Beide Anforderungen implizieren, dass sie Reserven hält. Der Bedarf an Reserven muss aber sorgfältig und öffentlich evaluiert werden und darf nicht weiter unbeschränkt ansteigen. Wir formulieren entsprechende Vorschläge.

RÉSUMÉ

La croissance rapide des investissements étrangers de la BNS a augmenté ses bénéfices au cours de la dernière décennie. Pourtant, la part distribuée a diminué. Une part beaucoup plus importante a été consacrée à l'augmentation continue des fonds propres de la banque centrale. Cette situation n'est pas durable car, selon le cadre actuel, les fonds propres augmenteraient sans limite, rendant les distributions impossibles à long terme. Certes, les investissements à l'étranger sont risqués et la BNS est tenue de lisser les montants qu'elle distribue. Ces deux exigences impliquent qu'elle détienne des réserves. Cependant, les besoins en réserves doivent être soigneusement et publiquement évalués et ne doivent pas continuer à augmenter. Nous formulons des propositions à cet effet.

ABSTRACT

The rapid growth of SNB's foreign investments has increased its profits over the last decade. Yet, the share that is distributed has declined. Much more has gone to continuously build up the central bank's equity. This is not sustainable because according to the current framework equity would grow without limit, making distributions impossible in the long run. To be sure, foreign investments are risky and the SNB is required to smooth the amounts that it distributes. Both requirements imply that it holds reserves. Yet, the needs for reserves must be carefully and publicly evaluated and not allowed to keep rising. We formulate proposals to that effect.

EXECUTIVE SUMMARY

Over the last decade, SNB's profits have increased strongly. However, the share distributed to the Confederation and to the cantons has declined. In fact, the SNB has distributed only one third of its profits and retained the rest as equity.

The bulk of profits comes from foreign investments, which accumulate as the result of exchange market interventions. These investments naturally yield returns, which grow with their size. However, they are risky since their value in francs fluctuates with the exchange rate.

The SNB sets aside a predetermined amount for provisions for possible losses on foreign investments. It sets aside another part to reserves for future distribution because it is required by law to smooth the amounts that it distributes annually. The provisions for foreign investments and the reserves for distribution make up the bulk of the SNB's equity.

It is surprising that occasional losses from foreign investments are not borne by the corresponding provisions. These losses are instead ascribed to the reserves for distribution. This matters a great deal because money set aside in the provisions for foreign investments is not distributable.

This process is clearly not sustainable. The provisions for foreign investments grow at such a rate that they stand to eventually become larger than the foreign investments themselves. The reserves for distribution should fluctuate over time as gains and losses occur, but they should not keep growing year in, year out, as they have done.

The SNB needs to have enough equity to meet possible large losses, but how much exactly. We estimate that the current level is excessive. The SNB should explain how it estimates its needs for equity.

We suggest a few changes that will make the process both more logical and sustainable:

- Use the provisions for foreign investments to cover losses when they occur. Replenish provisions with profits of subsequent years.
- Determine a target ratio of provisions-to-balance sheet or provisions-to-foreign investments. Provisions should not be accumulated beyond this point.
- Define a distribution rule that ensures that (nearly) all profits are distributed over the medium term. A simple way to achieve this is to distribute each year the average profit that was achieved over the previous few years.

1. What is the problem?

In 2021, the SNB has distributed 6 billion CHF of profits, up from 4 billion in 2020. Over the last decade, its profits have increased strongly. However, the share distributed to the Confederation and to the cantons has declined so that most profits are retained by the SNB: it has distributed only one third of the profit it has generated over the last ten years and has retained the rest as equity.

A substantial capital base is appropriate for a central bank, even if being insolvent is much less of an issue than for a firm. But there is a tradeoff between bolstering its capital versus distributing profits. The distribution of profits allows the cantons and the confederation to finance public projects without resorting to distortionary taxation.

The profit of the SNB belongs to the people, and as much of it as possible should be distributed. There are two good reasons for the SNB to keep some profits, which are recognized in the National Bank Act.

The first is risk. Having accumulated large amounts of foreign currency over recent years, the SNB is making historically large profits, but it also faces historically large risks as the exchange rate fluctuates. Although the SNB is not a regular business — it cannot be bankrupted — it must be financially sound to conduct monetary policy and to retain its independence.

The second is that its profits are volatile. As they plan their budgets, the Confederation and the cantons have a strong preference for receiving steady income from the SNB. It therefore makes sense for the SNB to keep some profits in good years, which allows it to distribute some profit even when it makes a loss.

Profit distribution, therefore, is more complicated than it seems. It involves trading off distributing profits to the public on one hand and, on the other hand, maintaining sufficient reserves for financial soundness and smoothing that part of the revenues of the Confederation and the cantons. The question is whether the proper balance has been reached. We believe that this is not the case. The SNB has never indicated how large reserves it needs. Under current practice, they will grow indefinitely, which will undoubtedly incite demands for more distribution. By being too cautious now, the SNB is creating problems for itself in the future.

2. Sources of profits

While the SNB's primary task is to maintain price stability, it naturally earns profits because of its monopoly to create money. The simplified balance sheet shown in Figure 1 explains how profits are achieved.

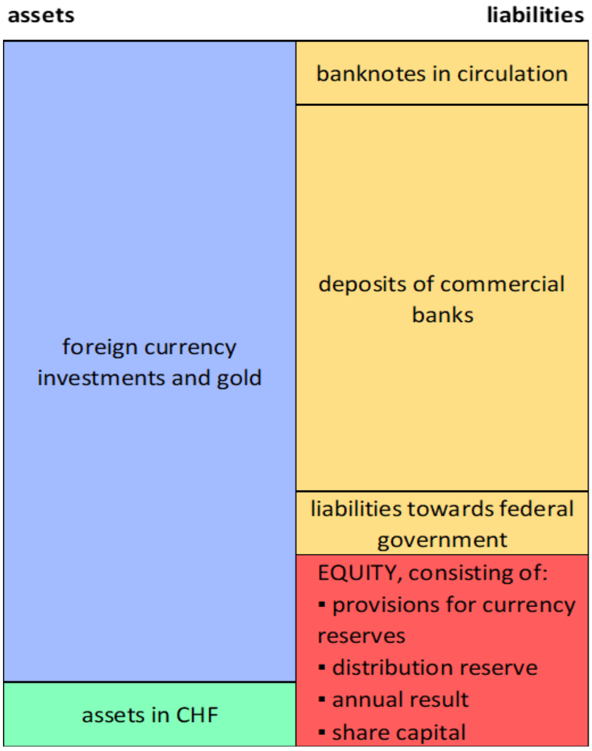

Figure 1. Simplified balance sheet of the SNB.

On the asset side, foreign currency investments and gold (blue) dominate (98% of the total). In recent years, these assets have increased rapidly as the SNB has intervened on the foreign exchange markets to present the franc from appreciating. On the liability side, deposits and banknotes in circulation (yellow) amount to 82% of the total and equity (red) the rest. The largest part of deposits consists of deposit by commercial banks (66% of the total) with banknotes in circulation a distant second (9%). The Confederation also holds deposits at the SNB (1%). The equity (red) consists of mostly of provisions for foreign investments and the distribution reserve. Share capital is negligible.

For simplicity, we will use the term *foreign investments* for the blue part, consisting of foreign currency investments (such as foreign government and corporate bonds and equity investments) and gold.

The bulk of the SNBs profits comes from its foreign investments. These investments naturally yield returns, which grow with their size. However, their value in francs fluctuates with the exchange rate. An appreciation of the franc causes a loss, a depreciation results in a gain. This is why the SNB's profits are highly uncertain. Figure 2 depicts the resulting volatility of returns. On average over 2005-2020, the portfolio yielded an annual return of 3.8%, with a volatility of 6.8%.

3. Appropriation and distribution of profits: description and vocabulary

We start by describing the SNB's practice and vocabulary, which can be delicate to grasp. As indicated in Table 1, the SNB's income minus its operational costs is called the **annual result**, which amounted to 20.8 bn

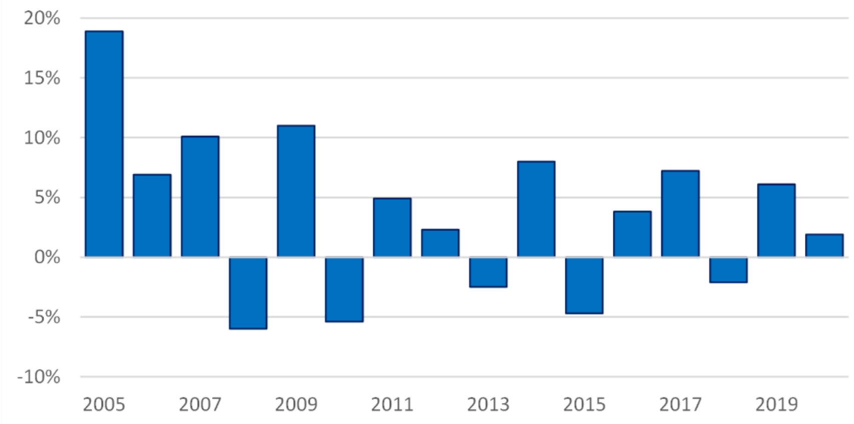

Figure 2. Return rate of the SNB foreign investments.

CHF in 2020. The annual result is then split in a two-step procedure into three parts.

First, the SNB uses part of the annual results to accumulate provisions for its foreign investments. What remains is called **distributable annual result**. The SNB next adds the distribution reserve left over from the previous year to arrive at the **net profits** (a term that can be misleading), which constitutes the basis for the next step. Net profits are split between actual distribution to the Confederation and cantons and the new distribution reserve set aside for the following years.

Ignoring minuscule dividend payments, these two steps thus allocate the annual profits into three baskets: 1) *provisions for foreign investments*, 2) *reserve for future distributions* and 3) *actual distribution*. The table below shows the result of this procedure for the year 2020.

in billion CHF	**levels 2019**	**appropriation of profit**		**levels 2020**
Annual result		20.9	100%	
Distribution reserve	84.0	+ 7.0	32%	90.9
Provisions for foreign investments	79.1	+ 7.9	38%	87.0
Distribution to confederation and cantons		6.0	29%	
Shareholders		0.0015	0%	

Table 1. Appropriation account for 2020 (in billions)

4. Appropriation and distribution of profits: evaluation

4.1 Step 1: Provisions for foreign currency investments

By law, the SNB must hold provisions for foreign investment "at the level necessary for monetary policy purposes." What does that mean? Up until 2011, the exchange rate was freely floating and the SNB was not intervening on the foreign exchange markets. Foreign investments were modest and so was the need for provisions, which the SNB was increasing at the same rate as GDP growth. Following international financial turmoil after 2008, the safe haven status of the franc led to intense capital inflows. The SNB intervened heavily to limit the franc appreciation, until 2011 when it half-fixed the exchange rate by declaring a floor. Since then, and especially after having lifted the floor in 2015, it has intervened massively to limit appreciation. Its foreign investments have been multiplied by a factor of 11 between 2007 and 2020.

Monetary policy has changed. In effect, the franc is now best be thought of as fixed vis-à-vis the euro, with a margin of fluctuation. As noted, the large stock of foreign investments means that profits are high and highly volatile. Accordingly, the SNB had to increase its provisions. It has abandoned its GDP growth rule and introduced a lower bound of 8% on the annual growth of the provisions. This bound was raised to 10% for 2020.

If the return on its portfolio of foreign investments remains on average at 3.8% (the mean return from 2005 to 2020), absent foreign exchange interventions, the portfolio will grow on average by 3.8% annually. If provisions grow annually at 10%, eventually the provisions will exceed the size of the portfolio. This shows that the rule is unsustainable.

4.2 Step 2: Determining the distribution reserve

The agreement regarding the profit distributions to the Confederation and the cantons of January 2021 states that:

"The maximum distribution of CHF 6 billion per annum will comprise a base amount of CHF 2 billion, which will be distributed if there is a net profit of at least CHF 2 billion. Added to this are four possible supplementary distributions of CHF 1 billion each, which will be made if the net profit reaches the thresholds of CHF 10 billion, CHF 20 billion, CHF 30 billion and CHF 40 billion respectively."

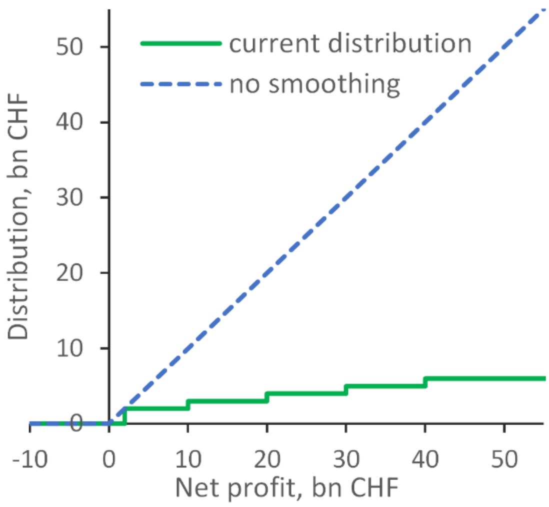

Figure 3. Net profit and distribution (current FDF-SNB agreement).

This smoothing rule is shown in Figure 3. The distance between the blue and the green lines indicates how much net profit is kept by the SNB. In early 2021, the SNB transferred 6 bn to the Confederation and cantons (and 1.5 million to shareholders), leaving 90.9 bn CHF in the distribution reserve, 15 (!) times what was distributed in 2020. The bulk of net profits is not distributed. This all but guarantees that the distribution reserve will keep growing beyond any reasonable limit.

4.3 Evolution of the three baskets since 2005

The rules for determining provisions and distributions have changed repeatedly since 2011, reflecting the changed nature of monetary policy, but they have consistently resulted in distributions far smaller than the annual results of the SNB. Figure 4 depicts the cumulative annual results since 2005. Distributed profits are in green, the provisions for foreign investments are in blue and the amounts set aside for the distribution reserve in are red. Over this period, the SNB has made profits (annual results) of about CHF 170 billion but has distributed only about CHF 35 billion. This is strikingly little.

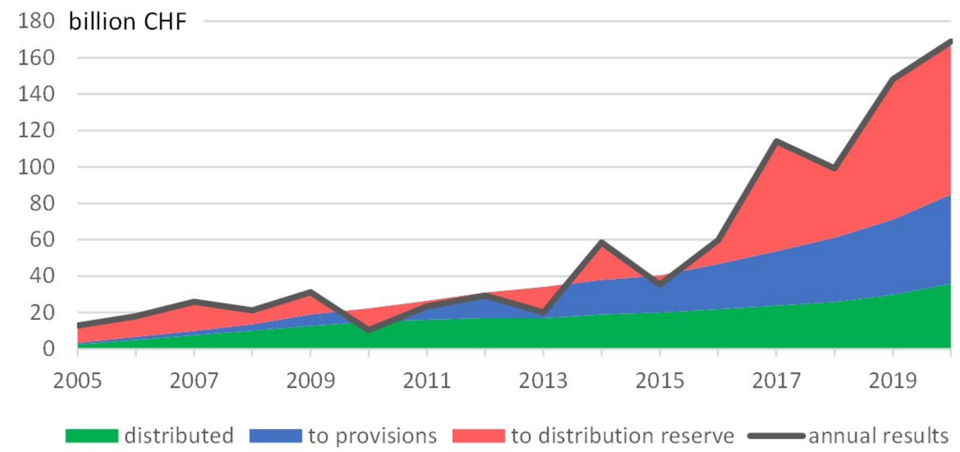

Figure 4. Cumulated annual results and distributed profits (CHF billion)

5. The debate

The SNB is well aware of these issues that revive the debates that led to the distributions agreements with the Federal Department of Finance (FDF) in 2002-2003, which frame the current process.

5.1 Absorption of losses

The SNB needs sufficient equity to face potential losses. Its equity consists of its capital, which is symbolic, the provision for foreign investments and the distribution reserve, which have been large (Figure 4). Losses, which can be large, occur when the franc appreciates. This is the rationale for keeping substantial provisions for foreign investments. However, the SNB does not use these provisions as intended: losses are borne by the distribution reserve that is intended to allow for the smoothing of profit distributions.

Whether these losses are absorbed by the provisions or by the distribution reserve is important. The profits that are put aside into the provisions are not available for distribution now *or in the future*. Figure 5 shows how the provisions have been growing steadily for close to 20 years, despite the fluctuations in the SNB's profits shown in Figure 2. These losses were entirely borne by the distribution reserve.

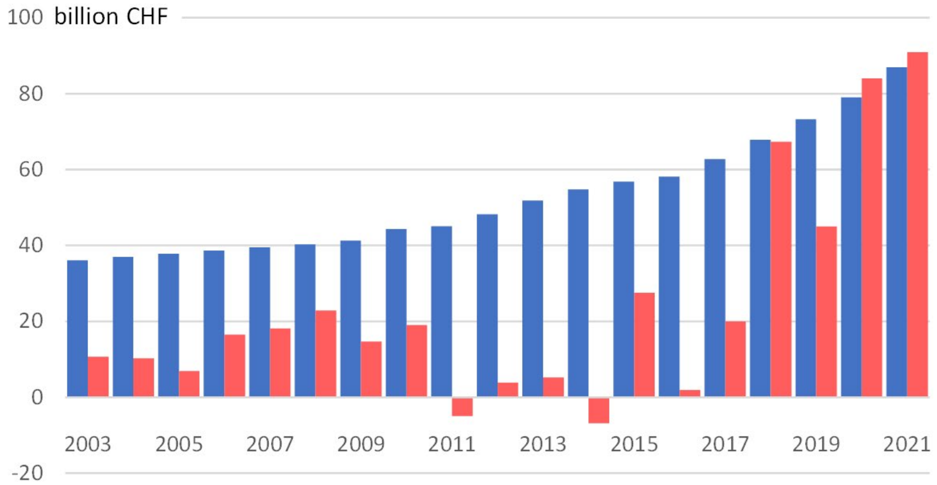

Figure 5. Provisions for foreign investments (blue) and the distribution reserve (red).

5.2 The possibility of negative equity

The SNB's justification for accumulating provisions for foreign investments is that it needs to hold sufficient equity in case of catastrophic losses. That raises the question whether it can operate, temporarily at least, with negative equity.

For a private business, equity is important. A firm with negative equity is bankrupt because it is unable to pay back what it owes. A central bank cannot be bankrupt because it can always pay back what it owes by creating money.

This conclusion is uncontroversial. Indeed, in a 2011 speech entitled "Does the Swiss National Bank need equity?", then Vice-President Jordan said:

"Might the SNB lose its capacity to act as a result of a negative equity level? And, if its equity were negative, would the SNB have to be recapitalised, or might it even have to go into administration? […] *I will start right away by saying that the short answer to all these questions is 'No'."*

He went on to say:

"At the same time, I would like to point out that, even for a central bank, a persistently negative equity situation is not without its problems, as it can undermine the bank's credibility and its independence in the longer term. For these reasons, it is important for a central bank to maintain a sufficient level of equity, or rebuild its equity following a loss."

We agree. The SNB can operate temporarily with negative equity, as is confirmed by legislation. In fact, following large exchange rate-related capital losses in 1978, the SNB operated with negative equity for two years. The central banks of Chile, the Czech Republic, Israel and Mexico have had negative equity for several years and expect to recover over decades. An implication is that while the SNB needs a buffer to avoid a recurrent situation of negative equity, that buffer need not be large enough to cover *all* eventualities. It would be helpful for the FDF to recognize (maybe in the document describing the distribution agreement) that under some very unlikely circumstances, the SNB could be faced with negative equity. The likelihood of such rare events should not be ground to systematically limit profit distribution and build excessively large equity.

As Figure 6 shows, in the 2000s, the SNB had clearly excessive equity relative to the size of its foreign investments, which was officially recognized and led to an agreement between the SNB and the FDF to eliminate entirely the distributable surplus by 2012. This attempt was not successful, however. The massive exchange rate interventions since 2008 have expanded the foreign investments faster than the SNB has increased its equity. Nevertheless, at end of 2020, the equity amounted to 18.1% of the foreign investments (or 17.8% of the whole balance sheet). We argue below that this is more than what is needed.

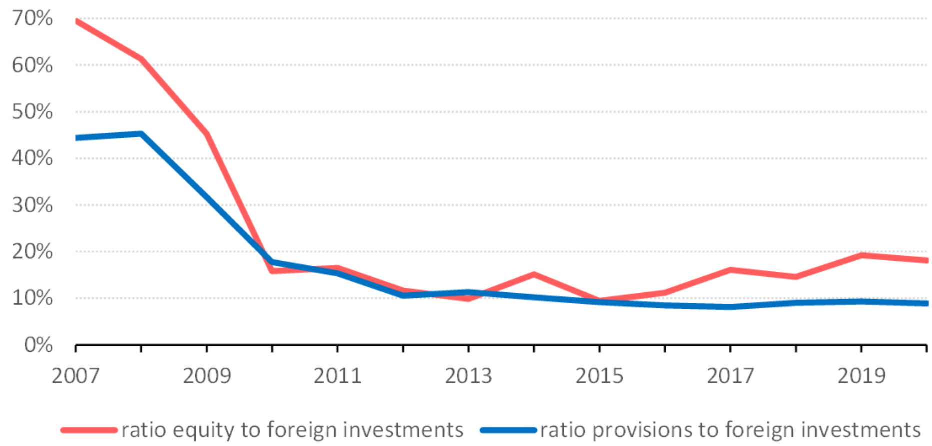

Figure 6. Equity and provisions in proportion to foreign investments.

5.3 Two unconvincing objections

Monetary policy implications. It is sometimes argued that profit distribution may need to be restricted because it leads to new money creation. However, the SNB can offset any money creation by selling an equivalent amount of its assets or by issuing its own debt (SNB bills). The monetary policy implications of the profit distributions can always be offset.

Unrealized capital gains. The gains and losses on foreign investments caused by exchange rate changes are unrealized, meaning they are paper gains and losses until the SNB sells these assets. It is argued that the gains should not be distributed since they can be reversed by losses. This argument is unconvincing.

Exchange movements, which generate most of these fluctuations, occur along a trend appreciation of the franc, which is a source of capital losses. Yet, Figure 4 indicates that these losses are generally not large enough to offset the positive income from dividends and interest receipts. Importantly, the large increase in foreign investments is not due to returns but to exchange market interventions. The risk of a sharp, sustained drop in foreign investments is simply too small to be a source of concern.

6. Our proposals

6.1 The use of the provisions for foreign investments

As noted above, between 2005-2020, the provisions for foreign investments were never used as a buffer to absorb losses. If they do not serve this purpose, they have no economic function but merely permanently reduce the potential for profit distribution. To motivate their existence, it is essential that they be used as intended. If not, they should be transferred to the Confederation and the cantons as profits.

Proposal 1. *Use the provisions for foreign investments to cover losses when they occur. Replenish provisions with profits of subsequent years.*

6.2 The size of the provisions for foreign investments

If the provisions are used as a buffer, how large should they be? The current approach of letting them grow by 10% annually has no economic justification and is unsustainable. Their size should depend on the volume and characteristics of the foreign investments. If they continue to grow, the provisions must also increase. And if the foreign investments were to shrink, the provisions should be reduced as well. Furthermore, the riskiness of the SNB's foreign investments depends on the composition of its portfolio, which changes over time. This needs to be reflected in the provisions as well.

There are many standard ways of evaluating the need for provisions against asset losses. The SNB should routinely make such an assessment and share it with the public. These methods have become quite sophisticated and are beyond the scope of the present report. Here we provide a simple back-of-the envelope calculation to gauge that need.

The largest loss the SNB experienced on foreign investments during the 2005–2020 period was –6.0% of the total in 2008. The average return over this period was 3.8% with a standard deviation of 6.8%. Assuming that the returns are normally distributed — which is surely unwarranted and likely to underestimate the risks — a rough estimate of the probability of losing more than 10% of foreign investments in a given year is about 2%, which means that such a loss is expected to occur about twice a century. At the end 2020, the provisions for foreign investments stood at 8.9% of foreign investments, which seems reasonable given the portfolio allocations.

If unusual losses were to completely deplete the buffers, maybe even to the point that equity becomes negative, the SNB can still operate but profits in subsequent years should be used to replenish them. The historical average return of 3.8% means that it takes about 3 years to absorb a rare loss of 10%. Beyond that point, profits can be distributed again in their entirety.

In sum, the SNB should constantly evaluate the size of the provisions. Its analyses should be carefully justified and communicated transparently to the public.

Proposal 2. *Determine a target ratio of provisions-to-balance sheet or provisions-to-foreign investments. Provisions should not be accumulated beyond this point.*

6.3 The distribution reserve

The funds left over after the provisions for the foreign investments have been made constitute distributable profits. While the law requires that the profit distributions be smoothed over time, the SNB does not enjoy complete independence in this matter since it must reach an agreement with the FDF.

Once the provisions for foreign investments are used to absorb portfolio losses, the role of the distribution reserve is solely to smooth the profit distributions. As noted above, the distribution reserves are currently about 15 times the maximum annual distribution agreed between the SNB and the FDF. They are much larger than required and, as a result, the annual profit distributions have been too small in the past. It is difficult to understand why the FDF has agreed to the current distribution rules.

The smoothing requirement implies that the distribution reserves should broadly fluctuate around zero or, maybe to be on the prudent side, a small positive level, but certainly not their current size.

One attractive option would be to relate the profit distribution to an average of past profits over several years and to aim at distributing most of the profits over time. The Swedish Riksbank uses five-year averages. This is a simple and transparent procedure.

An alternative is to distribute a stable amount, defined in proportion to GDP. In some years, the amount can exceed profits, especially if they are negative. The Dutch central bank operates such a rule, which requires that a decline in the reserve in any year be recovered over the following six years, possibly by temporarily reducing the amounts distributed.

Proposal 3. *Define a distribution rule that ensures that (nearly) all profits are distributed over the medium term. A simple way to achieve this is to distribute each year the average profit that was achieved over the previous few years.*

6.4 What would our proposals have changed?

To illustrate the implications of our proposals, we rerun history and assume that they were already in place since 2007. We proceed as follows.

In step 1 (appropriation), we let the provisions for foreign investments bear all losses when they occur. If there is a profit and provisions are less than the target of 10% of foreign investments, we use the profits to replenish the provisions for the following years. Provisions greater than 10% are transferred to the distribution reserve. The 10% target is an example; as explained above, a more careful analysis is required to calibrate a target.

In step 2 (distribution), the average annual result of the past five years is distributed, independently of the size of the distribution reserve. Five years is an example; if more smoothing is required, a longer moving average can be chosen.

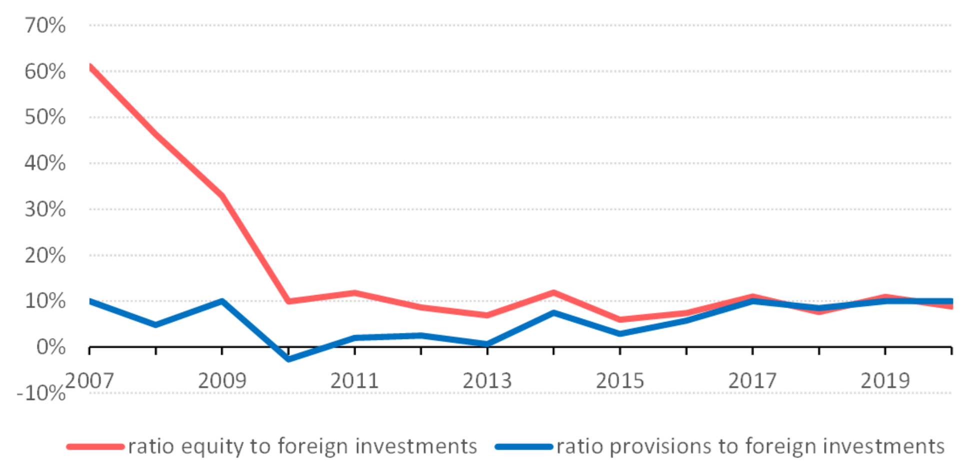

Figure 7. Counterfactual equity and provisions in proportion to foreign investments.

Figure 7 shows what would have happened if our rule had been operative since 2007. Note that the provisions for foreign investments converge towards 10% of foreign investments *by construction*. This is slightly higher than the current level (Figure 6). The distribution reserve (the difference between the red and the blue line) is gradually reduced and fluctuates around zero, *as intended*. The provisions for foreign investments turn negative once (2010), but equity remains positive throughout the whole period. Equity converges to 10% of foreign investments, *as intended*, and remains close to this target throughout.

Figure 8 shows that under our proposals a cumulated amount of 121 billion CHF would have been distributed, instead of 30.7 billion CHF, from 2007 to 2020. This large increase is a consequence of Proposal 3.

The only downside that we can detect is that the larger distributions are slightly more volatile than the historical record, which is normal when more is distributed in most years and nothing in bad years. There would have been two years with no distribution at all (in 2010 and 2013) instead of one year in the historical account. Yet, the figure indicates the ability of the proposals to smooth the large fluctuations of the annual results and to follow the general rise of the profits.

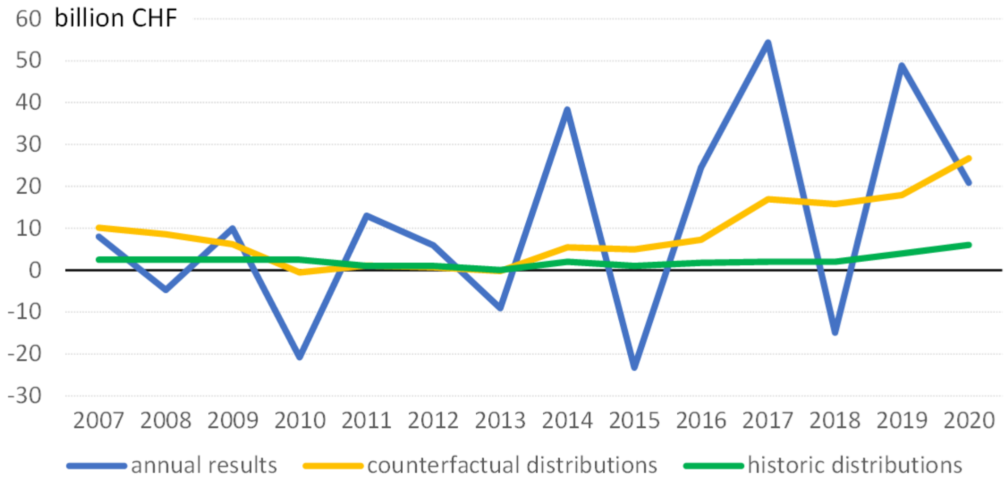

Figure 8. Historic and counterfactual distributions.