The wrong role model: The Swiss Debt Brake after one decade[*]

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(Work in progress: please don't quote without prior consent!)

Abstract. In 2013 the Swiss federal government celebrated the tenth anniversary of its debt brake. In retrospect, advocates praise it as a huge success story. In fact, the reduction of the Swiss federal debt-to-GDP ratio and the structural deficit over the last decade was remarkable. Moreover, Switzerland was able to successfully react to the crash in 2009 with expansionary fiscal spending, thus it seems that the rule avoids pro-cyclical measures in the short-run. Therefore, it is not surprising that the Swiss debt brake served as a role model for various fiscal rules on the national level and, above all, the Fiscal Compact on the European level. In this paper, however, we argue that the success of the Swiss debt brake in its first ten years must be traced back to the favourable macroeconomic environment after its introduction. Switzerland experienced a strong economic pick-up in terms of real GDP growth from 2004 to 2008. With respect to medium to long-term economic slowdowns, we emphasise the endogeneity problem of potential output calculations and the resulting pro-cyclical nature of debt brakes in general. Our ex post simulations show that without the recovery in 2004 Swiss fiscal policy would have faced serious cyclical constraints. It remains to be seen whether Swiss fiscal policy will have enough leeway to fight the current economic slowdown caused by the appreciation of the Swiss franc.

Keywords. Fiscal rules; debt brake; fiscal sustainability, Switzerland.
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1. Introduction

As a reaction to increasing public deficits and debt during the 1990s, Switzerland introduced the debt brake as an institutional mechanism to decrease public deficits and the debt-to-GDP ratio. The rule calls for a balanced structural deficit. Hence, the primary goal is that the budget is supposed to be balanced over the business cycle. The secondary goal is to allow for a counter-cyclical fiscal policy which allows full operation of automatic stabilizers. In 2001, the 'debt brake' was written into the Swiss constitution after being overwhelmingly approved by Swiss voters in a referendum. The debt brake was finally implemented in 2003. One decade later, it is celebrated as a great success story by its advocates. In fact, the reduction of the federal debt-to-GDP ratio and the deficit over the last decade is remarkable. From 2003 to 2013 the federal public debt-to-GDP ratio decreased by around nine percentage points and thus fell from 28% of GDP to below 19% of GDP in 2013. Moreover, Switzerland was able to successfully react to the economic crash in 2009 with expansionary fiscal spending. Hence, the rule does not only seem to achieve its goals in terms of debt and deficit reduction, but it also seems to allow for counter-cyclical stabilisation policy. Therefore, it is not too surprising that the Swiss debt brake is seen as a role model for rule-based fiscal policy. The Swiss mechanism influenced various fiscal rules such as the German debt brake (Sachverständigenrat 2007) and thereby the Fiscal Compact on the European level.

In this brief paper, however, we suggest the existence of a *post hoc, ergo propter hoc* fallacy. A major part of the success of the Swiss debt brake can be traced back to the favourable macroeconomic environment after its introduction (Truger and Will 2012; Beljean and Geier 2013). Indeed, after a shaky start in 2003, the Swiss economy experienced an unexpected pick-up in terms of real GDP growth. In the five years between 2004 and 2008, the Swiss economy grew by almost 15% in real terms, way above the meagre 13.5% which the country achieved in the whole decade before.

Furthermore, the debt brake poses major risks in the case that Switzerland experiences a medium-term cyclical downturn. In this case, we find evidence for the endogeneity problem of potential output calculations and the pro-cyclical nature of debt brakes in general.

Even though there are a minority of critical voices, the literature essentially concluded that the mechanism works properly. The majority supports the notion of a success story and sees the debt brake as a cause of the favourable budgetary position. However, the

current literature mostly turned a blind eye to the macroeconomic impact of budgetary cuts and their endogenous effects on the debt brake. Against this background, we evaluate the functioning of the debt brake via counterfactual ex-post simulations after its introduction. The simulations show that without the recovery in 2004 fiscal policy would have faced serious cyclical constraints.

2. Swiss budgetary achievements mainly caused by favourable exogenous factors

Switzerland experienced continuous budget deficits in the period preceding the introduction of the debt brake. In the recessionary times of the 1990s, the federal state accumulated an increase in the debt-to-GDP ratio. In 2003, the public sector as a whole reached a debt-to-GDP ratio of 53%, of which the federal level was responsible for around 27 percentage points. That was an exceptionally high figure compared to the previous decades for Switzerland (cf. Figure 2.1). Ten years after the introduction, the debt brake is celebrated as a success story (Swiss Federal Council 2013). In fact, examining the success simply in terms of debt and deficits, the achievements over the last decade look remarkable (cf. Figure 2.1).

Figure 2.1: Gross federal debt, in % of GDP, 1970-2013 and ordinary federal public balance, in Mio. CHF, 1990-2013
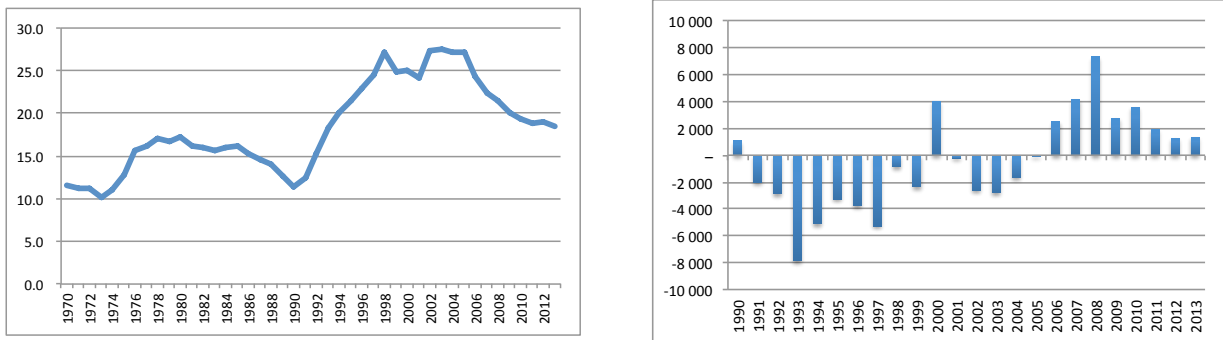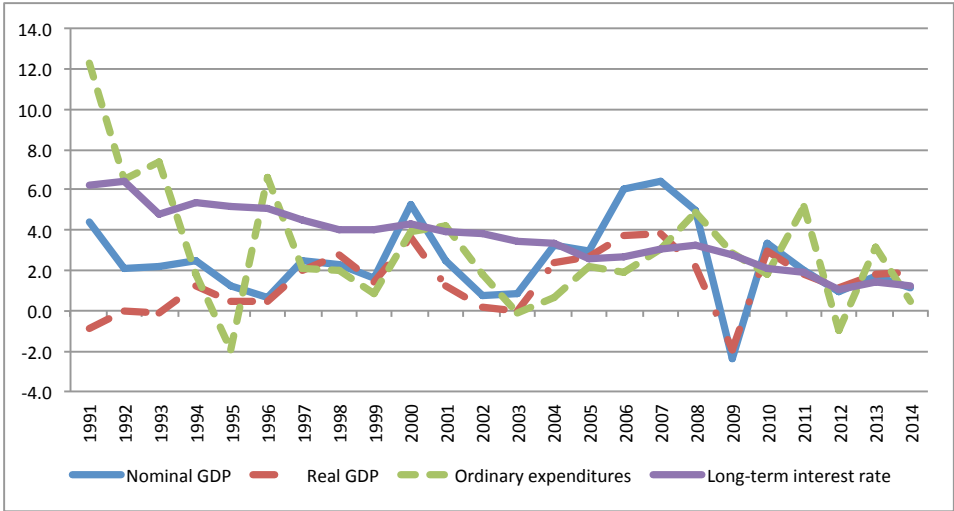

Source: Own illustration based on data from the Federal Finance Administration (FFA)

The federal debt-to-GDP ratio fell by almost 10 percentage points and the continuous budget deficit turned into a consistent surplus. Switzerland thereby differentiates from most other countries of the OECD, which experienced increases in gross debt to output over the last decade.

The financial crisis in 2009 did not stop this extraordinary development. The federal level was even able to react with expansionary fiscal spending, because it could profit from a structural surplus before the crisis. From 2008 to 2009 no expenditure cuts were necessary.

However, one should be careful before drawing conclusions and declaring the Swiss debt brake a role model. The main reason for successful debt consolidation since the implementation of the debt brake is related to the improvement of exogenous factors, above all the growth rate of nominal output and the long-term nominal interest rate. Both factors are major determinants of the change of the public debt-to-GDP ratio.

Figure 2.2: Swiss nominal GDP, real GDP and ordinary federal public expenditures, percentage change to previous year, and long-term nominal interest rate in %, 1991-2014

Source: Own illustration based on data from the Swiss Statistical Office, FFA and the Swiss National Bank, Monthly Statistical Bulletin

The growth rate of nominal and real GDP went through a significant upswing between 2004 and 2008 as shown in Figure 2.2. Average nominal GDP growth increased from 2.2% in the decade before to 2.9% in the decade after the introduction of the debt brake. If the crisis year of 2009 is excluded as an outlier, the average rate is even 3.5%. Moreover, the economic pick-up was unexpected. While the FFA generally overestimated GDP growth between 1991 and 2002 when drawing up the budget, they underestimated it in the years following the debt brake's introduction. However, in the implementation year of the debt brake they again overestimated GDP in the budget period, because they expected an upswing after the stagnation year 2002, which failed to appear.

Figure 2.2 shows that the long-term nominal interest rate of Swiss Confederation bonds with a 20 year duration decreased since the introduction of the debt brake. Often, it is argued that lower nominal interest rates are a consequence of tight fiscal rules. However, the decreasing trend began already at the beginning of the 1990s. Long-term interest rates even increased slightly between 2004 and 2008 before they again followed their downward trend. Moreover, long-term nominal interest rates had internationally been experiencing a decreasing trend since the mid-1990s, independently from the debt level or whether the country had a rule-based fiscal policy. Therefore, one can assume that the interest rate development helped to achieve the goals of the debt brake, but it was rather an exogenous cause than an endogenous consequence.

Due to the favourable macroeconomic conditions in the years after the introduction of the debt brake compared to the decade previous to the debt brake, the necessary average primary budget surplus[1] to stabilise the debt ratio turned into a small deficit as shown by Truger and Will (2012: 18). An achievement of the debt brake is that fiscal policy did not use expansionary measures in the favourable output growth environment and thus became more countercyclical. Hence, the average ordinary expenditure growth rate between the periods 1993 to 2002 and 2003 to 2012 decreased from 2.9% to 2.1%. However, the growth rate of expenditures was steadily increasing during the booming years of 2004 to 2008 as can be seen in the development of expenditures in Figure 2.2 and fiscal policy only turned counter-cyclical when the output gap became positive as a consequence of the output boom (cf. Figure 2.3).

Furthermore, the influence of the debt brake can be questioned, because Swiss fiscal policy did not become much more restrictive after the debt brake when compared to before. Even though the debt brake mechanism prevented fiscal policy from using expansionary measures in the upturn, the general degree of restriction has not significantly increased according to Figure 2.3. The fiscal stance was already negative in the second half of the1990s. Hence, high nominal GDP growth rates, along with improved interest rate conditions were the factors most responsible for generally more counter-cyclical fiscal policy in Switzerland.

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[1]The primary budget balance is calculated as revenues minus expenditures without interest payments.

Figure 2.3: Fiscal stance, as change of the annual structural balance and output gap according to the mHP filter, in % of GDP, 1980-2012
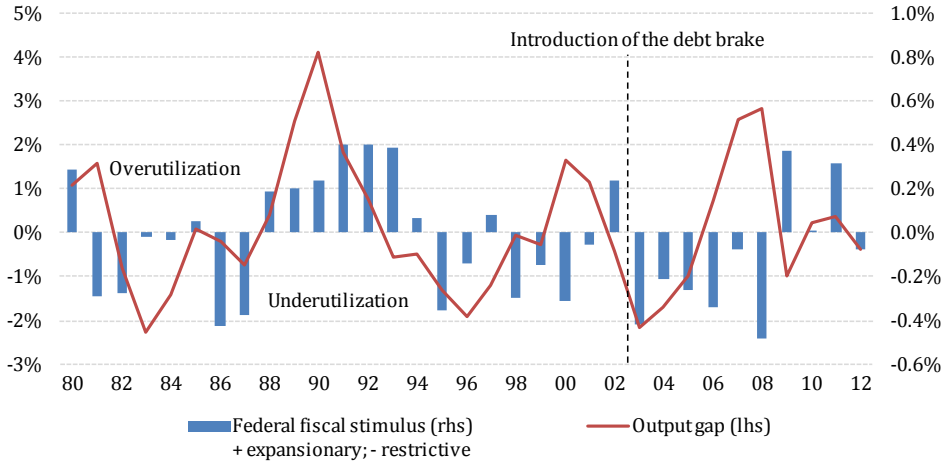
Source: Swiss Federal Council (2013: 26).

3. Characteristics of the Swiss debt brake

The fiscal rule can be described by the following formula (Bruchez 2003b: 4):

$$\bar{A}_t = R_t * k_t, \tag{1}$$

with $\bar{A}_t$ =federal expenditure limit at time t, R =ordinary revenues and k =business cycle adjustment factor. The coefficient k, k-factor in the following, indicates the state of the business cycle[2]:

$$k_t = \frac{y_t^T}{y_t}, \tag{2}$$

with y^T = real trend GDP and y = real GDP.

According to the structurally balanced budget rule, if the economy is in an economic boom, hence $k < 1$, the maximum annual level of federal public expenditures is lower than federal public revenues. In this situation, Swiss fiscal policy is required to generate a cyclical surplus. If the economy is in a recession and $k > 1$, the expenditure ceiling is above ordinary revenues and a cyclical deficit is allowed (Swiss Federal Council 2013; Geier 2011b). Hence, the k-factor is a measure of capacity utilisation of Swiss production

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[2]The more general notion output gap could be easily derived in the following way: *Output gap =* $(1 - k) * 100$

factors.

The FFA uses a modified HP filter (mHP filter)developed by Bruchez (2003a) to determine trend GDP. In contrast to the conventional HP filter, the mHP filter records 80% of the last data point as cyclical and only 20% of it as structural (Geier 2011a: 15). Thereby, the mHP filter reduces the end-point bias of the HP filter significantly. However, the mHP filter only reduces the impact of the last data point.[3]

4. The effects of unfavourable exogenous factors after introduction of the debt brake: a counterfactual analysis

Given the doubts about the alleged success story of the debt brake, ex-post simulations were used to examine the working of the debt brake under more unfavourable circumstances. In alternative scenarios, a more unfavourable economic development is exogenously assumed and the effects on budget and debt are simulated within the framework of the Swiss debt brake, as described in section 3. The simulation period covers the years 2004 to 2013[4]. The exogenous parameters that were changed are the real GDP growth rate, the growth rate of the GDP deflator, the revenue-elasticity[5], the interest rate and the total fiscal multiplier. For reasons of simplicity, it was assumed that the federal government always anticipates the hypothetical cyclical downturn ex-ante in the budget period.

This study incorporates the effect of the Swiss rule on GDP growth. Therefore, two factors have to be determined. First, the size of required expenditure cuts, and second, an appropriate value for the total fiscal multiplier. It is widely agreed that fiscal policy effects should not be underestimated. Following the overwhelming impression given by overview studies of the empirical literature, eg. Bouthevillian et al. (2009) or Boussard et al. (2012) and the evidence presented by the meta-regression analysis of Gechert and

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[3]If the economy experiences a longer slowdown, there is still a substantial risk that it will be interpreted as structural and lead to a lower expenditure limit. This problem lead to the motivation behind the simulations in section 4.

[4]The starting point is set to 2004 even though the debt brake was implemented in 2003. Since 2003 was already an unfavourable year in terms of GDP and revenue growth and since there had been changes to the mechanism in 2004, it seems appropriate to start in 2004. However, changes to the main factor real GDP growth concentrate on the period between 2004 and 2007.

[5]With respect to the development of revenues, the proportionality assumption of the FFA is in play, hence the revenue-elasticity is assumed to be 1.0. However, this assumption is relaxed in one scenario in order to simulate its influence on the results.

Rannenberg (2014) we assume that the expenditure-side multiplier is 1.0. As the scope for revenue-side measures is very low on the federal level in Switzerland, we assume the total fiscal multiplier in the simulations also to be 1.0. With respect to the determination of the consolidation shocks, we consider the difference of the simulated expenditure limit in the budget period to an expenditure limit of a reference scenario plus an additional interest charge. For *Baseline Scenario*, we constantly take the actual values of the state account (*"Staatsrechnung"*) as realised in reality, displayed in Table A.1 in the appendix. In the account period of the simulations, the consolidation shock is multiplied with the total fiscal multiplier and applied to the exogenously assumed real GDP of the budget period. From this follows a new value for real GDP, a new k-factor and a new expenditure limit, which is again used to generate next years shock. Formerly summarised:

$$y_t = y_t^B + (A_t^B - \bar{A}_t^{base} - i_t) * m \tag{3}$$

with y^B = real GDP in the budget period, $\bar{A}^B$ = federal expenditure limit in the budget period, $\bar{A}^{base}$ = expenditure limit of the Baseline Scenario, i = additional interest charge[6] and m = total fiscal multiplier.

Each scenario was calculated both with and without retroactive macroeconomic effects (multiplier=1/ multiplier=0) due to a reduction of the expenditure limit in reference to the Baseline Scenario. Thereby, it is possible to examine whether the mechanism has the risk that Swiss fiscal policy becomes pro-cyclical in a downturn and thus reinforces the negative cyclical development.

In counterfactual simulations of the debt brake mechanism, one has to make an assumption regarding the deviation of total expenditures from the expenditure limit, in other words on the size of planned and unplanned savings (*unused credits*). In the following, it is assumed that the federal government fully utilises the allowed maximum expenditure in the budget period. However, in the account period the actual historical values of the deviation between expenditure limit and total expenditures are either subtracted from, or added to, the simulated expenditure limit. This can be summarised in the following formula:

$$E_t = \bar{A}_t^B - \mu_t \tag{4}$$

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[6]The additional interest charge is derived each year from the difference of the debt level between simulation and Baseline Scenario multiplied with the exogenously set interest rate, which is constantly kept at 2.6%. This has been the average implicit interest rate ($\frac{interest\ spending}{gross\ public\ debt} * 100$) from 2003 to 2013.

with μ = actual unused credits.

Total expenditures given, the total public balance can be calculated and consequently the development of public debt in the simulations can be derived. There is a discrepancy between the annual public balance and the development of gross public debt visible in the Swiss state accounts (cf. Table A.1). We solve for this stock-flow adjustment problem in the simulation by adding the exogenously given discrepancy to the total public balance. Hence, gross federal public debt is determined in the following way:

$$D_t = D_{t-1} - (R_t^T - E_t + \sigma) \tag{5}$$

with D = federal public nominal gross debt level, R^T = total revenues and σ = stock-flow adjustment value.

Table 4.1: Exogenously assumed real GDP growth rates in simulation scenarios

	2003	2004	2005	2006	2007
Moderate Scenario	0.0	1.0	1.8	1.8	1.5
Crisis Scenario	0.0	-0.5	1.0	1.0	2.0

Table 4.1 shows the exogenously assumed real GDP growth rates in our scenarios. The *"Moderate Scenario"* is derived from original FFA projections. The *"Crisis Scenario"* assumes a more severe medium-term recession with a crash in 2004 and a slightly slower recovery, it further assumes an inflation adjustment of -0.3. In addition to the two main scenarios, the *"Revenue Crash Scenario"* adopts the assumptions of the Crisis Scenario and further includes a crash of revenues in the years 2004 and 2005 similar to the size of the actual crash in 2003, however, stretched over the two years. In a last scenario, *"Contagion Scenario"*, it is assumed that the consolidation pressure within the Crisis scenario, spills over to other state levels. Thus, required consolidation is increased by the factor 2.5, which is derived from the share of the federal level in the total public sector.

The development of selective parameters during the counterfactual simulations are presented in Figure 4.1.

In our estimations, the fiscal losses compared to the Baseline Scenario are strong throughout all simulated scenarios, as shown by the development of the expenditure limits. Due to the endogenous adjustment of trend GDP, and thereby of the k-factor, the increases of cyclically allowed deficits can not totally compensate for the whole

Figure 4.1: Simulation results of selective indicators in comparison
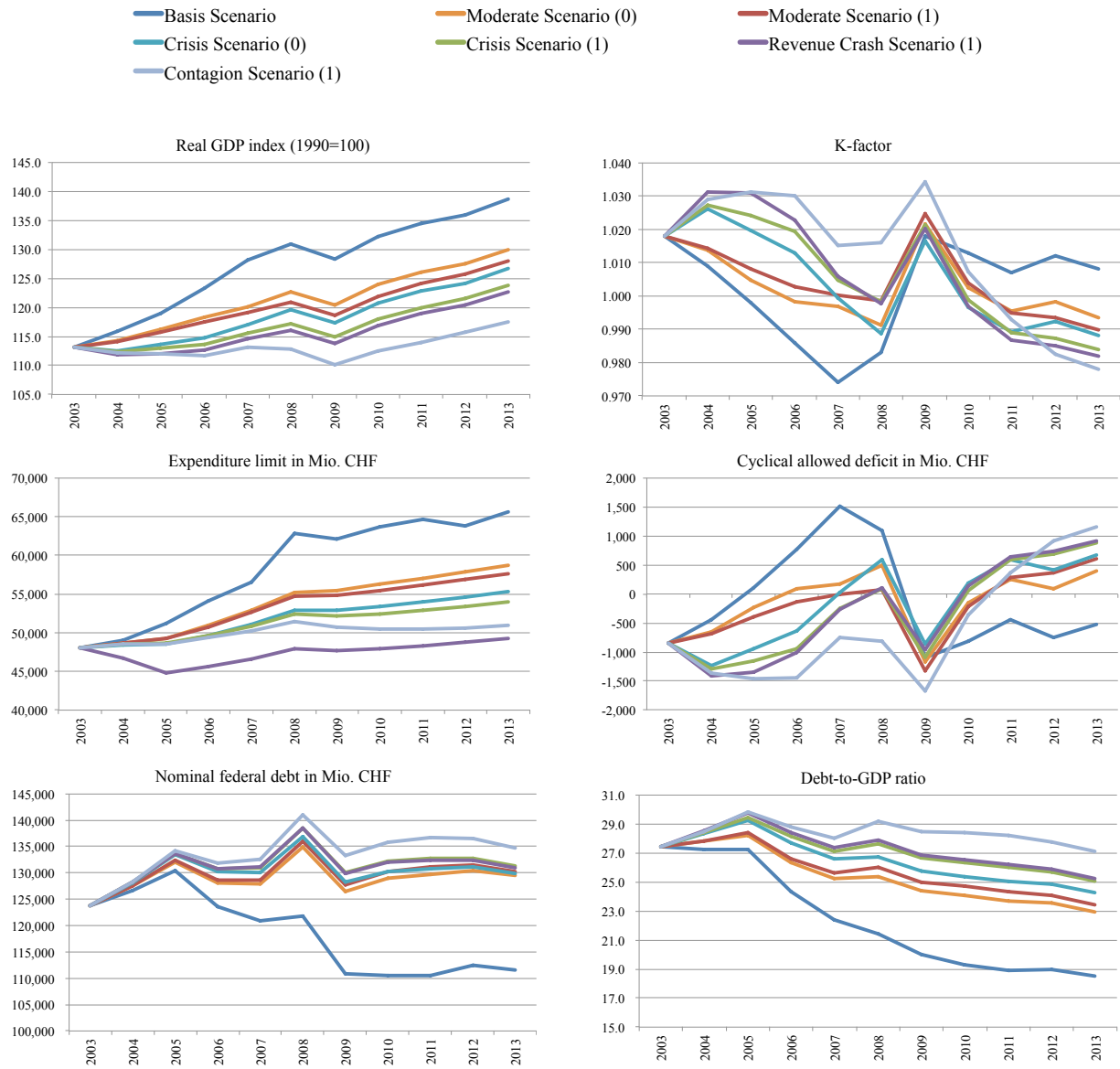
Source: Own estimations based on data from the FFA and the Swiss Statistical Office.

amount of revenue losses with respect to the Baseline Scenario. Even in the Crisis and Revenue Crash Scenario, the cyclical allowed deficit decreases already in 2005. The highest fiscal losses aggregate in the Revenue Crash Scenario, hence, when there is a steep fall of structural revenues. However, when the high reinforcement effects of the Contagion Scenario take effect, the fiscal losses of both scenarios converge at the end of the simulation period.

The scenarios carved out that the debt brake would have required pro-cyclical consolidation in a medium-term downturn. Although the economy is still in the downturn in the years 2005-2007, the k-factor decreases in all scenarios and thereby indicates significant recovery. This requires consolidation even in the downturn. However, the required fiscal stance turned out to be rather low due to the fact that the rule concerns only the federal level. Therefore, negative multiplier effects on real GDP are only moderate throughout most scenarios, as visible in the development of the real GDP index. However, there would have been comparatively high GDP losses in all scenarios, given the only temporarily assumed slowdown. Nonetheless, under the assumption that budgetary pressure on the federal level will cause contagion effects for other state levels, the GDP effect of consolidation becomes significant. However, this additional assumption is not far-fetched. In this case, Swiss fiscal policy would have reinforced the recession.

In all simulated scenarios, the nominal debt level achieves its primary target and more or less stabilises over the simulation period, however, it is not reduced as in the Basis Scenario. Consequently, it has been shown that more unfavourable economic conditions after the introduction of the debt brake would have caused a much less positive development of the debt-to-GDP ratio.

5. Conclusion

Since the implementation of the debt brake, the Swiss federal budgetary position undoubtedly improved in comparison to the 1990s. Consequently, the federal government celebrates it as a huge success story. However, it has become apparent that there were different factors at play and that the direct influence of the debt brake on the positive developments of debt and deficits is low. The performance would have been less successful under disadvantageous growth conditions. Indeed, Swiss fiscal policy did become more counter-cyclical after the introduction of the debt brake. The expenditure limit tightened Swiss fiscal policy in the upturn. However, fulfilling the fiscal requirements is

easier in an cyclical upturn than in a downturn.

The simulations with disadvantageous exogenous conditions have shown that substantial budget cuts would have been necessary. The mHP filter gradually accounts the cyclical downturn as structural. The increase of cyclically allowed deficits cannot compensate for the assumed losses of revenues. The results display that a longer economic slowdown would have accumulated high amounts of fiscal losses compared to the actual figures. Hence, Swiss fiscal policy would have become pro-cyclical even in a moderate medium-term slowdown. Furthermore, there is the danger of reinforcing the medium-term cyclical downturn due to the negative macroeconomic impact of required consolidation on output. However, these effects are generally limited given the share of federal public expenditures in total public expenditures. But, if there is a severe crash of revenues attached to the downturn or the consolidation pressure spills over to other state levels, the negative multiplier effects become rather strong and strengthen the recession. Consequently, in those scenarios, the deficits would have been much higher and the debt-to-GDP ratio would have developed much less favourably or even stagnated.

Therefore, it becomes quite clear that it was a serious mistake to uncritically believe in the alleged Swiss success story and use the Swiss debt brake as a role model for the German debt brake and later on the fiscal compact.

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A. Appendix

Table A.1: Baseline scenario, actual values of the state account (*Staatsrechnung*)

	Real GDP		Deflator	K-factor	Ordinary revenues	Expenditure limit	Cyclically allowed deficit	Extra-ordinary revenues	Extra-ordinary expenditures	Relief plan	Unused credits	Total public balance	Gross debt		Control account
	growth rate	Index 1990=100	growth rate		Mio. CHF	Mio. CHF	Mio. CHF	Mio. CHF	Mio. CHF	Mio. CHF	Mio. CHF	in % of GDP	Mio. CHF	in % of GDP	Mio. CHF
2003	0.0	113.1	0.8	1.018	47,161	48,010	-849	-	-	-	-	-0.6	123,711	27.5	-
2004	2.4	115.8	0.8	1.009	48,629	49,067	-438	-	1,121	3,000	1149	-0.6	126,685	27.2	1,782
2005	2.7	118.9	0.3	0.998	51,282	51,179	103	8,388	-	2,000	1194	1.7	130,339	27.2	3,558
2006	3.8	123.4	2.2	0.986	54,911	54,142	769	3,203	-	1,000	675	1.1	123,593	24.3	6,323
2007	3.8	128.1	2.5	0.974	58,092	56,582	1,510	754	7,038	-	1542	-0.4	120,978	22.4	8,940
2008	2.2	130.9	2.8	0.983	63,894	62,808	1,086	283	11,141	-	624	-0.6	121,771	21.4	15,150
2009	-1.9	128.4	-0.4	1.018	60,949	62,046	-1,097	7,024	-	-	1440	1.8	110,924	20.0	18,968
2010	2.7	132.2	0.3	1.013	62,833	63,650	-817	-	427	-	971	0.5	110,561	19.3	23,352
2011	1.9	134.5	0.4	1.007	64,245	64,695	-450	290	1,998	-	735	0.0	110,516	18.9	25,713
2012	1.0	135.9	0.1	1.012	62,997	63,753	-756	738	-	-	2395	0.3	112,406	19.0	27,730
2013	2.0	138.6	0.0	1.008	65,032	65,552	-520	1,306	-	-	1142	0.4	111,638	18.5	29,583

Source: Own illustration based on data from the FFA and the Swiss Statistical Office. Note: The values for the control account are cumulative and without the official deletions in 2006 and 2010