



EUROPEAN CENTRAL BANK

EUROSYSTEM

The future of central banking

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Vitor Constâncio

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The Future of Monetary Policy and Macroprudential Policy

By Lars E.O. Svensson¹

Abstract

The objective of ECB's monetary policy may be further clarified as "price stability and full employment without prejudice to the price-stability objective," where "without prejudice..." means that average inflation over a period such as five years shall be close to a symmetric inflation target of 2%. "Forecast targeting" with publication also of the policy-rate path is likely to best achieve the ECB's monetary policy objective and also strengthen the ECB's accountability. Financial stability is a suitable objective for macroprudential policy but not for monetary policy. Monetary policy and macroprudential policy are very different policies and normally best conducted separately. In macroprudential policy, it is important to distinguish between good and bad credit growth. Intervening to prevent good credit growth has potentially severe costs, as has not intervening to prevent bad credit growth. Swedish macroprudential policy to reduce credit supply to households by further tightening already quite tight lending standards provides an example where this distinction is apparently disregarded and the welfare costs are high. Macroprudential policy is likely to benefit from clear objectives, committee decision-making, and strengthened accountability mechanisms.

1 Introduction

I am very happy and feel very honored to have been asked to speak at this colloquium to honor Vice President Vítor Constâncio and to contribute a paper to the Festschrift in honor of Vítor and his achievements. My assignment is to talk about "The Future of Monetary Policy and Macroprudential Policy." A reasonable approach to this, I thought, is first to read what Vítor himself has said on this topic and then to consider whether I have something to add, or perhaps to disagree with.

Indeed, Vítor has in the last year talked at length about both topics. On monetary policy, he gave a lecture on "The Future of Monetary Policy Frameworks" in Lisbon in May 2017 (Constâncio, 2017b) and a speech on "The Past and Future of ECB Monetary Policy" in Malta in May this year (Constâncio, 2018b). On macroprudential

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policy, he gave a speech on “The Future of Finance and the Outlook for Regulation” in Rome in November 2017 (Constâncio, 2017a) and another speech on “Financial Stability Risks and Macroprudential Policy in the Euro Area” in Frankfurt in March this year (Constâncio, 2018a). The lecture and the speeches cover a lot of ground.

Regarding monetary policy, the topic of the Lisbon lecture and the Malta speech, Vítor speaks favorably about flexible inflation targeting and finds that it is consistent with ECB’s monetary policy strategy. He provides a thorough discussion of the many suggestions to modify the inflation-targeting framework that have been presented. He discusses the role of financial stability in monetary policy, price-level targeting, nominal-GDP-targeting, simple interest-rate rules, raising the inflation target, whether non-standard monetary policy tools should become standard, the size and composition of central-bank balance sheets, negative interest rates, abolishing cash, helicopter money, and the Neo-Fisherian view that the policy-rate should be raised in order to increase inflation.

In particular, Vítor is skeptical about incorporating financial-stability considerations into monetary policy decisions. He explains why inflation targeting cannot be blamed for failing to prevent the financial crisis. He notes that monetary policy “leaning against the wind” for financial-stability purposes (LAW) may be very costly.

Vítor discusses whether price-level targeting would perform better than inflation targeting in that, if the price level falls below the target, a credible price-level target would lead to higher inflation expectations and a lower real policy rate, also when the policy rate is constrained by the effective lower bound (ELB). But he doubts whether the price level target would be sufficiently credible and notes that a lack of credibility can lead to worse outcomes. On balance, he is therefore against price-level targeting.

Vítor also discusses the arguments in favor of raising the inflation target because of lower neutral rates and a higher risk of reaching the ELB. Because of—often disregarded—broader costs of higher inflation and of the availability of other monetary policy instruments, he finds the idea of raising the inflation target very controversial.

In the Malta speech, Vítor provides a rich and informative historical perspective on the different phases of ECB’s monetary policy since the beginning in 1999, including the controversial policy-rate hikes in the spring of 2011. He furthermore provides a detailed and insightful discussion of the lessons of the financial crisis for central-bank macroeconomic models, the Phillips curve, and different concepts and estimates of equilibrium unemployment rates.

Regarding macroprudential policy and regulation, the Rome speech provides a thorough and detailed discussions of developments in finance and the need for future regulatory reform. The Frankfurt speech takes up the debate about the relation between monetary policy and macroprudential policy and whether or not monetary policy should undertake any LAW.

Vítor is firmly on the side that considers that monetary policy and macroprudential policy are different and should remain separate. This implies that monetary policy should not respond to financial stability concerns and thus not undertake any LAW.

The main argument justifying this stance is that macroprudential policy is now available and is the most effective tool for safeguarding financial stability. This is because macroprudential policy instruments can directly address excessive leverage behavior and do not have the same cost or negative spillovers as monetary policy LAW.

Indeed, Vítor presents an update for the euro area of the kind of cost-benefit analysis of monetary policy LAW that I have proposed (Svensson, 2017a). He shows that, also for the euro area, the costs of are much higher than the benefits. Importantly, he also presents a cost-benefit analysis of macroprudential policy, and he shows that then the benefits exceed the costs, in particular, when macroprudential policy responds to an ECB measure of a euro-area financial cycle.

I said above that I was looking for something to add to—or to disagree with—what Vítor has already said. But now, after having read the lecture and the speeches, I do have a problem: There is little or nothing to add, or to disagree with! Vítor has more or less already said all there is to say. Furthermore, except being more positive to price-level targeting than Vítor is, I more or less completely agree with what he has said. Given this, I will only make a few very selective remarks on the future of monetary and macroprudential policies in this paper.

Regarding the future of monetary policy, I will say something about how the ECB could improve its objective to be clearer and more transparent. In particular, a difficulty with the current formulation is that it is not clear what the precise operational meaning is of the expression “without prejudice to the objective of price stability.” I will suggest that an appropriate interpretation is that average inflation over a longer period, say five years, should be on or close to the inflation target. This can furthermore arguably be seen as a moderate step towards price-level targeting—I hope Vítor is not against this moderate step.

In addition, I will suggest that flexible inflation targeting in general, and for the ECB in particular, can be further developed to be more effective and transparent by more explicit and transparent “forecast targeting.” Here, forecast targeting means choosing a policy rate and policy-rate path such that the corresponding forecasts of the central bank’s target variables “look good.” Here, “looking good” means best achieving the monetary policy objective. Importantly, transparent forecast targeting also involves publishing and justifying not only the forecasts of the target variables but also the policy-rate path and this way trying to make them credible with the private sector and the policy more effective.

I will also say a few things related to the still ongoing debate on whether or not financial stability is a suitable additional objective of monetary policy and whether or not monetary policy should undertake any LAW (in spite of Vítor having said a fair amount on this). I will remind us about the rather extraordinary Swedish experience of monetary policy LAW during 2010{2014 and say a few things about a cost-benefit analysis of LAW, including Vítor’s update for the euro area.

Regarding the future of macroprudential policy, I will remind us about the arguments about whether or not monetary and macroprudential policies are different and whether

or not they are best conducted separately. In particular, I will emphasize the importance in macroprudential policy to distinguish between good and bad credit growth. There is a tradeoff between, on one hand, failing to intervene to stop bad credit growth in time to avoid potentially severe costs to the economy and welfare losses and, on the other hand, being overly activist and intervening to stop good credit growth and this way cause potentially severe costs for the economy and welfare losses.

As an example of the importance of distinguishing between good and bad credit growth, I will point to the current Swedish macroprudential policy and a possible problem with it. Here, Finansinspektionen (the Swedish Financial Supervisory Authority, which is in charge of macroprudential policy) has essentially reduced credit supply to households by implementing and inducing tighter lending standards in a situation when lending standards initially were quite tight. This is done in an attempt to reduce household debt growth in the belief that it is bad credit growth that causes an “elevated macroeconomic risk.” But Finansinspektionen or any other authority has hardly been able to make a case for why the credit growth would be bad, excessive, or due to some market failure, or why it would cause some elevated macroeconomic risk. Finansinspektionen has not presented any cost-benefit analysis in support of its policy. It seems simply to consider all household debt growth above income growth as bad. A closer look at the relevant indicators and Finansinspektionen’s arguments strongly suggest that lending standards were not too low before the new tightening policy, that the household debt growth above income growth is fully consistent with the fundamentals and is a normal market response to these fundamentals, and that there is no evidence of it causing an “elevated macroeconomic risk.” Furthermore, the policy has substantial negative welfare and distributional effects and is likely to reduce the resilience of households.

The paper is organized as follows: Section 2 deals with the future of monetary policy, with section 2.1 on the objective of monetary policy, section 2.2 on forecast targeting, section 2.3 on financial stability as an objective of monetary policy, including the Swedish example of LAW and a cost-benefit analysis of LAW, and section 2.4 with some conclusions on monetary policy. Section 3 deals with the future of macroprudential policy, with section 3.1 on how different monetary and macroprudential policies are and whether or not they are best conducted separately, section 3.2 on the definition of financial stability, section 3.3 on distinguishing good and bad credit growth, section 3.4 on the possible problem in Swedish macroprudential policy, and section 3.5 with some conclusions on macroprudential policy.

2 Monetary policy

Regarding future monetary policy, Vítor “believes that the strategy of flexible inflation targeting works for the euro area and can remain central to any future monetary policy framework” (Constâncio, 2017b, p. 17). He also notes that:

[f]lexible inflation targeting implies that the central bank attempts to reach the [inflation] target gradually in the medium-term and not in the immediate period. ...

[T]his gradualism is equivalent to an objective function that includes both the inflation rate deviation from its target and the output gap. This is close to inflation targeting regimes of central banks with a *dual mandate* but with *primordial importance* given to inflation... (Constâncio, 2017b, p. 2).

This sounds to me as consistent with the standard quadratic loss function representing flexible inflation targeting, except possibly for the phrase “primordial importance given to inflation.” Let me extend a bit about the ECB’s objective for monetary policy and how I believe it can be expressed somewhat more transparently. Indeed, I believe that the ECB’s objective can be formulated as “price stability and full employment,” with price stability as the primary objective and with the objective of full employment being without prejudice of the price-stability objective. Possible alternatives to “full employment” are “maximum sustainable employment,” “minimum sustainable unemployment,” “maximum sustainable output,” “full resource utilization,” “real stability,” etc., which with the appropriate explanation will for practical purposes have the same meaning. Let me in the rest of the discussion simply use the term “full employment.”²

But this requires a clarification of what “primary” and “without prejudice to the objective of price stability” means.

2.1 The objective of monetary policy

ECB (2018c) summarizes the objective of monetary policy as follows (quotation marks in original; italics and footnote 3 added)

To maintain price stability is the *primary objective* of the Eurosystem and of the single monetary policy for which it is responsible. This is laid down in the Treaty on the Functioning of the European Union, Article 127(1).³

“*Without prejudice to the objective of price stability*”, the Eurosystem shall also “support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union”. These include inter alia “*full employment*” and “balanced economic growth”.

...

The Treaty provisions also imply that, in the actual implementation of monetary policy decisions aimed at maintaining price stability, the Eurosystem should also

² As is explained in Svensson (2011b), I am skeptical about the usefulness of estimates of potential output as a reliable measure of full resource utilization and believe that the estimated minimum long-run sustainable rate of unemployment (or the maximum long-run sustainable rate of employment, when the labor-market participation rate is sufficiently endogenous) normally is a more reliable measure.

³ The full Article 127(1) states: “The primary objective of the European System of Central Banks (hereinafter referred to as ‘the ESCB’) shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 119.”

take into account the broader economic goals of the Union. In particular, given that monetary policy can affect real activity in the shorter term, *the ECB typically should avoid generating excessive fluctuations in output and employment* if this is in line with the pursuit of its primary objective. ECB (2018c)

Again, I think most readers of this gets the impression that it is pretty consistent with a standard quadratic loss function, except the reference to “primary objective” and “without prejudice ...”

2.1.1 Without prejudice to the objective of price stability

So, what does the clause “without prejudice to the objective of price stability” mean? I believe that the clause can cause, and has caused, some confusion. I am not aware of the ECB having clarified its precise operational meaning. As far as I can see, as discussed in Svensson (2013, pp. 33-34), an appropriate interpretation is that average inflation over a longer period should be kept on or close to the target, and that allowing average inflation over a longer period to deviate from the target, above or below, is to show prejudice to the objective of price stability.

It is not possible to keep inflation at the inflation target all the time, because the control of inflation is imperfect because inflation is affected by unobservable shocks and responds with a lag to monetary-policy actions. Thus, some deviations of inflation from the target are unavoidable and do not mean that there is prejudice to the price-stability objective. However, it is possible to keep average inflation on target over a longer period, such as 5-10 years or longer. Thus, a deviation of average inflation from the target over a longer period can be seen as indicating prejudice to the price-stability objective.

Given this, the objective of price stability and full employment means stabilizing inflation around the inflation target and employment around its estimated long-run sustainable rate. Furthermore, average inflation over a longer period, say 5 years, should normally be close to the inflation target.⁴ This has actually been achieved by the central banks of Australia, Canada, and the UK from the mid-1990s and by the Fed and the ECB from 2000 until about 2013, but not by the Riksbank (Svensson, 2013, 2015).

2.1.2 The quantitative definition of price stability

The ECB's Governing Council adopted a quantitative definition of price stability in 1998: “Price stability is defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%.” The Council clarified in 2003 that in the pursuit of price stability it aims to maintain inflation rates *below, but close to, 2% over the medium term* (ECB, 2018a). In practice, this may perhaps mean 1.8-1.9%.

⁴ Average inflation targeting is discussed in Nessén and Vestin (2005).

Under the heading “Symmetry,” the ECB’ states:

By referring to “inflation rates below, but close to, 2%” the definition makes clear that not only inflation above 2% but also deflation (i.e. price level declines) is inconsistent with price stability.

This statement about symmetry sounds to me somewhat inconsistent with “below but close to 2%.” It sounds more like symmetry around an interval between 0% and 2%, that is, symmetry around a midpoint of 1%. A symmetric 2% inflation target would be clear and unambiguous. It is difficult to see any disadvantage with it.

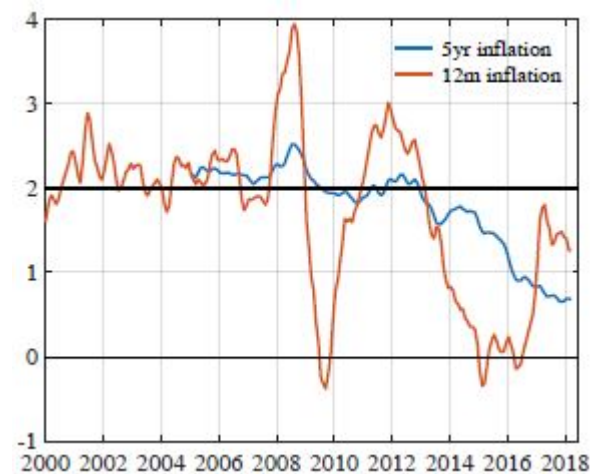
2.1.3 A moderate step towards price-level stability

Figure 2.1 shows that past monetary policy of the ECB has done relatively well regarding price stability in the light of these suggestions. Five-year inflation was initially a bit high but has then been relatively close to 2% until 2013, when in spite of a low policy rate and unconventional monetary policy inflation fell substantially below the target, to a large extent because of collective fiscal consolidation in the euro area (as Vítor emphasizes, Constâncio, 2018b).

Figure 2.1

12-month and 5-year inflation (at an annual rate) for the euro area (HICP)

(3-month moving averages)



Source: Thomson Reuters Datastream.

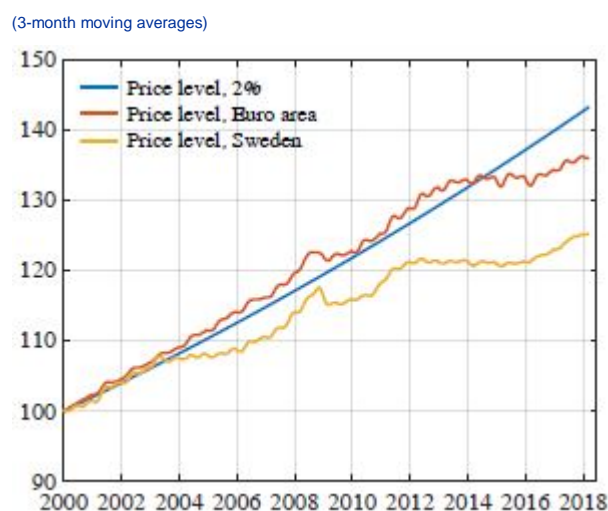
As mentioned, I am somewhat more favorably inclined towards price-level targeting than Vítor. Keeping 5-year average inflation close to the inflation target can be seen as a moderate step towards price-level targeting. If this moderate step towards price-level targeting works well, one may want to take further steps towards price-level targeting.

It is interesting that the ECB ex post has been a pretty successful price-level targeter except in the last few years, as shown in figure 2.2. Several other inflation-targeting central banks have also ex post, up to the financial crisis, kept inflation close to a 2%

price-level path. The Riksbank is a major exception, where 5-year average inflation has been below 2% and the price level has drifted ever further below a 2% price level path (Svensson, 2013, 2015).

Figure 2.2

The price level growing at 2%, the price level for the euro area (HICP), and the price level for Sweden (CPI)



Source: Thomson Reuters Datastream.

2.2 Achieving the objective: Forecast targeting

How can the central bank best achieve the objective of flexible inflation targeting—price stability and full employment—over time and also make the central bank's policy sufficiently transparent so that the central bank can be held accountable for fulfilling the mandate? One possibility that has received considerable attention, especially in the US, is for the central bank to follow a simple rule for setting its instrument, such as a Taylor rule (Svensson, 2017c).

Indeed, the House of Representatives of the US Congress has in the Fed Oversight Reform and Modernization (FORM) Act (U.S. Congress, 2015) and, with identical words, in the Financial CHOICE Act (U.S. Congress, 2017) proposed legislation that effectively makes the original Taylor (1993) rule a Reference Policy Rule for the Federal Reserve. Any departures from that rule would require a detailed justification for that departure and could trigger a full review of monetary policy and a report to the Congress by the US Government Accountability Office. As explained in a letter from then-Chair Yellen to the Congress (Yellen, 2015), for several reasons the provisions of the FORM Act would severely impair the Federal Reserve's ability to carry out its congressional mandate to promote effectively the goals of maximum employment and stable prices.

Vitor is no fan of such simple rules (Constâncio, 2017b, p. 5):

I strongly oppose the idea that central banks' policy rate decisions should be based on these rules. The key reason is that any specific rule is unlikely to be suited for all possible contingencies. The environment in which monetary policymakers have to act is much more complex than what is assumed in model-based analysis of policy rules. A simple rule that responds to one or two macroeconomic variables and ignores all other indicators of price developments is not able to account for the complexities of the real world.

I agree with Vítor. My view is furthermore that *forecast targeting* is superior to a Taylor rule and likely to allow the central bank to effectively fulfill its mandate as well as to be held accountable for fulfilling the mandate (Svensson, 2011a, 2017c). Forecast targeting means setting the policy rate (the short interest rate that is used as a monetary-policy instrument) and the policy-rate path so that the resulting forecasts for the central bank's "target variables," inflation and employment (or unemployment), best fulfill the central bank's mandate of full employment and price stability. Forecast targeting also involves publishing and justifying the central bank's policy-rate path and forecasts for inflation and employment. This serves to effectively implement the selected policy in order to make it credible with the financial market and other economic agents as well as to make it possible to hold the central bank accountable for fulfilling its mandate.

To clarify how inflation targeting works, consider for simplicity a situation of relatively normal times, when the central bank is not doing any active balance-sheet policy but is only using a policy rate as its policy instrument. Furthermore, assume for simplicity that the labor-market participation rate is independent of monetary policy, so that for monetary policy purposes employment varies negatively one-to-one with unemployment. Under this simplification, the central bank's mandate is to keep inflation close to its target of 2% and unemployment close to its estimated long-run sustainable unemployment rate. Then, inflation and unemployment are the central bank's target variables.

Two important circumstances then need to be taken into account: First, monetary policy actions tend to influence economic activity and prices with a lag. Therefore monetary policy is more effective in fulfilling the mandate if it is guided by *forecasts of future* inflation and unemployment than by *current* inflation and unemployment.

Second, the current policy rate has a very small direct impact on economic activity and prices. What matters for economic activity and prices is instead market *expectations of future* policy rates. These expectations affect longer-term interest rates and asset prices, which in turn have an impact on activity and prices. It is the entire expected path of future policy rate that affects economic activity, not the policy rate over the next few days and weeks. This means that an effective monetary policy decision cannot only consist of setting the current policy rate; it must explicitly or implicitly also involve the selection of a policy-rate path, a forecast of the future policy rate. *Not to discuss and select a policy-rate path is an incomplete decision-making process.*

Given this, a rule for the central bank that effectively fulfills its mandate is to select a policy rate and a policy-rate path so that the resulting forecasts for inflation and unemployment "look good." Here, "looking good" means best fulfilling the central

bank's mandate, that is, best stabilizing inflation around its target and unemployment around its long-run sustainable rate.

Why is this rule, forecast targeting, better than, for instance, a Taylor-type rule? First, it takes into account all relevant information available to the central bank. It takes into account the information about the economy, economic activity, and prices that has an impact on the forecasts of inflation and unemployment at a given policy-rate path. It also takes into account all relevant information about the transmission mechanism of monetary policy, that is, how changes in the policy-rate path affect the forecasts of inflation and unemployment at given information about the current state of the economy. Second, the rule therefore adapts to new information and changes in circumstances, and it allows for judgmental adjustments. It avoids the restrictiveness and inflexibility of a Taylor-type rule. The selected policy-rate path and forecasts of inflation and unemployment will in practice be a combination of model simulations, sometimes from several models, and judgmental adjustments.

However, for successful implementation and realization of the selected policy, the policy-rate path needs to be credible, in the sense of market expectations of future policy rates being aligned with the policy-rate path. Implementation of monetary policy is largely about the management of expectations (Woodford, 2004). This includes making the *actual* financial conditions align with the *intended* financial conditions, where the latter can be seen as represented by the policy-rate path.

Economic agents' expectations of future inflation also matter. If the central bank manages to make the inflation target credible, in the sense of making economic agents' inflation expectations align with the inflation target, stabilization of inflation around its target is easier, because actual inflation is much affected by previous expectations of inflation. Then it is also easier to stabilize unemployment around its long-run sustainable rate. The tradeoff between stability of inflation around the target and of unemployment around its long-run sustainable rate becomes more favorable.

2.2.1 Publishing the policy-rate path and forecasts of the target variables

The most effective contribution to making the policy-rate path credible with the market participants and other economic agents is to publish the policy-rate path and the forecasts of inflation and unemployment and justify them and the policy decision. *Not to publish the policy-rate path is to hide the most important information.* Forward guidance is then the default.⁵

⁵ Thus, there is forward guidance in the form a published policy-rate path. Normally, this is a forecast conditional on current information, not a commitment. In exceptional situations, for example, when the central bank is restricted by the effective lower bound for the policy rate, it may be a commitment through a certain date (time-dependent) or conditional on a specific outcome of inflation or employment (state-dependent). See Bernanke (2017) for a recent discussion. (Because the lower bound for the policy rate is not zero but negative, the *effective* lower bound is a more appropriate term than the *zero* lower bound.) Forward guidance in the form of publishing a policy-rate path is called *conventional* forward guidance in Adrian et al. (2018, ch. 1). The ad hoc forward guidance during and after the financial crisis in the form of various announcements about future settings of interest-rate and balance-sheet policies is called *unconventional* forward guidance.

It is common to argue that central banks should convey their reaction function to the market participants and other economic agents. However, under forecast targeting the reaction function, meaning how the policy rate and the policy-rate path respond to information available to the central bank, is far too complex to write as a simple formula such as a Taylor-type rule. It is actually too complex to write down, period. The policy rate and policy-rate path will normally respond to all relevant information, that is, all information that shifts the forecasts of inflation and unemployment. This is a long and changing list, with response coefficients that cannot be specified in advance.

But the reaction function can be conveyed in more general but still both systematic and simple terms. If initially the forecasts look good, for any piece of information that shifts the inflation forecast up (down) and/or shifts the unemployment forecast down (up), policy will normally be tightened (eased), meaning that the policy-rate path will shift up (down). If this response is understood by and credible with the market participants, any new information that is deemed to shift up (down) the inflation outlook or shift down (up) the unemployment outlook, may result in a market response that shifts up (down) the yield curve. This way the financial conditions may shift in the appropriate direction and even of the appropriate amount even before the central bank has responded with a new policy rate and policy-rate paths at the next decision.

Finally, the publication and justification of the central bank's policy-rate path and inflation and unemployment forecasts make it possible to hold the central bank accountable for fulfilling the objective. The policy-rate path and forecasts of inflation and unemployment, the central bank's justification of them and its fulfilment of its mandate can be scrutinized and reviewed both in real time and after the fact, that is, after the outcome for inflation and unemployment have been observed, by external observers and experts and at the usual hearings in parliamentary committees.

2.2.2 A forecast-targeting rule

The forecast-targeting rule can be summarized as these three steps (when resource utilization is taken to be measured by the unemployment gap):

1. For a given policy-rate path (for example, the policy-rate path from the previous decision), construct new inflation and unemployment forecasts, taking into account new information received since the previous decision.
2. If the new inflation and unemployment forecasts "look good" (meaning best fulfilling the man-date), select the given policy-rate path as the decision; if the new inflation and unemployment forecasts do not look good, adjust the policy-rate path so that they do look good.
3. Publish the policy-rate path and inflation and unemployment forecasts and justify the decision in order to make the published path and forecasts credible, meaning making market participant's and other economic agents' expectations align with the published path and forecasts. The justification of the decision may include the publication of inflation and unemployment forecasts for alternative policy-rate

paths different from the selected one and the demonstration that these forecasts do not fulfill the mandate to the same degree.

2.2.3 The Federal Reserve and the ECB

I believe that such a relatively explicit forecast-targeting rule would make flexible inflation-targeting work even better. The Federal Reserve has already practiced forecast targeting to a considerable extent (Svensson, 2017c). Publishing policy-maker forecasts poses some special problems when there are many members in the monetary policy committee, as in the ECB's Governing Council and the Federal Reserve's FOMC. However, the FOMC has shown in its "Summary of Economic Projections," including the dot plot of policy-rate projections, that it is possible to publish at least a summary and illustration of policy-makers forecasts, also when they have rather different views (FOMC, 2018). I would think something similar would also be possible for the ECB's Governing Council. Still, common policy-maker forecasts of target variables and instruments is preferable, if possible, and will be more internally consistent.

The ECB currently produces staff forecasts with the policy-rate path given by market expectations (ECB, 2018b). This implies that the corresponding forecasts of the target variables do not necessarily "look good." I think it would be a useful addition to also publish a staff forecast with a policy-rate path and forecasts of the target variables where these "look good," or at least two alternative forecasts for a more and a less expansionary policy-rate path than the market expectations.

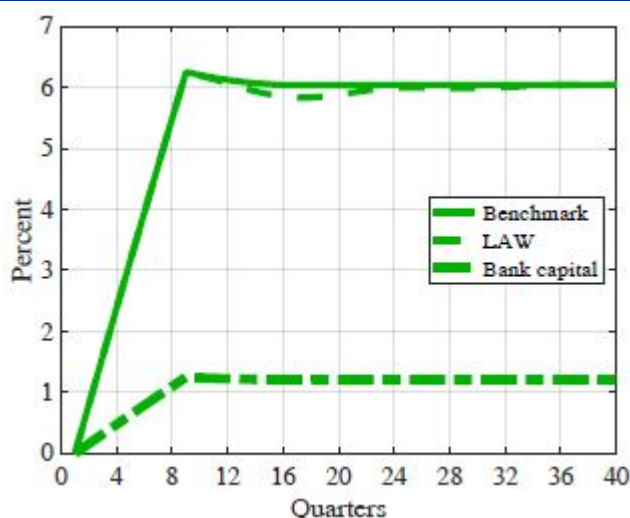
2.3 Financial stability as an objective for monetary policy

Whether financial stability should be an additional objective for monetary policy is much discussed and debated. I have discussed this issue at length, for example recently in Svensson (2018c), but I think the issue can be quite easily resolved. A reasonable principle for assigning goals to economic policies that should be uncontroversial is that *economic policies should only have goals that they can achieve*. Because monetary policy cannot achieve financial stability, it follows from the principle that it should not have financial stability as a goal.

As explained in Svensson (2018c), monetary policy has a strong and systematic effect on inflation and employment but normally a small and unsystematic effect on financial stability. Macroprudential policy has a strong and systematic effect on financial stability but normally a small and unsystematic effect on inflation and employment. In this situation, it is most effective to assign the objective of price stability and full employment to monetary policy and the objective of financial stability to macroprudential policy.

Figure 2.3

The effect on the probability of a crisis in future quarters from either a 1 percentage point higher policy rate during 4 quarters 1-4 or a ratio of bank capital relative to risk-weighted assets of 20%



Source: Dagher et al. (2016, fig. 7) and Svensson (2017a, figs. 2 and 7).

Figure 2.3 shows an example of a relevant quantitative result. It compares the effect on the probability of (having) a crisis in a future quarter of either LAW, in the form a 1 percentage point higher policy rate during quarters 1-4, or macroprudential policy, in the form of a permanent capital requirement of 20% bank capital relative to risk-weighted assets. It is based on the model and estimates in Svensson (2017a), where the details are explained.

The solid line shows the benchmark probability of a future crisis when the annual probability of a crisis start is 3.2% (corresponding to a crisis approximately every 33 years) and the duration of a crisis is 2 years (Svensson, 2017a, fig. 2).⁶ The dashed line shows how the annual probability of a future crisis is affected by LAW in the form of a policy-rate increase of 1 percentage point during quarters 1-4, when the case is tilted in favor of LAW by assuming that the policy-rate (unrealistically) has a permanent effect on real debt (Svensson, 2017a, fig. 7). The effect is nevertheless small, with a maximum reduction of the probability of a future crisis of 0.2 percentage point in quarter 17, and there is no long-run effect.

The dashed-dotted line shows the effect on the probability of a future crisis from macroprudential policy in the form of a bank capital requirement of 20%. The effect is large and reduces the probability of a future crisis permanently by about 4.8 percentage points to about 1.2%, a fifth of the benchmark probability. This is inferred from a result in Dagher, Dell’Ariccia, Laeven, Ratnovski, and Tong (2016, fig. 7). The result indicates that 20% bank capital relative to risk-weighted assets in

⁶ There is no crisis in quarter 1. With a quarterly probability of a crisis start equal to 0.8% and a crisis duration of eight quarters, the probability of having a crisis in a future quarter rises to a steady-state level of approximately 6% (somewhat less than $8 \times 0.8 = 6.4\%$ because of a simplifying assumption that there can be at most one crisis in any 8-quarter period).

the OECD countries would have been enough to cover the losses of about 80% of the historical banking crises since 1970. This is interpreted in figure 2.3 as permanently reducing the probability of a future crisis to one fifth of what it otherwise would have been.

It is sometimes suggested that the so-called risk-taking channel would increase the effect of monetary policy on the probability or severity of crises (for example Borio and Zhu (2008) and Adrian and Liang (2018)). But there is reason to doubt that any risk-taking channel is sufficiently strong to be economically significant.⁷

2.3.1 Leaning against the wind

Nevertheless, whether or not monetary policy should undertake LAW continues to be debated. This involves a tighter policy for financial-stability purposes than justified by standard flexible inflation targeting and has been strongly promoted by the BIS (for instance, BIS, 2014, 2016). It has been followed by Norges Bank (Olsen, 2015), the Reserve Bank of Australia, and the Riksbank (but was later, in the spring of 2014, dramatically abandoned by the Riksbank). But a robust result is that the costs of LAW are higher than the benefits, by a substantial margin. Raising the policy rate simply has too small and uncertain effects on the probability or magnitude of a financial crisis to match the certain substantial costs, in terms of lower inflation and higher unemployment (Svensson, 2017a).

Stein (2013) has put forward the arguably strongest *theoretical* argument in favor of LAW for financial stability purposes:

... while monetary policy may not be quite the right tool for the job, it has one important advantage relative to supervision and regulation—namely that it gets in all of the cracks [of the financial system].

But, given existing *empirical* estimates, a modest policy-rate increase would *barely cover the bottom of those cracks*, as indicated by figure 2.3. To fill the cracks, the policy-rate would have to be increased so much that it may kill the economy (Svensson, 2017a). As often, qualitative effects are not sufficient; estimates of the quantitative effects are necessary for a final assessment.

Also, Vitor is not impressed by Stein's argument but turns it around:

⁷ Dell'Ariccia, Laeven, and Suarez (2017) provide a thorough examination of the risk-taking channel and the effect of the real federal funds rate on a measure of loan risk for US banks, using extensive confidential Federal Reserve data. They find that an increase in the real federal funds rate of 1 percentage point is associated with a statistically significant fall in the loan-risk measure of 0.052 (table IV, column 4). But the effect is economically insignificant. The standard deviation of the loan-risk measure is 0.85 (table I, panel B), so the effect of a 1 percentage point higher real federal funds rate is only $0.052/0.85 = 6.1\%$ of the standard deviation of the loan-risk measure. This means that the loan-risk measure is influenced mainly by factors other than the federal funds rate. This is hardly a risk-taking effect that could have any material effect on the probability or magnitude of a crisis. Furthermore, as the authors emphasize, their results are not well suited for answering whether the additional risk-taking of banks facing more accommodative monetary policy is *excessive* from a social-welfare standpoint.

[T]he fact that monetary policy “gets in all the cracks” of the financial system was seen as an advantage by Jeremy Stein. However, it can easily become a significant inconvenience if it creates an unnecessary recessionary episode or, when in a monetary union, a financial instability episode is not generalised across all countries (Constâncio, 2018b).

2.3.2 The Swedish experience

The recent experience in Sweden provides, first, a dramatic example of LAW and, second, an equally dramatic complete turnaround of policy.⁸ In June 2010, the forecasts for inflation and unemployment by the Riksbank for Sweden and by the FOMC for the US looked very similar. The inflation forecast was below 2% and the unemployment forecast was far above each central bank’s estimate of a long-run sustainable rate (Svensson, 2011b, figs. 1 and 2). With reference to those June 2010 FOMC forecasts, Bernanke (2010) concluded that “[g]iven the [FOMC’s] objectives, there would appear—all else being equal—to be a case for further action,” meaning a case for further easing of monetary policy. Indeed, at the time, the FOMC continued to keep the policy rate close to zero but started preparing QE2.

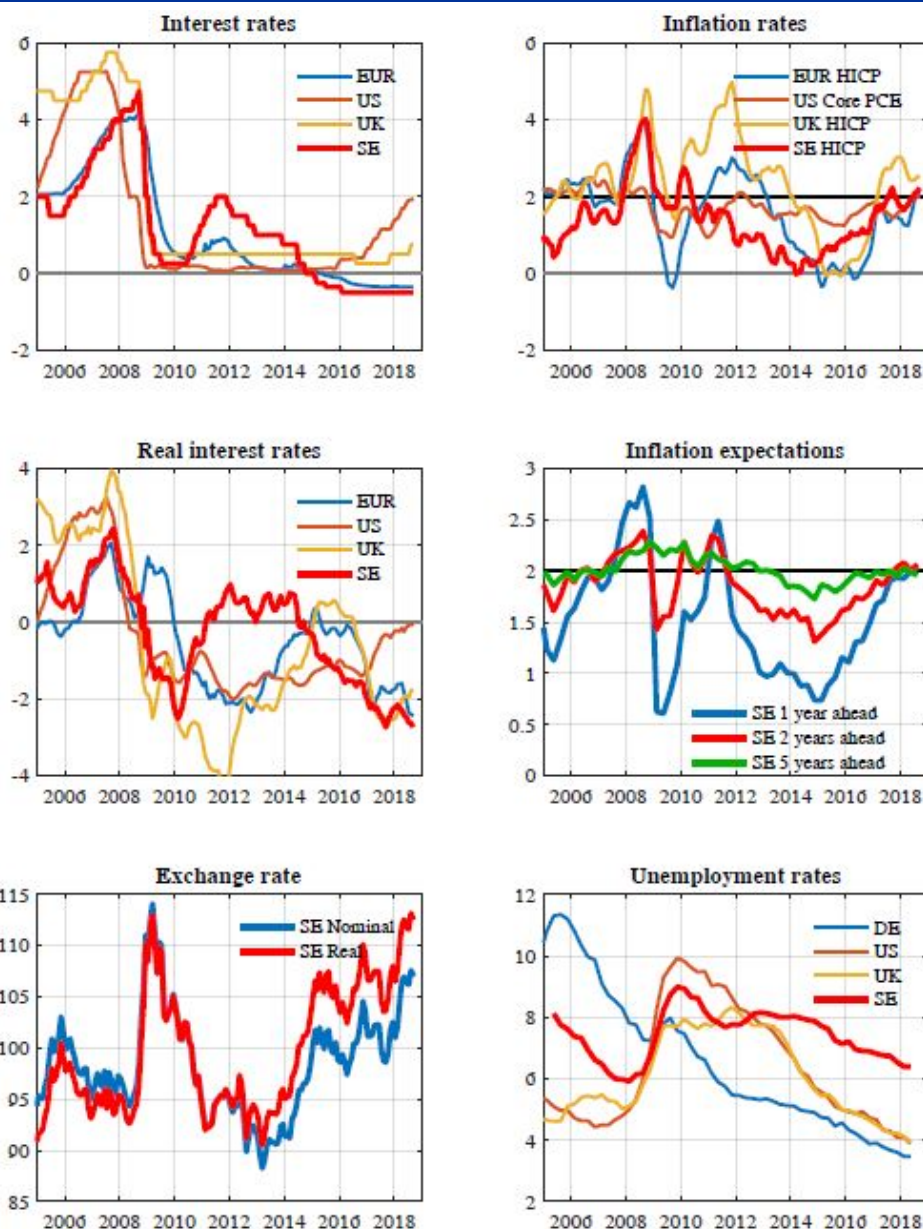
In contrast, in spite of the similar forecasts, the majority of the Riksbank’s executive board did not continue to keep the policy rate close to zero and did not prepare any QE. Instead it raised the policy rate rapidly from 0.25% in July 2010 to 2% in July 2011, citing concerns about housing prices and household debt.⁹

⁸ Turner (2017) provides a broad discussion of LAW with examples from several countries.

⁹ Full disclosure: As a Deputy Governor and Member of the Riksbank’s Executive Board at the time, I dissented against every single rate increase and thereafter in favor of larger rate decreases. The reasons are explained in Svensson (2010) and in more detail in the Riksbank’s attributed minutes from the policy meetings, for example, the June/July meeting 2010, Sveriges Riksbank (2010) (available in English at www.larseosvensson.se or www.riksbank.se). My lessons from six years of policymaking, ending in May 2013, are summarized in Svensson (2013).

Figure 2.4

Interest rates, inflation rates, and real interest rates for Sweden, the euro area (the eonia rate), the UK, and the US; inflation expectations (of money-market participants) and real exchange rates for Sweden; unemployment rates for Sweden, Germany, the UK, and the US during 2005-2018.



Source: Thomson Reuters Datastream and TNS Sifo Prospera.

In figure 2.4, the top-left panel shows the policy rates for Sweden, the US, and the UK, and the eonia rate for the euro area. We see the dramatic rise of the Riksbank's policy rate starting in mid 2010. The top-right panel shows the inflation rates (measured by the core PCE index for the US and the HICP index for the other economies). Swedish inflation fell and reached zero in the beginning of 2014. The middle-left panel shows the corresponding real interest rates (measured as interest rates less inflation). The real interest rate rose dramatically in Sweden, creating a large real interest-rate

differential to the other economies. The bottom-left panel shows the real and nominal effective Swedish exchange rate. The krona depreciated much during the fall of 2008, which mitigated the effect of the crisis, but then appreciated as much during the tightening 2010- 2011. The middle-right panel shows the CPI inflation expectations of Swedish market participants for inflation one, two, and five years ahead. We see that inflation expectations fell with a lag when actual inflation fell. The bottom-right panel shows that the Swedish unemployment rate, which was falling after having peaked in early 2010, stabilized at a high level after the policy tightening, and then even rose. In Germany and the US, the unemployment rate steadily fell.¹⁰

The ECB also raised the policy rate, in April and July 2011, and has received some criticism for it (the top-left panel in figure 2.4 shows the eonia rate rather than the policy rate, so the distinct hikes are not clearly visible). Vítor discusses this and says:

... [C]oncerns were also voiced about the reduction in the ECB's balance sheet size beginning in 2012 and a possible link to the recession and low inflation period that followed. This view is compounded by the criticism of the two policy rate increases in April and July of 2011, taking it from 1% to 1.5%. This episode and the double dip in growth deserve therefore further comment. Those rate increases came on the wake of developments in the first half 2011, showing economic growth slightly above 2% and with inflation attaining 2.75% in the second quarter. We were also overly influenced by growth forecasts which turned out to be excessively optimistic.

...

With hindsight, it is now clear that increasing interest rates during this phase was premature. The economy weakened markedly after the summer, on the wake of the acute market pressures on the sovereign debt of Spain and Italy that led to a second round of interventions in the sovereign bond markets under the Securities Market Programme (SMP). The two consecutive rate hikes were quickly reversed in November and December of that same year. In view of the long lags of monetary policy effects, it is obvious that the quick succession of increases and reductions of policy rates cannot be responsible for the recessionary episode of that period. What really was responsible for the recession of 2012/2013 was the coordinated fiscal consolidation in which all member states engaged (Constâncio, 2018b).

However, whatever the ECB did pales in comparison with the Riksbank hikes. Also, the ECB's quickly reversed the hikes. Furthermore, it is sometimes overlooked that there is an important difference between the ECB and the Riksbank hikes. The ECB hikes were done when euro-area inflation was increasing (top-right panel). Although the nominal eonia rate rose somewhat, the real eonia rate stayed low and even fell in 2011 (middle-left panel). Indeed, the policy-rate hikes were consistent with continued quite expansionary policy, measured as the real eonia rate. In contrast, the Riksbank

¹⁰ Turner (2017, p. 17-20) compares the policies of Bank of England and Bank of Canada and notes that Bank of England conducted a tighter policy during late 2001 to mid 2004 because of worries of financial imbalances, which lead to a substantial appreciation of sterling against the dollar.

hikes were made when inflation fell, so the real policy rate rose dramatically, creating a large gap to the real rates of the euro area and the other economies and a strong appreciation of the krona.

In early 2014, the majority of the Riksbank executive board apparently realized that the situation was unsustainable, with inflation close to zero, inflation expectations falling below the target, and unemployment very high. The Riksbank policy was dramatically reversed. The policy rate was lowered and reached zero in October. In February 2015, the policy rate was moved into the negative range. The Riksbank then also initiated a program of asset purchases. The policy rate was further lowered and eventually reached minus 0.5% in February 2016 (top-left panel). Inflation rose back to close to the target of 2% (top-right panel), the real interest rate fell to below minus 2% (middle-left panel), the krona depreciated much (bottom-left panel), inflation expectations rose back to 2% (middle-right panel), and unemployment started to come down (bottom-right panel).

Apparently, monetary policy works according to the textbook in Sweden. Tightening appreciates the krona, reduces inflation, and increases unemployment. Vice versa for easing.¹¹

The dramatic tightening 2010-2011 was done without any supporting analysis of the efficacy of the policy rate as an instrument to contain the growth in household debt and housing prices and, in particular, without any explicit cost-benefit analysis. As noted in Svensson (2010), the available empirical work at the time indicated very high costs in terms of output and unemployment and small effects on debt and housing prices.¹²

Furthermore, there was no work indicating that the level of housing prices and household debt posed any risks that Finansinspektionen could not manage on its own, for instance with its LTV cap of 85% for new mortgages that Finansinspektionen introduced in the fall of 2010. Also, Finansinspektionen could assess risks connected to housing prices and household debt with considerable precision in its commendable report *The Swedish Mortgage Market*, which among other things included stress tests on households with new mortgages using microdata collected from the lending banks. The stress tests showed that households had substantial debt-service capacity and substantial resilience against shocks in the form of higher mortgage rates, falling housing prices, and income losses due to unemployment.¹³

¹¹ A very open economy with large export and import implies a strong exchange-rate channel in the transmission mechanism of monetary policy. High household debt with adjustable mortgage rates also implies a strong cash-flow channel that affects household consumption (Flodén et al., 2016).

¹² See, for example, Assenmacher-Wesche and Gerlach (2010), Bean et al. (2010), and Dokko et al. (2010) (working paper available in 2009). In particular, Riksbank staff members Claussen et al. (2011) showed, using Swedish data, that preventing housing prices from increasing above trend 2004-2010 would have required policy-rate increases of up to 5 percentage points. Inflation would have fallen up to 6 percentage points below the inflation target, and the accumulated GDP loss would have been about 12%.

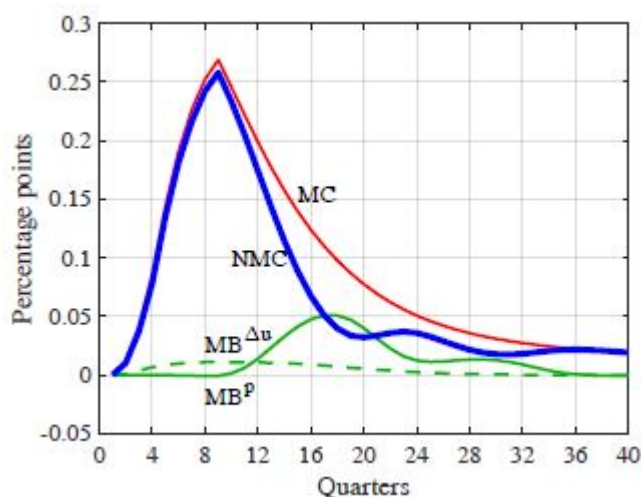
¹³ The 2010 report is only available in Swedish; from 2011 the mortgage market report is also available in English. The most recent is Finansinspektionen (2018b).

2.3.3 Cost-benefit analysis of LAW

This Swedish experience certainly stimulated my own interest in a cost-benefit analysis of LAW. In Svensson (2017a), the marginal costs and benefits of LAW are assessed. LAW is specified as increasing the policy rate above what is justified by standard flexible inflation targeting that disregards the risk of a financial crisis. LAW has a *first* cost, in terms of a weaker economy with lower inflation and higher unemployment, if no crisis occurs. Importantly, LAW also has a *second* cost, a cost that arises if a crisis occurs. This is because the cost of a crisis of a given magnitude is larger if the economy initially is weaker due to LAW. This second cost turns out to be the main cost of LAW. It has been neglected by previous literature (including my own previous work).

Figure 2.5

The marginal cost (MC), marginal benefits from a lower probability (MB^P) and smaller magnitude ($MB^{\Delta u}$) of a crisis, and net marginal cost (NMC); permanent policy-rate effect on real debt



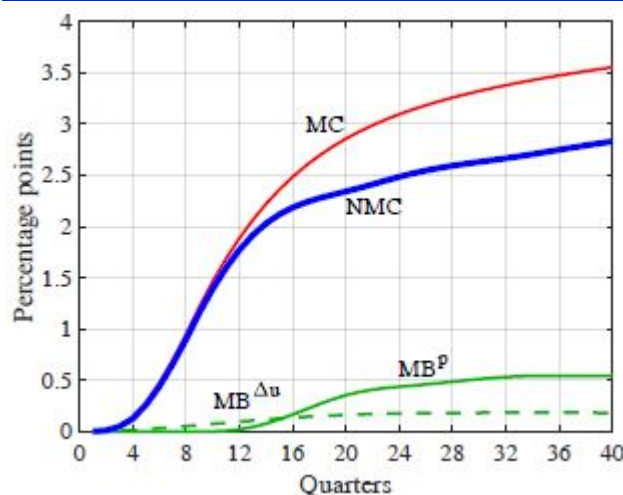
Source: Svensson (2017a).

LAW has possible benefits in the form of a lower probability or smaller magnitude of a crisis. However, for existing empirical estimates, the policy-rate effect on the probability and magnitude is much too small to prevent the marginal costs from exceeding the marginal benefits by a substantial margin. Figure 2.5 shows the marginal cost, the marginal benefits from a lower probability and a smaller magnitude of crisis, and the net marginal cost in future quarters from LAW in form of a 1 percentage point higher policy rate during quarters 1-4 than what is optimal when the possibility of a financial crisis is disregarded. Figure 2.6 shows the cumulative marginal costs and benefits. We see that the cumulative marginal cost exceeds the marginal benefits by a large margin. Furthermore, as in figure 2.3, the case is tilted in favor of LAW by assuming that the policy-rate (unrealistically) has a permanent effect on real debt. With the more realistic assumption of no long-run policy-rate effect on real debt, the marginal benefits are even smaller.

The result that the costs exceed the benefits is quite robust to alternative assumptions. To get to break-even, that is, equality between the marginal cost and the marginal benefit, the policy-rate effects need to be 5-40 standard errors larger than the benchmark empirical estimates.^{14 15}

Figure 2.6

Cumulative marginal cost, marginal benefits from a lower probability and smaller magnitude of a crisis, and net marginal cost; permanent policy-rate effect on real debt



Source: Svensson (2017a).

A recent IMF staff paper (IMF, 2015) presents a thorough analysis and survey of the pros and cons of LAW and finds that except in the most exceptional circumstances, costs outweigh benefits. It concludes that, “[b]ased on current knowledge, the case for leaning against the wind is limited, as in most circumstances costs outweigh benefits.” The IMF’s recent extensive study of flexible inflation targeting Adrian et al. (2018) reaches the same conclusion. Former Federal Reserve Board Chair Ben Bernanke and Bank Presidents Charles Evans and John Williams have previously reached similar conclusions.¹⁶ The FOMC has also reached a similar conclusion.¹⁷ The

¹⁴ As discussed in some detail in Svensson (2017a, section 5), Svensson (2017b), if the second cost of LAW is neglected, as in previous work and in recent papers by Filardo and Rungcharoenkitkul (2016) and Gourio et al. (2017), then, for zero LAW, the marginal cost of LAW is zero. If the marginal benefit is positive, then some positive LAW is optimal. However, the marginal cost rises rather quickly, so the optimal LAW is quite small, corresponding to a small increase in the policy rate and, as in Gourio et al. (2017), a small reduction of only a few basis points of the annual probability of a crisis start. A similar result has previously been reported by Ajello et al. (2016).

¹⁵ That the policy-rate effects need to be 5-40 standard errors larger than existing benchmark empirical estimates to get to break-even contradicts Adrian and Liang (2018), who have argued that reasonable alternative assumptions about the policy-rate effect on the probability or magnitude of a crisis would overturn the result (Svensson, 2017a, section 5).

¹⁶ “As academics (and former academics) like to say, more research on this issue is needed. But the early returns don’t favor the idea that central banks should significantly change their rate-setting policies to mitigate risks to financial stability” (Bernanke, 2015). “Indeed, any decision to instead rely on more-restrictive interest rate policies to achieve financial stability at the expense of poorer macroeconomic outcomes must pass a cost-benefit test. And such a test would have to clearly illustrate that the adverse economic outcomes from more-restrictive interest rate policies would be better and more acceptable to society than the outcomes that can be achieved by using enhanced supervisory tools alone to address financial stability risks. I have yet to see this argued convincingly” (Evans, 2014). “[M]onetary policy is poorly suited for dealing with financial stability, even as a last resort” (Williams, 2015).

Independent Review of BIS Research (Allen, Bean, and Gregorio, 2016) has noted that:

... so far the [BIS] argument for LAW seems to have cut relatively little ice with those actually responsible for setting monetary policy. In part, that is because of the lack of convincing evidence that the expected benefits outweigh the expected costs.

... in some cases the research programme appeared somewhat one-eyed. [Of 9 projects on financial stability and monetary policy] the first and (to some extent) the fifth seem motivated primarily by a desire to overturn Svensson's [2017a] conclusion on the inadvisability of LAW.

... the research effort ... seems excessively focussed on building the case for LAW, rather than also investigating the scope for other policy actions to address financial stability risks." [Reference updated.]

The Riksbank does also now seem to conclude that the costs of LAW exceed the benefits.¹⁸

Furthermore, Vítor has strongly supported the conclusion that the costs of monetary policy LAW for financial-stability purposes exceeds the benefits (Constâncio, 2017a,b, 2018b). In particular, in a recent speech, Vítor presents an ECB staff update of my cost-benefit analysis for the euro area (Constâncio, 2018a). His figure 1 is reproduced in figure 2.7. He shows that also in the euro area, the cumulative marginal cost exceeds the cumulative marginal benefits with a substantial margin, although a somewhat smaller margin than the one I got (in the benchmark case when I did not tilt the case in favor of LAW by assuming that monetary policy unrealistically has a permanent effect on real debt as in figures 2.5-2.6). Furthermore, Vítor shows that, for macroprudential policy, the cumulative marginal benefits exceed the cumulative marginal cost, especially when macroprudential takes into account an ECB measure of the "financial cycle."

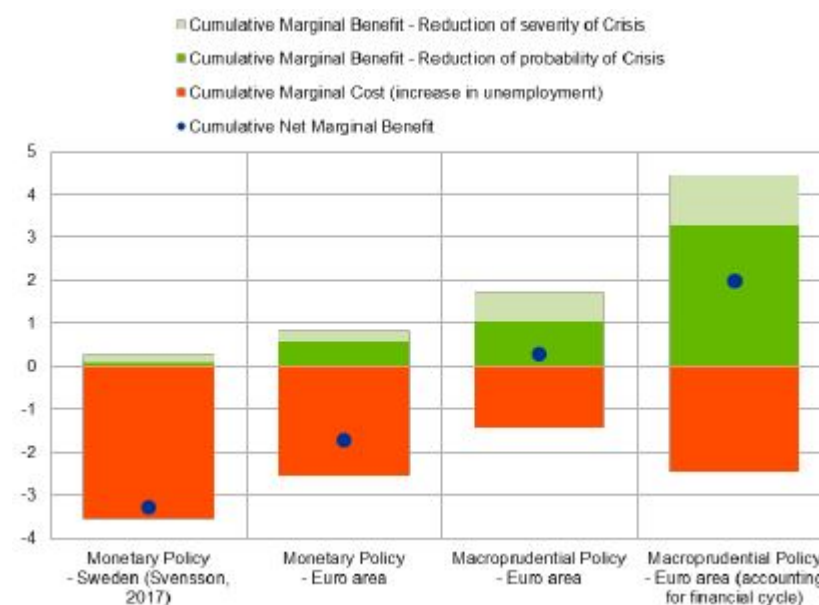
¹⁷ "Most participants judged that the benefits of using monetary policy to address threats to financial stability would typically be outweighed by the costs ... ; some also noted that the benefits are highly uncertain" (FOMC, 2016).

¹⁸ "It is not likely that small increases in the repo rate would have any tangible effects on household indebtedness. A large increase in the repo rate could certainly slow down the buildup of debts but would also lead to higher unemployment, a much stronger krona and lower inflation. Other measures more specifically aimed at reducing the risks associated with household debt have less negative effects on the economy as a whole" (Sveriges Riksbank, 2017, p. 13).

Figure 2.7

Net marginal costs of “leaning against the wind”: Monetary policy vs. macroprudential policy (Figure 1 in Constâncio, 2018b)

(cumulative impact after 40 quarters; in percentage points of the loss function)



Sources: Svensson (2017), Darracq Pariès, Kok and Rodríguez Palenzuela (2011) and ECB calculations.

Note: The monetary policy measure is a 1 pp. increase of the policy rate over 4 quarters. The macroprudential measure considered here is a 1 pp. increase of the capital buffer requirement. The “financial cycle” variable is a composite measure of four indicators including total credit growth, house price growth, interest service burden and debt-to-income ratio.

2.4 Conclusions on monetary policy

In the quite selective discussion above, I have suggested that the monetary policy strategy of the ECB can be further clarified by modifying the quantitative definition of price stability to correspond to a symmetric inflation target of 2%. I have also suggested that the objective the ECB monetary policy can be expressed as price stability and full employment, without prejudice to the objective of price stability. Possible alternatives to “full employment” are “maximum sustainable employment,” “minimum sustainable unemployment,” “maximum sustainable output,” “full resource utilization,” “real stability,” etc., which with the appropriate explanation will have for practical purposes the same meaning.

Furthermore, I have suggested that the expression “without prejudice to the objective of price stability” is clarified to mean that average inflation over a somewhat longer period, for example five years, shall normally be close to the symmetric inflation target.

Figure 2.1 above shows that past monetary policy of the ECB had done relatively well regarding price stability in the light of these suggestions. As mentioned, keeping 5-year average inflation close to the inflation target is a moderate step towards price-level targeting. If this moderate step towards price-level targeting works well, one may want to take further steps towards price-level targeting. It is interesting, as

shown in figure 2.2, that the ECB ex post has been a pretty successful price-level targeter except in the last few years.

Above, I have also suggested that flexible inflation targeting can be further developed in doing more explicit forecast targeting, including the publication and justification of forecasts of the target variables and, importantly, of the policy rate and any other instrument. Thus, central banks would then not only publish forecasts of inflation and unemployment or output, but also of the policy rate. Publishing policy-maker forecasts poses some special problems when there are many members in the monetary policy committee, as in the ECB's Governing Council and the Federal Reserve's FOMC. However, the FOMC has shown in its "Summary of Economic Projections" that it is possible to publish at least a summary and illustration of policy-makers forecasts. I would think something similar would also be possible for the ECB's Governing Council. Still, a joint policymaker policy-rate path and forecast of target variables is preferred, if possible.

I have also suggested that the ECB staff forecast could include forecasts for other policy-rate paths than that corresponding to market expectations. This would allow for staff forecasts that "look good" in the sense of achieving the ECB's objectives but also provide a menu of alternative policy choices.

Given the strong and increasing evidence, one might think that the debate about whether monetary policy should have financial stability as an objective and whether monetary policy should undertake LAW for financial-stability purposes would be over by now, but I am afraid that it will stay for a bit longer.

The discussion above has not dealt with a low neutral interest rate and the lower bound for the policy rate. The low neutral interest rate and the likelihood that the neutral interest rate will stay low for a relatively long period means—everything else equal—that the effective lower bound of the policy may more often prevent monetary policy from being sufficiently expansionary when negative shocks occur. Raising the inflation target and price-level targeting have been suggested as possible modifications to make the effective lower bound less restrictive.

However, the effective lower bound is lower than we thought before. It is not zero but negative, and it is not hard but soft. Also, central banks have developed unconventional policy instruments as substitutes for and complements to low policy rates. This means that there is still room to make monetary policy quite expansionary. Furthermore, one needs a high bar to raise a credible and established inflation target, especially because this may cause expectations of further adjustments in the future and thus reduce the target's credibility. My view is that there is not yet sufficient evidence and experience to justify raising current inflation targets. But future evidence and experience may provide such justification.

One result of the experience with the lower bound is a renewed interest in price-level targeting. In particular, a temporary and state-contingent price-level target have been proposed when the lower bound and related circumstances prevent monetary policy from being sufficiently expansionary (Evans, 2010; Bernanke, 2017). I find the arguments in favor of this quite convincing and believe that plans to use such

temporary price-level targets should be prepared for situation in which they may be needed.¹⁹ In particular, if some weight is regularly placed on keeping 5-year average inflation close to the target, this may make the transition to a temporary price-level target when needed easier and smoother. A target for 5-year average inflation is quite similar to a 5-year price-level target path.

3 Macroprudential policy

Macroprudential policy is a quite new policy. There are only a few years of experience yet. It is desirable that macroprudential policy can become as established a policy as monetary policy, with clear objectives, a set of sufficient instruments, and a good governance setup, including mechanisms to evaluate the policy and hold policymakers accountable for achieving the objectives.

3.1 Different and separate

As discuss in Svensson (2018c), at a closer look monetary policy and macroprudential policy are quite different policies. They have different suitable goals: price stability and full employment (real stability) for monetary policy and financial stability for macroprudential policy. They have different suitable instruments, and in many countries different responsible authorities. In particular, they work through very different transmission mechanisms. The transmission mechanism of monetary policy to achieve price stability and real stability and the transmission mechanism of macroprudential policy to achieve sufficient resilience of the financial system are quite different.²⁰

Still, there is some interaction between the policies. Monetary policy has a strong and systematic effect on price stability and real stability and normally a small, indirect, and unsystematic effect on financial stability. Macroprudential policy has a strong and systematic effect on financial stability and normally a small, indirect, and unsystematic effect on inflation and resource utilization. Given this, the conditions are fulfilled for the policies being successfully conducted separately, as in a Nash equilibrium, with each policy focused on achieving its goals while taking into account the conduct and effects

¹⁹ A temporary price-level target is one component of the Foolproof Way of Escaping from a Liquidity Trap which I suggested for Japan many years ago (a second component is a currency depreciation and a temporary exchange-rate peg and the third and final component is an exit strategy, namely to return to normal policy making when the price-level target has been reached (Svensson, 2003). Interestingly, the Czech National Bank has successfully used a variant of the Foolproof Way in dealing with the lower bound, namely a variant using a depreciation and a currency floor to reach its inflation target rather than a temporary price-level target (Clinton et al., 2017).

²⁰ In contrast, (Borio, 2014, p. 41) has suggested that monetary policy and macroprudential policy may cause a tension by being employed in opposite directions: “it is a bit like driving by pressing on the accelerator and brake simultaneously—not exactly what is normally recommended.” This use of a driving metaphor presumes that monetary and macroprudential policies work through very similar mechanisms. But I find this metaphor quite misleading. Staying within driving metaphors, I would suggest that a more relevant metaphor is that monetary policy operates the accelerator and the brake to achieve a steady optimal speed of the car. This means monetary policy presses on the accelerator when the road is uphill and on the brake when it is downhill. Macroprudential policy makes sure that the safety belts and airbags are in good condition, that the safety belts are being used, and that the airbags are activated. The policies are normally more or less orthogonal.

of the other policy. The interaction between monetary policy and macroprudential policy is arguably weaker and less systematic than the interaction between monetary policy and fiscal policy; this arguably makes the argument for the separation of monetary policy and macroprudential policy stronger than for the separation of monetary policy and fiscal policy.²¹

There is thus a strong case for separation of monetary and macroprudential policies (Bean, 2014; Broadbent, 2018; Constâncio, 2018a; Kohn, 2015; Svensson, 2018c). In particular, Vítor says:

My own view is that the two policies are different and should remain separate, ... implying that monetary policy should not respond to financial stability concerns. The new main justifying argument for this stance is that macroprudential policy is now available and is the most effective tool for safeguarding financial stability. This is because policy instruments directly address excessive leverage behaviour and do not have the same cost or negative spillovers of a “leaning against the wind” policy (Constâncio, 2018a).

3.1.1 Separate decision bodies

The separation of monetary and macroprudential policies is strengthened if there are two separate decision bodies. One well-known example of separate decision bodies is the UK one. The Bank of England has responsibility for both monetary and macroprudential policies, but there are two decision-making bodies, the MPC in charge of monetary policy and the FPC in charge of macroprudential policy. Each committee has its goals and its instruments, and each is accountable for achieving its goals. Furthermore, each policy is conducted in an open and transparent way, and there is some overlap of members in the two committees. This makes each committee fully informed about the conduct and effects of the other committee’s policy.

Another, probably less known example is the Swedish one. In August 2013, the Swedish government announced a new strengthened framework for financial stability in Sweden and clarified the roles and responsibilities of the relevant authorities. Finansinspektionen was assigned the main responsibility for financial stability and received control of all macroprudential instruments, including the countercyclical capital buffer. The Riksbank thus has no macroprudential instruments (except communication) for crisis prevention, only lending of last resort for crisis management. Because Finansinspektionen is an authority under the government, the government has the ultimate responsibility and accountability for financial stability, including any welfare, intergenerational, and other distributional consequences and tradeoffs.²²

²¹ One cannot exclude that the rare situation could occur that monetary policy for some reason poses a threat to financial stability that the macroprudential authority cannot manage with its available instruments. Then some coordination is warranted. How this can be done is discussed in Svensson (2018c, section 7).

²² In Sweden, the Riksbank is an authority under the Swedish Parliament, not under the government.

Monetary and macroprudential policies in Sweden are normally conducted in a transparent and open way, making it easy for the Riksbank and Finansinspektionen to be fully informed about the conduct and effects of the other authority's policy. Furthermore, the government has created a new Financial Stability Council, with the minister of financial markets from the Ministry of Finance as chair and the director generals of Finansinspektionen and the Swedish National Debt Office (which is the national bank-resolution authority in Sweden) and the governor of the Riksbank as members.

The Council meets regularly and is a forum for exchange of information and discussion of financial-stability issues, including reports commissioned by the Council from workgroups formed by staff of the authorities represented in the Council. The Council has no decision power; this power rests with the authorities represented in the Council. The Council creates a forum where the authorities can exchange information about their respective views and policies relating to financial stability. In a crisis, the Council will lead and coordinate the crisis management.

Conducting monetary policy and macroprudential policy separately has the considerable advantage that each policy, with its separate goals and instruments, becomes more distinct, more transparent, and easier to evaluate. This in turn makes it easier to hold the decision-making body for each policy accountable for achieving its goals. This creates stronger incentives for each policy achieves to achieve its goals and thereby makes it more likely that the goals are achieved. As is the case for monetary policy and fiscal policy, transparency and accountability aspects provide strong additional arguments for the separation of monetary policy and macroprudential policy.

3.2 The definition of financial stability

For macroprudential policy, the primary goal is financial stability. The definition of financial stability is not as clear and obvious as the definition of price stability and full employment. One definition of financial stability is that the financial system can fulfill its three main functions (transforming saving into financing, allowing risk management, and transmitting payments) with sufficient resilience to disturbances that threaten these functions. The crucial part of the definition is sufficient resilience. In the future, there will unavoidably be disturbances and shocks to the financial system, very likely from unanticipated directions and of unanticipated kinds. The crucial thing is then that there is sufficient resilience to disturbances, so as to limit the probability and magnitude of financial crises.²³

According to ESRB (2013), “the ultimate objective of macro-prudential policy is to contribute to the safeguard of the stability of the financial system as a whole, including

²³ This specification of the goal of macroprudential policy is consistent with the definition in IMF (2013, p. 6) of macroprudential policy as “... the use of primarily prudential tools to limit systemic risk. A central element in this definition is the notion of systemic risk—the risk of disruptions to the provision of financial services that is caused by an impairment of all or parts of the financial system, and can cause serious negative consequences for the real economy.” Everything else equal, more resilience means less systemic risk.

by strengthening the resilience of the financial system and decreasing the build-up of systemic risks, thereby ensuring a sustainable contribution of the financial sector to economic growth.”

The resilience of the financial system needs to be considered relatively broadly. It is not only the resilience of lenders, banks and other financial intermediaries, that matters. The resilience of borrowers, including households and firms, for example in real estate and construction, may also matter.

Importantly, there may be a tradeoff between financial stability and resilience on one hand and efficiency, growth, and prosperity on the other. We clearly do not want the stability of the graveyard. Regulation has benefits to the extent that it remedies negative effects of some market failures, such as externalities, but it may also have costs in terms of less competition, less efficient resource allocation, and so on. Regulation may also have income- and wealth-distribution effects, including intergenerational effects. This means that macroprudential policy needs to have a secondary goal. For example, the Bank of England’s Financial Policy Committee has a secondary objective identical to that of its Monetary Policy Committee, namely of “supporting the economic policy of Her Majesty’s Government, including its objectives for growth and employment” (Hammond, 2017). More generally, macroprudential policy actions need to be supported by a cost-benefit analysis, showing that the benefits exceed the costs.²⁴

The Swedish government has long specified that the objective of Finansinspektionen is:

to ensure that the financial system is stable and characterised by a high level of confidence and has smoothly functioning markets that meet the needs of households and corporations for financial services, and provides comprehensive protection for consumers (Swedish Ministry of Finance, 2017).

However, in December 2013, the government added a clause to the objective, which instructs Finansinspektionen:

to take measures to counteract financial imbalances with a view to stabilising the credit market.

This is in my mind an unfortunate addition, a kind of rubber paragraph in which it is not clear what is meant by “financial imbalances” and “stabilising the credit market.” It is problematic when an objective is ambiguous and open to interpretation.²⁵ In particular, it is strange that the government did not follow one of the ESRB (2013) related recommendations on intermediate objectives that was issued in April 2013, namely (ESRB, 2013, p. 4, italics added):

to mitigate and prevent excessive credit growth and leverage.

²⁴ As noted above, Constâncio (2018a, figure 1), reproduced in figure 2.7, provides an example of a cost-benefit analysis of macroprudential policy.

²⁵ I have yet to see a definition of “financial imbalances.” And what is a “financial balance”?

The restriction to “excessive” credit growth and leverage is important and makes it clear that one has to identify growth and leverage that are excessive from a social-welfare point of view. The ESRB also emphasizes the importance of identifying intermediate objectives on the basis of specific market failures and mapping these into intermediate objectives (ESRB, 2013, p. 7 and table 1):

Identifying intermediate objectives on the basis of specific market failures documented in the literature may allow for a clearer classification of macro-prudential instruments, ensure an economic base for the calibration and use of those instruments and foster the accountability of macro-prudential authorities. ... To develop a comprehensive view on intermediate objectives, this [Recommendation] uses the literature to identify the market failures relevant for macro-prudential policy and then maps them to individual objectives.

3.3 Good and bad credit growth

One important issue in macroprudential policy is how to deal with credit booms and credit growth. A difficulty is that all credit booms are not bad. There are good credit booms, and there are bad credit booms. Depending on the sample, only about a third or a quarter of credit booms end in a financial crisis (Dell’Ariccia et al., 2012; Richter et al., 2018). Distinguishing between them is not easy. There is a tradeoff between, on one hand, failing to intervene to stop bad booms in time to avoid potentially severe costs to the economy and, on the other hand, being overly activist and intervening to stop a good boom and this way cause potentially severe costs for the economy. Again, one does not want the stability of the graveyard.

Households’ access to credit and borrowing allows efficient consumption smoothing and the build up of liquidity and more efficient asset portfolios. It allows households to overcome temporary difficult times and maintain their consumption and standard of living. It therefore increases households’ resilience. It allows household with income but without wealth to borrow and purchase a home or other durables, such as cars, and start using them without first saving for a long period. If there is no functioning rental market, as is the case in Swedish major cities due to rent control, there is little alternative to owner-occupied housing. Then borrowing is necessary for households without sufficient wealth. Good credit growth is then, for example, due to financial deepening with improved lending standards and improved mortgage products that increase access to credit for suitable borrowers. It may be due to rising incomes, sustained falls in interest rates, increased demand for owner-occupied housing, fundamentals-driven increases in housing prices, and other- wise explained and driven by sustained movements of fundamentals. In particular, good credit growth will fluctuate, sometimes be high, sometimes low, for good fundamental reasons. When good credit growth is high, it will appear “unsustainable,” but good credit growth will eventually adjust and become “sustainable.” In particular, good credit growth may exceed income growth and thus increase the debt-to-income ratio for many years.

Bad credit growth—“excessive” credit growth—is generally due to some market failure, for example, regarding households, the underestimation of the risks from low

lending standards and high loan-to-value ratios and lending to borrowers with insufficient debt-service capacity or insufficient resilience to disturbances in the form of interest-rate increases, housing-price falls, and income losses. It may be due to overoptimism, speculation in unrealistic future housing-price increases, overvaluation of housing, housing equity withdrawal (HEW) (also called mortgage equity withdrawal) to finance unsustainable overconsumption, and so on.

The point is that good macroprudential policy requires considerable and detailed analysis to distinguish between good and bad credit growth. In particular, the causes of the credit growth and the use of the credit need to be clarified to assess any associated risks. Then the macroprudential authority can react with targeted policies to mitigate and prevent bad credit growth and to allow good credit growth to run its course. Generally, regulation requires an identified market failure as well as a supporting cost-benefit analysis. Even if there is a specific market failure there, regulation may sometimes make things worse. Therefore, regulation needs the support of a thorough cost-benefit analysis.

Unfortunately, macroprudential policy in Sweden is currently, with reference to the rubber paragraph mentioned on page 95, aiming to prevent the growth of household debt without Finansinspektionen or any other authority having been able to show that the credit growth is bad—“excessive”—rather than good. Indeed, at a closer look, the information available indicates that it is good credit growth explained by movements in fundamentals, and that preventing this growth of household debt with the methods used has severe welfare costs.

Because distinguishing between good and bad credit growth in macroprudential policy is both important and difficult, and because the costs of making mistakes is high, this Swedish example may be of some general interest and imply some lessons for macroprudential policy in other countries. I will therefore extend a bit on it here.

3.4 A possible problem with Swedish macroprudential policy

There are many good things with Swedish macroprudential policy. As mentioned above, the government has introduced a framework for financial stability with a clear separation of monetary policy and macroprudential policy and with Finansinspektionen in charge of and accountable for macroprudential policy. Furthermore, Finansinspektionen has been quite active in strengthening the resilience of the Swedish financial system. It has also thoroughly monitored bank's lending standards for mortgages and the households' debt-service capacity and resilience to disturbances.

Finansinspektionen has taken a series of actions to strengthen the resilience of the financial system. It introduced an LTV cap of 85% for mortgages in October 2010. It raised the risk-weight floor for mortgages first in May 2013 to 15% and then in September 2014 to 25%, which is quite high given historical credit losses and the fact that mortgages are full recourse. It introduced the Basel III LCR regulation in January 2014. It introduced a Basel Pillar 2 add-on of 2% in September 2016 and a systemic buffer of 3% in January 2015 for the four largest banks. The Countercyclical

Buffer was activated at level 1% in September 2015, raised to 1,5% in June 2016, and then to 2% in March 2017. The current capital requirements for the four largest and systemically important banks stand at 24% of risk-weighted assets. Their actual capital is 28% of risk-weighted assets (22% of risk-weighted assets for common equity tier 1 capital). Swedish banks are among the best capitalized in Europe and are very resilient in severe stress tests (Finansinspektionen, 2017c).²⁶

Regarding households and household debt, Finansinspektionen introduced a special annual mortgage market report in February 2010. The report uses microdata on new borrowers collected from the banks and provides an extensive and detailed report of the volume and distribution of household debt. In particular, it reports the results of stress tests of the households, to assess the debt-servicing capacity and resilience to disturbances of households. This way, Finansinspektionen is able to thoroughly monitor the development of households' debt-service capacity and resilience. Already in 2010, the debt-service capacity was good, as was the resilience to disturbances in the form of housing-price falls, interest-rate increases, and income losses from unemployment increases. Since then, the debt-service capacity and resilience to disturbances have improved steadily even further. In addition, the average LTV ratio in 2017 was only 63% for new mortgages and only 55% for the total stock of mortgages (Finansinspektionen, 2018b).

3.4.1 Housing prices and household debt and assets²⁷

One reason for the introduction of the mortgage market report is that housing prices and household debt have been increasing. Demand for owner-occupied housing has been growing, due to a downward trend in mortgage rates, increases in disposable income, urbanization and migration to the major cities, and other structural reasons. Also, after the election outcome in 2006, the new government fulfilled its election promise to lower the property tax, which was effective January 2008. Due to rent control there is no functioning rental market in the major cities and all new demand has to be directed towards owner-occupied housing. For several reasons, the supply of housing has not kept up with the increasing demand. The reasons include restrictions on land use, building regulations, and institutional restrictions on regional planning. Under these circumstances it is not strange if housing prices and household debt increases.

Figure 3.1 shows Swedish housing prices, Stockholm apartment prices, disposable income, and mortgage rates for 3-month, 5-year, and 10-year fixation periods.²⁸ All variables are indexed to 100 for June 2008, when the lower property tax had been incorporated in prices. During the last 10 years, disposable income has risen about

²⁶ The Riksbank has sometimes accused Finansinspektionen of having an "inaction bias," but there is clearly no ground for such an accusation.

²⁷ Whether Swedish housing prices and household debt is too high or not relative to fundamentals is discussed in further detail in Svensson (2018b).

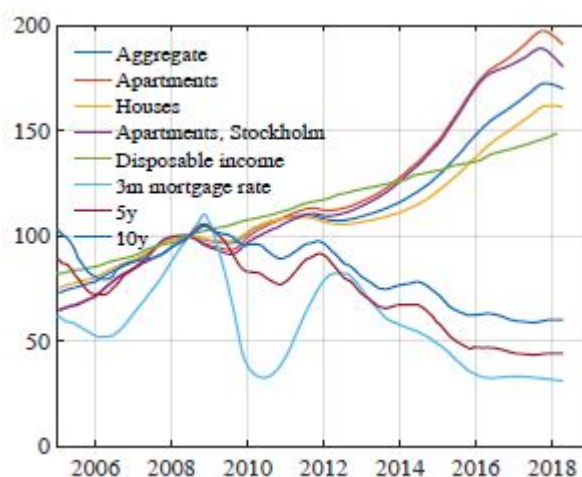
²⁸ Throughout this paper, "Stockholm" refers to Stockholm Municipality, which is considerably larger than Stockholm's inner city.

50%. Over the same period, housing prices have risen more than disposable income. We also see that mortgage rates have fallen substantially.

Figure 3.1

Swedish housing and Stockholm apartment prices, disposable income, and mortgage rates

(12-month trailing moving averages, index = 100 for June 2008)



Source: Thomson Reuters Datastream.

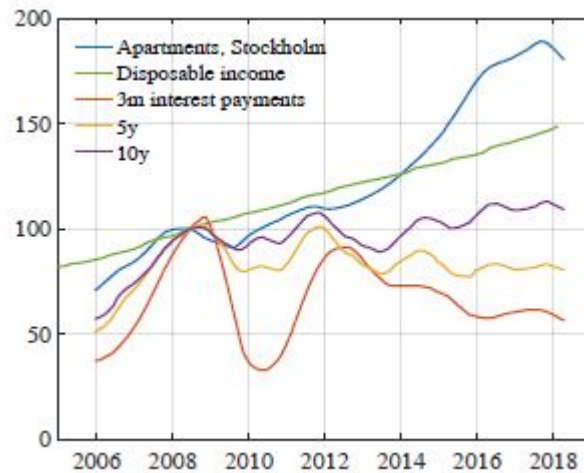
Figure 3.2 shows Stockholm apartment prices and has also replaced the mortgage rates by interest payments for Stockholm apartments. They are calculated as the product of mortgage rates and the prices of Stockholm apartments and correspond to interest payments for new mortgages at a constant LTV ratio, for instance the LTV cap of 85%. They are also indexed to 100 for June 2008. Relative to disposable income, mortgage rates have fallen more than housing prices have risen. Therefore interest payments have fallen substantially relative to disposable income. This is the case also for 10-year mortgage rates, which less than a term premium can be seen as expectations of the average short mortgage rate over the next 10 years. And over the next 10 years, disposable income will perhaps rise another 40-50%, further reducing the interest-payment-to-income ratio.²⁹ Given this, it is difficult to see that housing in Sweden and Stockholm would be overvalued (at least overvalued relative to the valuation in 2008).

²⁹ With 2% real growth and 2% inflation, disposable income should grow by 4%, which results in an increase of 48% in 10 years.

Figure 3.2

Stockholm apartment prices, disposable income, and interest payments for Stockholm apartments

(12-month moving averages, index = 100 for June 2008)



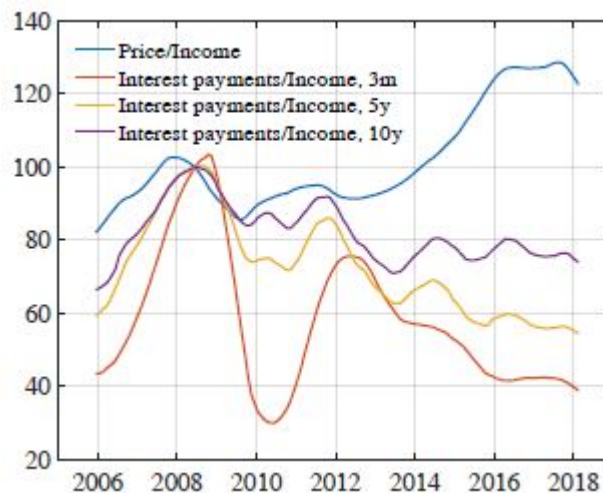
Source: Thomson Reuters Datastream.

Figure 3.3 shows the corresponding price-to-income ratios and interest-payment-to-income ratios for Stockholm apartments, the price and the interest payments for Stockholm apartments in figure 3.2 divided by the disposable income. The ratios are indexed to 100 in June 2008.

Figure 3.3

Price-to-income and interest-payment-to-income ratios for Stockholm apartments

(3-month, 5-year, and 10-year mortgage rates. 12-month moving averages, index = 100 for June 2008)



Source: Thomson Reuters Datastream.

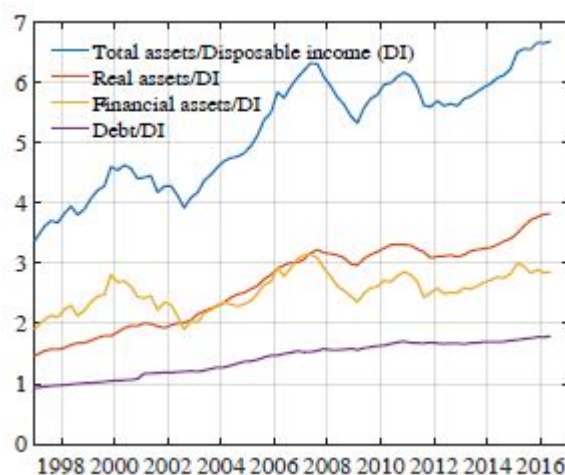
It is common to refer to the price-to-income ratio as an indicator of whether housing is over- or undervalued. But this involves the well-known but very common mistake of comparing stocks to flows, the housing price being a stock variable and income being

a flow variable. The correct comparison is stock to stock, as in LTV ratios, or flows to flows, as in debt-service-to-income ratios.

The interest-payment-to-income ratio is a much more relevant measure of over- or undervaluation than the price-to-income ratio. The interest payment as calculated here, interest rate times price, can be seen as a simple capital-cost measure of housing, a simple user-cost measure of housing, or a simple debt-service measure of housing for constant LTVs.³⁰ The price-to-income and interest-payment-to-income ratios vary together only when mortgage rates are constant. But mortgage rates are normally not constant, and when they vary the interest-cost-to-income is the more relevant indicator. And according to it, Swedish housing prices are hardly overvalued (at least not compared with the valuation in 2008).³¹

When housing prices increase faster than disposable income, it is not strange that also household debt increases faster than income. Figure 3.4 shows that households' debt had increased to about 1.8 times disposable income in 2016. Households' real and financial assets had also increased. Real assets (owner-occupied housing and second homes) had increased to about 3.8 times disposable income, financial assets to about 2.9 times disposable income, and total assets (excluding households' claims on collective pensions and insurance) to about 6.7 times disposable income.

Figure 3.4
Swedish household assets and debt, ratio to disposable income



Source: Sveriges Riksbank (2016, appendix, figure A27).

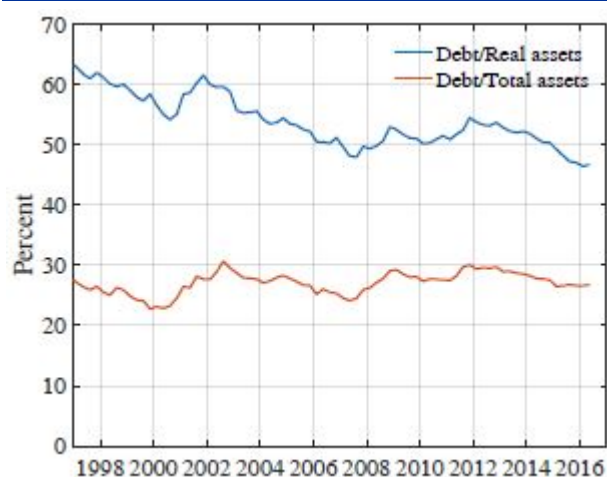
Notes: Total assets exclude collective pensions and insurance (which may amount to 1.5-1.7 times disposable income). Real assets refer to single-family houses, tenant-owned apartments, and second homes. Financial assets refer mainly to cash, bank deposits, bonds, mutual funds and shares.

³⁰ For households that have Cobb-Douglas preferences for housing services, have access to credit and are not liquidity constrained, and face a frictionless housing market, the correctly calculated user-cost of housing, the implied rent, would be a constant fraction of their total consumption. If their total consumption is a relatively constant share of their (after-tax) income, the user-cost-to-income ratio would be relatively constant.

³¹ Svensson (2018b) reaches the same conclusion by examining the more relevant user-cost-to-income ratios.

Figure 3.5 shows household debt-to-real-assets and debt-to-total assets ratios, appropriate stock to stock comparisons. We see that the debt-to-real-assets ratio, a measure of the housing leverage, shows a downward trend in the last 20 years toward less than 50%, whereas the debt-to-total assets ratio is approximately flat below 30%.

Figure 3.5
Swedish household debt to real assets and total assets

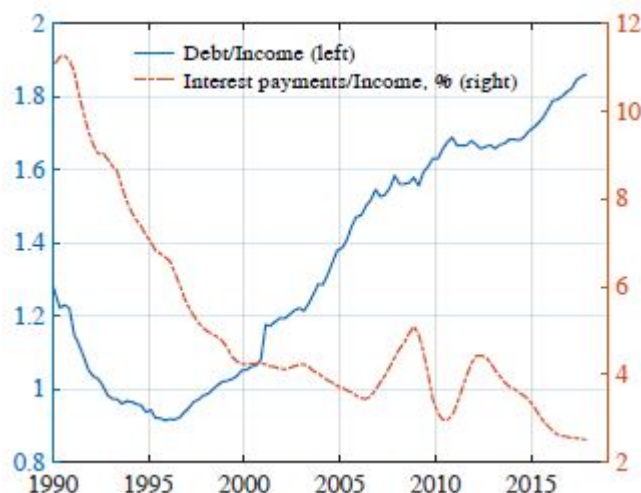


Source: Sveriges Riksbank (2016, appendix, figure A27).
Notes: Total assets exclude collective pensions and insurance (which may amount to 1.5-1.7 times disposable income). Real assets refer to single-family houses, tenant-owned apartments, and second homes. Financial assets refer mainly to cash, bank deposits, bonds, mutual funds and shares.

Finansinspektionen has expressed increasing concern about the growth of household debt relative to disposable income and tries to reduce the growth of household debt. However, the debt-to-income ratio is again a stock compared to a flow and thus a misleading indicator unless interest rates are constant. If interest rates vary, the debt-service-to-income ratio is a more relevant indicator. The blue line in figure 3.6 shows the debt-to-income ratio from figure 3.4 in a larger scale. The dashed-dotted red line shows the Swedish households' interest payment as a percent of disposable income. Even though the debt-to-income in figures 3.4 and 3.6 has increased, interest rates have fallen more, and the interest-to-income ratio in figure 3.6 is at a historic low.

Figure 3.6

Swedish household debt, ratio to disposable income (left), and interest payments, percent of disposable income (right)



Source: Sveriges Riksbank (2018, charts 2.1 and 2.6).
Note: Interest payments are after tax relief.

We can note that the visual impression of the increase in the debt-to-income ratio in the larger-scale figure 3.6 is more alarming than when the debt-to-income ratio is compared with the assets-to-income ratios in the smaller-scale figure 3.4. Swedish authorities tend to show the time series of the debt-to-income ratio much more often than the time series of the assets-to-income ratio. The time series of the debt-to-asset ratios are rarely shown.

3.4.2 Finansinspektionen's policy to reduce the growth and level of household debt

In order to reduce the growth of household debt, Finansinspektionen has implemented tighter lending standards by introducing amortization requirements. This substantially reduces borrowers' discretionary income (the excess of households' gross income over the sum of taxes, housing operating costs, interest and amortization payments, and benchmark living costs) and thereby affects how much banks lend to them. There is also increasing evidence that Finansinspektionen has encouraged banks to tighten lending standards in other ways, such as using a higher interest rate in the stress tests of borrowers in the banks' affordability assessments and applying new or lower existing bank-specific debt-to-income caps.³² By tightening lending standards in this way, Finansinspektionen has effectively reduced the supply of credit to households with moderate or low incomes and, wealth, a category which includes many young households and individuals.

³² For example, at the press conference presenting the mortgage market report 2018, it was clear that the director general of Finansinspektionen welcomed the tighter lending standards of the banks (Finansinspektionen, 2018a).

In June 2016, Finansinspektionen introduced a first amortization requirement for new mortgages with LTV ratios over 50%. For LTV ratios between 50% and 70%, at least 1% of the mortgage at origination should be amortized per year; for LTV ratios above 70%, at least 2% of the mortgage at origination. In March 2018 it introduced a second, “stricter” amortization requirement. For mortgages above 4.5 times gross income (income before taxes), an additional at least 1% should be amortized. It has also encouraged the banks to otherwise tighten their lending standards. The banks, perhaps perceiving an implicit threat of regulation if not obliging, have introduced or lowered their own debt-to-income caps, now typically 5-6 times gross income. The banks also apply a high interest rate in their discretionary income calculations, typically 7% (thus no less than 5.5 percentage points higher than current (May 2018) mortgage rates of about 1.5%).

Housing developers have reported that demand for new housing fell dramatically during the fall of 2017. Housing prices in the major cities fell between 5 and 10% from their peak in August 2017 to March 2018. Developers’ plans for new housing production have also fallen substantially.

It is pretty clear that the housing problem in Sweden is structural, namely increasing demand and insufficient supply. It is difficult to see that the right policy then is to reduce the supply of credit to households by tightening lending standards, especially because any resulting price fall then reduces the supply of new housing. The policy might be justified if Finansinspektionen could show that the growth of household debt is “excessive” or “bad” due to a market failure, loose lending standards, and a threat to financial stability, or even the result of exuberance and overoptimism. But Finansinspektionen has not provided any convincing case for this. Nor has it appropriately assessed the welfare cost of the policy and provided a thorough cost-benefit analysis.

3.4.3 Finansinspektionens arguments for an “elevated macroeconomic risk”³³

Importantly, the amortization requirements have *not* been justified by risks to financial stability. In contrast, Finansinspektionen says (Finansinspektionen, 2017a, p. 4, my translation from Swedish, italics added):

Finansinspektionen’s judgment is that the financial-stability risks associated with households’ debt are relatively small. This is because the mortgage holders generally have good possibilities to continue to pay their interest and amortization also if interest rates rise or incomes fall. The households have also on average good margins to manage a fall in housing prices. In addition, the Swedish banks are judged to have satisfactory capital buffers if credit losses nevertheless would materialize.

³³ Finansinspektionens arguments for an elevated macroeconomic risk is discussed in more detail in Svensson (2018a).

One can add that the fact that mortgages are full recourse reduces the risk of credit losses on mortgages. During the severe crisis in the 1990s in Sweden, of the loan losses in the four major bank groups at the height of the bank crisis in 1992, only 6% came from the household sector (Sveriges Riksbank, 1998, pp. 15-16). Furthermore, there is no buy-to-let to speak of.³⁴

Finansinspektionen has instead provided two other arguments for an “elevated macroeconomic risk” (Finansinspektionen, 2017a, p. 4, my translation, numbers, and italics):

Instead the risks presently associated with households’ debt mainly concern that highly indebted households may reduce their consumption substantially if (1) interest rates rise or (2) incomes fall, and that this might in turn reinforce a future economic downturn. ... *[H]igh and rising debt-to-income ratios among many borrowers therefore imply an elevated macroeconomic risk.*

The first argument, that highly indebted households may reduce their consumption substantially if interest rates rise, is factually true. But Finansinspektionen here disregards that interest rates are not exogenous but endogenous. In particular, with flexible exchange rates and inflation targeting, recessions are associated with *lower* interest rates, not higher ones.³⁵ Households with high debt ratios and variable mortgage rates then benefit *more* from interest-rate falls (their cash flows improve more) and their consumption would fall *less* than those with lower debt ratios. High debt and variable interest rates actually provide some general insurance against recessions for households. They work as an automatic stabilizer. Indeed, household debt and variable interest rates create a cash-flow channel in the transmission of monetary policy (Flodén et al., 2016; Hughson et al., 2016; Gustafsson et al., 2017). With a strong cash-flow channel, it is easier for the Riksbank to stabilize consumption, aggregate demand, and the business cycle (it can be done with less policy-rate movements). The risk of a recession would seem to fall rather than rise.

On the second argument, that high debt increases the income-sensitivity of consumption, Finansinspektionen (2017a) refers to three studies of the international experiences in Denmark, the UK, and the US for support of its view (Andersen et al., 2016; Bunn and Rostom, 2014; Baker, 2018). Finansinspektionens view is thus that the consumption of highly indebted households is more sensitive to income falls, and this means that high household indebtedness causes a larger consumption fall in recession or crisis. That is, there is a *causal* relation between high indebtedness and a subsequent consumption fall in a recession or crisis.

But the remarkable thing is that these three studies *explicitly contradict* Finansinspektionen’s view. Thus, Andersen et al. (2016, p. 98; italics added) (ADJ) state:

³⁴ Tenant-owner associations normally severely restrict subletting. (Tenant ownership, a kind of cooperative ownership structure, is the main ownership form for apartments in Sweden)

³⁵ It was different in the 1990s crisis and deep recession, when Sweden had a fixed exchange rate and the Riksbank was using very high interest rates to defend the krona against speculative attacks.

[O]ur results *do not support* any interpretation of the data that involves a negative *causal* effect of a high debt level on subsequent consumption growth.

In addition, Bunn and Rostom (2014) (BR14) actually do not claim causality. They carefully note (p. 314):

It is difficult to prove that those more highly indebted households who made large cuts in spending after 2007 did so specifically because of their debts.

In their more extensive working paper (Bunn and Rostom, 2015) (BR15), they more explicitly state (p. 7; italics added):

[We] take care *not to interpret* the observed relationships [between the level of household indebtedness and subsequent spending adjustment] as being proved to be causal.

Finally, Baker (2018, p. 1549; italics added) (Baker) states:

[D]ebt has *little or no independent relationship* with the [income] elasticity of spending when controlling for liquidity and the ability of households to access credit.

Thus, ADJ directly contradict the view that higher household debt *causes* larger consumption falls in a crisis, BR (meaning BR14 and BR15) actually do not claim causality, and Baker directly contradicts the view that household debt causes higher income-sensitivity of consumption. Thus, neither ADJ, BR, nor Baker provide any support for the FI's view.

So what is going on? How can the FI apparently misunderstand these studies? The issue is the elementary distinction between correlation and causality. ADJ, BR, Baker, and several other papers—for example, Mian and Sufi (2010), Mian et al. (2013), and Dynan (2012)—have found a *correlation* between pre-crisis household debt and consumption responses during the financial crisis. But the crucial issue is whether higher household debt *causes* larger consumption responses.

A correlation does not imply causality. High debt and large consumption responses may both be caused by an underlying common factor that has increased both the debt and the consumption response. It follows that just observing high debt is not enough to conclude that the consumption response has increased, because the high debt might have been caused by some other factor that does not simultaneously increase the consumption response. Thus, the underlying factor or factors have to be identified in order to correctly assess whether or not the consumption response has increased and, by extension, whether or not any policy action is warranted.

Put differently, the possible *mechanism* through which the mortgage and housing markets might affect household consumption needs to be identified and confirmed for the correlation between household indebtedness and subsequent consumption responses to be correctly understood and explained.

As discussed in detail in Svensson (2018b), ADJ use microdata to show that highly indebted households before the crisis had much higher consumption relative to their

income than less indebted households. During the crisis they reduced their consumption down to more normal levels relative to income. Less indebted households reduced their consumption much less during the crisis. Furthermore, the highly indebted households financed their overconsumption by increasing their mortgages, that is, through HEW.

There is no evidence of any causal relation between debt-to-income ratios and the fall in consumption. The underlying common factor is instead debt-financed overconsumption, overconsumption financed by HEW. The households that used HEW to finance overconsumption ended up being highly indebted before the crisis. During the crisis, housing prices stopped rising and started to fall, reducing the collateral value of housing. Credit conditions were also tightened. Then the HEW-financed overconsumption could not be maintained, and consumption fell to more normal levels. Thus, debt-financed overconsumption explain both the high indebtedness before the crisis and the consumption fall during the crisis.

For the UK, BR use microdata to find results that are very similar to and—as shown in detail in Svensson (2018b)—fully consistent with those of ADJ. Also for the UK, there is no evidence of any causal relation between pre-crisis indebtedness and the fall in consumption during the crisis. Instead, the correlation between household indebtedness and subsequent consumption falls is explained by the underlying common factor of debt-financed overconsumption.

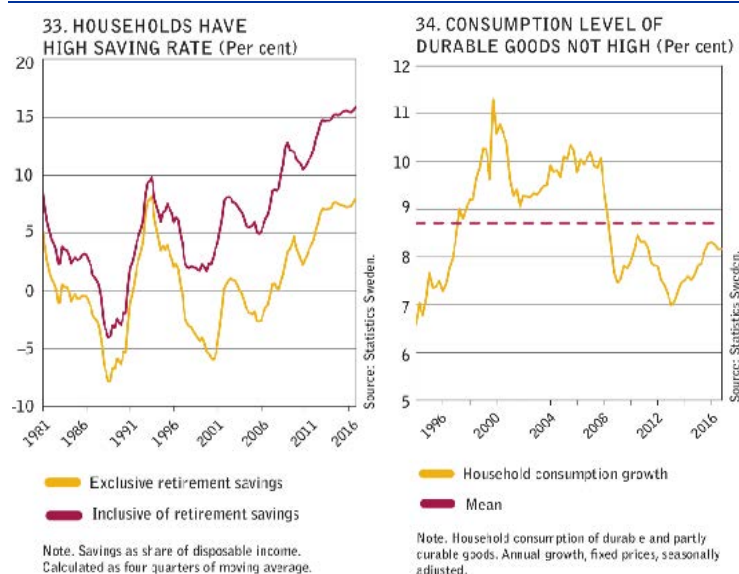
Thus, if HEW are used to finance unsustainable overconsumption, there may be a reason to worry. But, importantly, there is no evidence of any debt-financed overconsumption (and undersaving) by Swedish households. Any such overconsumption and undersaving of macroeconomic relevance would show up in the household saving rate. But the Swedish household saving rate is at a historic high. In contrast, the household saving rate in Denmark, the UK, and the US was very low before the crisis, as in Sweden in the 1980s, before the crisis in the 1990s.³⁶ Indeed, Finansinspektionen says in its financial-stability report that Swedish households are cautious, with high saving and moderate consumption of durables.

Despite optimistic expectations and high margins between income and expenses, households are currently being relatively cautious. The total household saving rate is high and has increased even more over the past few quarters (see Diagram 33). Household consumption of durable goods, which is an indicator of household optimism, is in line with the historical average (see Diagram 34). (Finansinspektionen, 2017b, p. 35):

³⁶ Diagram 33 in figure 3.7 shows that the household saving rate in Sweden was quite low in the late 1980s before the crisis and then jumped a huge 15 percentage points in the crisis in the early 90s, corresponding to a huge drop in consumption. But now household saving is at a historic high, at the same high rate as in the early 1990s without retirement savings, and much higher than in the 1990s including retirement savings.

Figure 3.7

Diagrams 33 and 34 in Finansinspektionen (2017b)



Source: Finansinspektionen, Stability in the Financial System May 2017.

For the US, as we have noted, Baker also draws the opposite conclusion from Finansinspektionen. In particular, Baker shows that increases the income-elasticity of consumption is credit and liquidity constraints (p. 28):

[D]ebt has little or no independent relationship with the [income] elasticity of spending when controlling for liquidity and the ability of households to access credit. ... Overall, these results indicate that the primary reasons consumption responses are higher among highly indebted households are credit and liquidity constraints.

Thus, what affects the income elasticity of consumption is not the debt level in itself but liquidity and access to credit. Importantly, because amortization requirements reduce liquidity and access to credit, stricter amortization requirement makes the consumption of these households more sensitive to income, and thus may create the problem it is supposed to solve.

Is really all debt growth above income growth bad and excessive? Thus, Finansinspektionen's argument do not stand up to scrutiny. However, in an op-ed defending the second amortization requirement against substantial public criticism, the director general of Finansinspektionen, Erik Thedéen, used a final argument:

Households' debt is still increasing faster than their income and housing prices are still high. Consequently, the need for action remains. (Thedéen, 2017, my translation from Swedish)

Thus, it seems that, according to the director general, *all* debt growth above income growth is bad and excessive. But this makes little or no sense, as we have seen. Any sustainable fall in the interest rate would normally lead to higher debt-to-income ratios, and higher housing-price-to-income ratios, in order to keep the debt-service-to-income

ratios unchanged. And an increase in housing prices to income due to lower interest rates would lead to higher debt growth for many years, because it takes many years for the whole mortgage stock to be turned over at the higher housing prices. Again, a thorough analysis of what is good and bad debt growth is necessary, that is, whether the debt growth is excessive from a social-welfare point of view.³⁷

As shown in Svensson (2018b), at current housing prices and 10-year mortgage rates, the user cost of housing excluding (real) after-tax capital gains (the sum of operating costs, the real after-tax interest payments and the real cost of housing equity) has fallen substantially relative to disposable income since 2008. Given this, and figures 3.2 and 3.3, housing is hardly overvalued.³⁸ Furthermore, given the high and increasing debt-service capacity and resilience to disturbances of households (Finansinspektionen, 2018b) and figures 3.4 3.6, households are hardly over-leveraged.

Finally, as mentioned, Swedish banks are well capitalized and also very resilient (Finansinspektionen, 2017c). Altogether, there is hardly a case for amortization requirements and any other tightening of lending standards. At least, Finansinspektionen has not provided any convincing case.

3.4.4 Consequences of Finansinspektionen's policy on household debt³⁹

Effects on housing payment, user cost, and involuntary saving. Amortization requirements result in a large difference between the monthly housing payment and the monthly user cost of housing (the implied rent). Many buyers, especially young buyers, who could easily afford the user cost may not have the liquidity or income to make the large housing payment and undertake the large involuntary saving, the excess of the housing payment over the user cost, that is involved. In a life-cycle saving perspective, such a large saving by young individuals is far from optimal.

To be concrete, consider a 25-29-year-old individual who would like to buy an average studio in Stockholm and needs to borrow 85% of its price, which implies a mortgage of SEK 2.38 mn.⁴⁰ Assume that the individual has a monthly gross (earned) income of

³⁷ Finansinspektionen has frequently referred to the December 2013 addition to its objectives mentioned above, "to take measures to counteract financial imbalances with the purpose of stabilizing the credit market," the meaning of which is unclear. With the more explicit objective recommended by (ESRB, 2013, italics added), "to mitigate and prevent excessive credit growth and leverage," Finansinspektionen would have had to explain why credit growth or leverage is excessive.

³⁸ If the user cost of housing excluding after-tax capital gains would be quite high relative to disposable income, one might worry that households are speculating in future capital gains and therefore taking on high user costs. It has also been demonstrated that user costs in new owner-occupied housing is lower than rents in new rental housing where rent control is not applied.

³⁹ The consequences of Finansinspektionen's policy, including the effects on household resilience, is examined more thoroughly in Svensson (2018a).

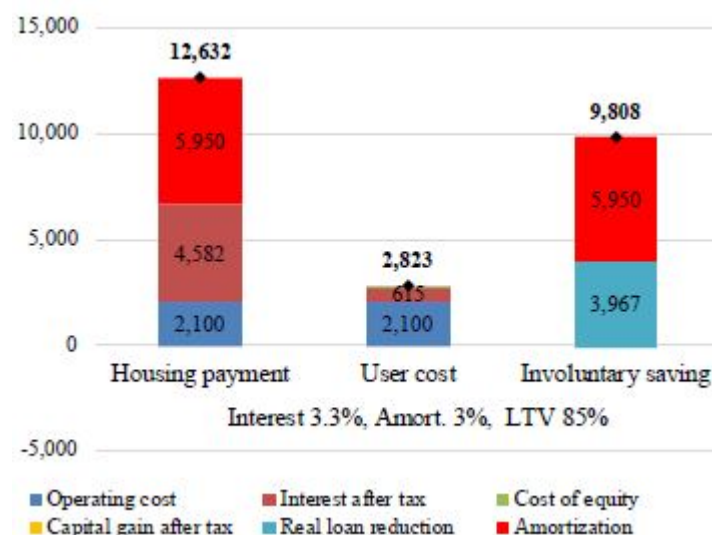
⁴⁰ The average Stockholm studio in a tenant association (the main form of ownership for owner-occupied apartments in Sweden) had a price in 2017 of SEK 2.8 mn, a size of 31 square meters, and a monthly fee to the tenant-owner association of SEK 1,900. The monthly operating cost is set to the monthly fee plus SEK 200 for additional operating costs. Source: Svensk Mäklarstatistik (Swedish Real Estate Agents' Statistics).

SEK 26,000 (EUR 2,600) (implying a monthly net income (income after tax) of about SEK 20,000 (EUR 2,000)).⁴¹

Figure 3.8 shows the monthly housing payment, user cost, and involuntary saving for this individual and this studio. With an LTV ratio of 85% and a debt-to-gross-income ratio of above 4.5, an amortization rate of 3% is imposed. The mortgage rate (and also the cost of equity) is set to 3.3%, approximately the current (May 2018) 10-year mortgage rate and the inflation rate to 2%. The housing payment then equals about SEK 12,600 (EUR 1,260), consisting of the fee to the tenant-owner association plus an additional operating cost, the nominal after-tax interest payment, and the amortization payment. The latter adds about SEK 5,900 (EUR 590) to the housing payment. The user cost, excluding real after-tax capital gains, is only about SEK 2,800 (EUR 280), consisting of the monthly fee, the real after-tax interest payment and the real cost of equity. The difference between the housing payment and the user cost is the involuntary saving, which equals about SEK 9,800 (EUR 980), consisting of the reduction of the real value of the mortgage due to inflation and the amortization payment. As a share of net income, the housing payment, user cost, and involuntary saving are, respectively, 64%, 14%, and 50%. The high payments and involuntary saving relative to the user cost are of course very distortionary for liquidity-constrained buyers.

Figure 3.8

Monthly housing payment, user cost, and involuntary saving in SEK for an average studio in Stockholm



Source: Svensson (2018a).

Notes: The user cost excludes real after-tax capital gains. The interest rate is 3.3% (the current 10-year mortgage rate), the deductible capital-income tax rate is 30%, the amortization rate is 3%, the LTV ratio is 85%, and the inflation rate is 2%. The cost of equity equals the real after-tax interest rate. (The current SEK/EUR exchange rate is about 10.)

Without the amortization, that is, for an interest-only mortgage, the housing payment would only be about SEK 6,700 (EUR 670), the user cost unchanged, and the

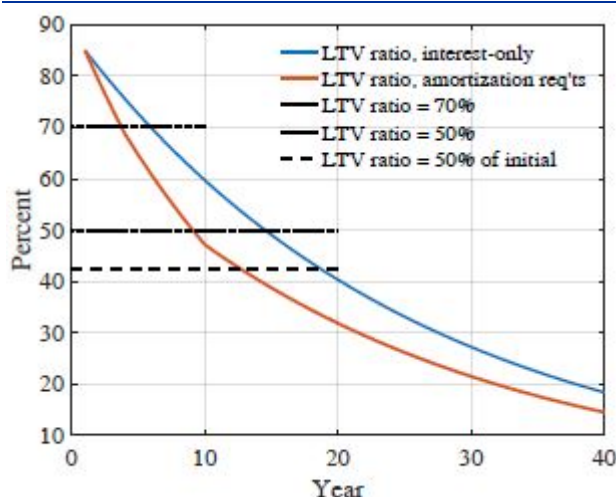
⁴¹ The median monthly gross (earned) income among 25-29-year-old individuals in Stockholm is SEK 24,000 (EUR 2,400). (Earned income excludes capital income.) Source: Statistics Sweden.

involuntary saving about SEK 4,200 (EUR 420). As a share of net income, the housing payment, user cost, and involuntary saving are, respectively, 34%, 14%, and 20%. These are still high but much more manageable.

Effects on the LTV and debt-service-to-income ratios. It is easy to overlook an “automatic” amortization that follows from real growth and inflation. Assume 2% real growth and 2% inflation. Then disposable income and housing prices will normally grow at 4%.⁴² This means that for any given interest-only loan, the LTV and DTI ratios will fall by (approximately) 4% per year and halve in about 18 years, a substantial automatic amortization rate. Is there any reason why an optimal amortization rate would be higher than this?

Figure 3.9 shows LTV ratios over time for this individual and this studio, without and with amortization requirements imposed, when nominal housing-price and income growth is 4%. With amortization requirements, the LTV ratio is halved in 12 years rather than 18 years without.

Figure 3.9
LTV ratios for mortgages without and with amortization requirements



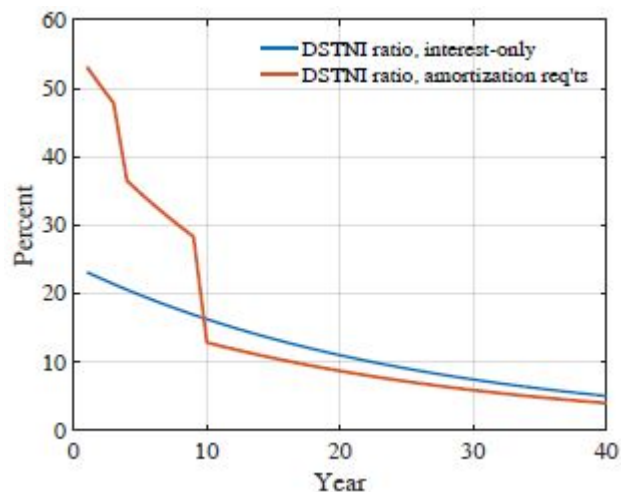
Source: Own calculations.
Notes: Nominal housing prices and nominal incomes are assumed to grow by 4% per year. Loan at origination SEK 2.38 mn (EUR 238,000), initial LTV ratio 85%, initial monthly gross income SEK 26,000 (EUR 2,600), net monthly income about SEK 20,000 (EUR 2,000). Interest rate 3.3%, capital-income tax rate 30%. Amortization rate 2% of loan at origination for LTV ratio above 70%, 1% between 70% and 50%. Additional amortization of 1% of loan at origination for debt-to-gross-income ratio above 4.5.

Figure 3.10 shows the corresponding debt-service-to-net-income (DSTI) ratio. The amortization requirements make the DSTI profile extremely front-loaded. It is difficult to see why such an extremely front-loaded profile would be better than the smooth automatic one for an interest-only loan.

⁴² For young people in the beginning of their professional career, their income may grow considerably faster.

Figure 3.10

Debt-service-to-net-income ratios for mortgages without and with amortization requirements



Source: Own calculations.

Notes: Nominal housing prices and nominal incomes are assumed to grow by 4% per year. Loan at origination SEK 2.38 mn (EUR 238,000), initial LTV ratio 85%, initial monthly gross income SEK 26,000 (EUR 2,600), net monthly income about SEK 20,000 (EUR 2,000). Interest rate 3.3%, capital-income tax rate 30%. Amortization rate 2% of loan at origination for LTV ratio above 70%, 1% between 70% and 50%. Additional amortization of 1% of loan at origination for debt-to-gross-income ratio above 4.5.

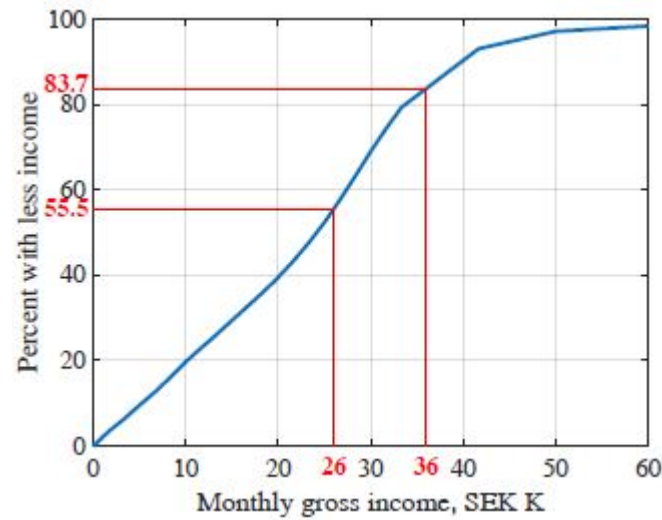
Effects on bank's lending decisions. Consider that before the tightening of lending standards banks used an interest-rate stress test with an interest rate of 6% to assess the affordability of a loan. It is shown in Svensson (2018a) that this individual would just be able to borrow to buy this studio.⁴³ However, with the tighter lending standards with amortization requirements included in the affordability assessment together with a higher interest rate of 7%, or by the banks' applying an internal loan-to-gross-income limit of 5.5, this individual is not allowed to borrow the required amount. The minimum monthly gross income required is instead SEK 36,000 (EUR 3,600) (with a monthly net income of about SEK 27,000 (EUR 2,700)).

Figure 3.11 shows the income distribution of individuals of age 25-29 years in Stockholm. We see that 56% of the 25-29-year-olds in Stockholm have a monthly gross income below SEK 26,000, so only the top 44% of the income distribution qualified for the loan. Furthermore, we see that 84% of the 25-29-year-olds in Stockholm have a monthly gross income below SEK 36,000, so only 16% qualify for a loan after the tightening of lending standards. Thus, the tightening of the lending standards have excluded an additional 28% of the age group from this market for owner-occupied studios. This can be seen as a credit contraction of $(44 - 16)/44 = 64\%$ for this age group, a very large contraction.

⁴³ In their affordability assessments, the banks use an interest-rate stress test to calculate the minimum income that covers interest payments, taxes, fees to the tenant-owner association and possibly additional operating costs, amortization payments, and benchmark living expenses.

Figure 3.11

Cumulative income distribution 2016 for individuals of age 25-29 years in Stockholm Municipality



Source: Statistics Sweden.

Notes: The vertical axis shows the percentage of individuals that have less gross income than the gross income on the horizontal axes. Individuals with zero gross income are excluded. The sample refers to individuals who lived in Sweden the whole year of 2016. The mean and median monthly gross income for those with positive income are, respectively, SEK 23,560 (EUR 2,356) and SEK 23,350 (EUR 2,335).

Due to rent control, there is no working rental market in Stockholm, only a very expensive subletting market. According to Qasa (2018), market rents for studios in the subletting market are about SEK 10,000 (EUR 1,000) per month (50% of the net income of the above individual with gross income SEK 26,000 (EUR 2,600)). And the market rent is both housing payment and user cost, with no involuntary saving, see figure 3.12. Furthermore, the leases are normally short-term, requiring tenants to move frequently, sometimes several times a year.

Figure 3.12

Monthly housing payment, user cost, and involuntary saving in SEK for an average studio rental in the Stockholm subletting market



Source: Qasa (2018).

Notes: For a rental, the housing payment and the user cost simply equal the rent. The involuntary saving is zero. (The current SEK/EUR exchange rate is about 10.)

For those with income equal to this minimum income of SEK 36,000, so they are barely allowed to borrow, the user cost is only about 10% of their net income. But due to amortization requirements, the actual housing payment (monthly fee, additional operating cost, interest payment after tax, and amortization) are 45% of their net income, so their involuntary saving rate is 35% of net income. That young people should have to save so much makes no sense from a life-cycle perspective. The distortions and welfare losses caused by this are obvious.

Furthermore, above we noted that the objective of Finansinspektionen includes “to ensure that the financial system ... has smoothly functioning markets that meet the needs of households ... for financial services, and provides comprehensive protection for consumers.” It seems to me that a policy that excludes 84% of 25-29-year-old individuals from borrowing to buy an average studio that they could easily afford (in the sense that the user cost is a reasonable share of their net income) is hardly a policy that “meets the need of households for financial services,” nor does it “provide comprehensive protection for consumers” to direct these individuals to the Stockholm second-hand rental market.

Effects on households’ resilience. Finansinspektionen has argued that the amortization requirements will increase households’ resilience. But that is difficult to see. Amortization requirements increase the share of fixed payments in the households’ payments and thereby make them less resilient to disturbances in the form of interest-rate increases and income losses due to unemployment. Indeed, Finansinspektionen’s own stress tests trivially show that amortization requirements, by reducing households’ discretionary income, reduce their resilience (Finansinspektionen, 2018b, Diagram 31). Furthermore, the example in figure 3.10 shows that that the debt-service-to-income ratio can be substantially higher for many years with amortization requirements.

In particular, amortization is saving in the form of more equity in housing, which is an illiquid asset. The saving in terms of reduced debt is not later available at the households' discretion. Without amortization, the households can instead save in financial assets and create a more efficient assets-and-liabilities portfolio, including a liquidity buffer. This way the households can better overcome temporary difficult times and better maintain their consumption and standard of living. Clearly less liquidity constraints and more diverse assets will increase resilience.⁴⁴

Furthermore, consider the 84% 25-29-year-olds that are excluded from borrowing to buy an average Stockholm studio. It is difficult to see that they would be more resilient if they have to turn to the subletting market and pay very high rents. Not only are the rents and thereby the user cost very high and hardly allow any saving. Also, rents do not fall and the tenants' cash-flows do not improve when interest rates fall in in bad times.

3.5 Conclusions on macroprudential policy

As mentioned, macroprudential policy is a quite new policy. There are only a few years of experience yet. It is desirable that macroprudential policy can become as established a policy as monetary policy, with clear objectives, a set of sufficient instruments, and clear accountability for policymakers.

Macroprudential and monetary policies are, at a closer look, very different policies, with different objectives, different suitable instruments, and normally relatively limited interaction. There is a strong case for them being conducted separately, preferably with separate decision bodies, as in the UK with two committees within the central bank, or as in Sweden with central bank in charge of monetary policy and Finansinspektionen in charge of macroprudential policy.

Furthermore, macroprudential policy is much more complicated than monetary policy. Monetary policy is arguably the simplest of economic policies, with a simple objective, a few well-used and well-understood instruments, a relatively simple and well-understood transmission mechanism, well-established systems of governance, and established mechanisms to hold policymakers accountable.

In macroprudential policy, the objective, financial stability, is much more complicated. Systemic risk and resilience of the financial system are difficult to assess and measure. There are more instruments, their effects are less known, and the transmission mechanism from instruments to objective is more complicated and less well understood. Nevertheless, there are several lessons from monetary policy that apply to macroprudential policy, for example, regarding governance and accountability. Like monetary policy, macroprudential policy is likely to be best conducted not by a single decision maker but by a committee, like the FPC of Bank of England, also when it is conducted by an authority separate from the central bank, as

⁴⁴ The results of Baker (2018) imply that less binding liquidity constraints reduce the consumption elasticity of income regardless of the level of debt.

in Sweden. A committee for macroprudential policy may include experts on macroprudential policy, finance, regulation, housing, household finance, and so on, given that macroprudential policy is a quite complicated policy that requires deep understanding of the working of the relevant parts of the economy and the effects of different policy actions.

Even though macroprudential policy is more difficult to evaluate, it should be possible to introduce mechanisms similar to those in monetary policy to evaluate macroprudential policies and to hold policymakers accountable.

There are several lessons from the Swedish example of macroprudential policy. They may apply to other economies where authorities worry about the growth of housing prices and household debt. The main problem, it seems, is to distinguish between good and bad credit growth. Preventing good credit growth may have high economic and social costs. Not preventing bad credit growth may also have high economic and social costs.

Assessing whether household debt growth and leverage are excessive requires a deep understanding of the determinants and dynamics of housing prices and household debt. Macroprudential authorities need to have a deep understanding of housing economics, the housing market, and household finance. A committee with some members being experts in relevant areas may reduce the risk of policy mistakes compared to a single decisionmaker. The situation is made more complicated by the housing and mortgage markets being very different in different economies. There is a tendency to draw conclusions in a quite superficial way from experiences in other countries without a thorough examination of the nature and causes of those experience and whether these apply to the macroprudential authority's own economy. Instead of generalizing, one has to look at each economy separately and understand how the housing and mortgage markets works there.

In order to distinguish bad, excessive household debt growth from good credit growth, one has to identify the factors causing the growth. One has to determine whether these factors are due to some market failure that increases systemic risk above what is acceptable and reduces the broad financial system's resilience below what is acceptable. If so, one has to consider what policy actions may be justified, consider what their costs and benefits are, and provide a convincing favourable cost-benefit analysis for the proposed action. Just observing high credit growth is not enough.

In the particular Swedish case of high household indebtedness and a possible associated macroeconomic risk of a future consumption fall, it is important to realize that the international experience from several countries of a *correlation* between pre-crisis household indebtedness and consumption falls during the crisis does not imply *causality*. Instead, the evidence is that the pre-crisis high household indebtedness and the large consumption fall during the crisis was caused by the common factor of debt-financed overconsumption before the crisis, an overconsumption that could or would not be maintained when the crisis arrived. From that perspective, debt used to finance overconsumption is bad debt. But because there is no evidence of such debt-financed overconsumption in Sweden, there is no evidence that high household indebtedness implies a macroeconomic risk of this kind

in Sweden. There is indeed no evidence that Swedish household debt is bad debt. Furthermore, the strong household cash-flow channel for monetary policy—because of high debt and variable mortgage rates—may even reduce the risk of future recessions.

It is obviously important to determine what the actual problem is. In this Swedish example, the problem is arguably a fundamentally structural one, namely increasing demand for housing and insufficient supply, which contributes to rising housing prices and household debt, without necessarily increasing the systemic risk or reducing the resilience of the financial system or the economy. In this situation, Finansinspektionen is tightening lending standards. This reduces credit supply, which hurts households and individuals with little wealth that need to borrow to buy a home, a category that includes many young households and individuals. Such a policy has obvious and large welfare costs, especially in the absence of a functioning rental market. Macroprudential policy to tighten lending standards is hardly the best policy to deal with this structural housing problem. Indeed, to the extent that it causes less construction of new housing, it makes the structural problem worse. What is needed above all is a better housing policy that brings supply in line with demand, including deregulation that results in a working rental market.

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