

Monetary Policy and Financial Stability: Transmission Mechanisms and Policy Implications

Álvaro Aguirre, Markus Brunnermeier,
and Diego Saravia
editors



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The global financial crisis that broke out 10 years ago uncovered the buildup of risks during a period of price and output stability. It challenged the previous consensus that preserving price stability was the optimal way to ensure financial stability, and led to a surge of interest in the multiple interactions between monetary policy frameworks, financial vulnerabilities and financial stability. This volume contributes to the study of these issues as well as the convenience of incorporating financial stability considerations in monetary policy frameworks, bringing together a multinational group of distinguished scholars to discuss the latest research findings. It is of utmost importance to understand how monetary policy affects both financial conditions and financial vulnerabilities that amplify negative shocks, as well as the potential intertemporal policy trade-off between improving current conditions and exacerbating future financial vulnerabilities.

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Onofre Jarpa (1849–1940)
Oil on canvas, 55 x 70 cms.
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FINANCIAL STABILITY:
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MECHANISMS AND POLICY
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Central Bank of Chile / Banco Central de Chile

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Contributing Authors

Viral V. Acharya
*Reserve Bank of India, New
York University
New York, NY, USA*

Álvaro Aguirre
*Central Bank of Chile
Santiago, Chile*

Sofía Bauducco
*Central Bank of Chile
Santiago, Chile*

Claudio Borio
*Bank for International
Settlements
Basel, Switzerland*

Markus K. Brunnermeier
*Princeton University
New Jersey, NJ, USA*

Roberto Chang
*Rutgers University
New Jersey, NJ, USA*

Piti Disyatat
*Puey Ungphakorn Institute for
Economic Research, Bank of
Thailand
Bangkok, Thailand*

Jens Eisenschmidt
*European Central Bank
Frankfurt am Main, Germany*

Lunyang Huang
*Princeton University
New Jersey, NJ, USA*

Mikael Juselius
*Bank of Finland
Helsinki, Finland*

Arvind Krishnamurthy
*Stanford University
Stanford, CA, USA*

Vincenzo Quadrini
*University of Southern
California
Los Angeles, CA, USA*

Ricardo Reis
London School of Economics
London, United Kingdom

Phurichai Rungcharoenkitkul
Bank for International
Settlements
Basel, Switzerland

Diego Saravia
Central Bank of Chile
Santiago, Chile

Frank Smets
European Central Bank
Frankfurt am Main, Germany

Lars E.O. Svensson
Stockholm School of Economics
Stockholm, Sweden

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THE RELATION BETWEEN MONETARY POLICY AND FINANCIAL-STABILITY POLICY

Lars E.O. Svensson
Stockholm School of Economics

What is the relation between monetary policy and financial-stability policy? How can they be distinguished? How similar or different are they? Should they have the same or different goals? How should they be conducted? Should they be coordinated or conducted separately? Should they be conducted by the same or different authorities? What if monetary policy would pose a threat to financial stability? Should monetary policy ever “lean against the wind” (of asset prices and credit booms)?

The answers to these questions continue to be discussed and debated. To answer them, it is necessary to specify how different economic policies, in general, and monetary and financial-stability policies, in particular, can be distinguished; how appropriate goals and policy instruments for each economic policy can be determined; and how responsibility for achieving the goals and control of the appropriate instruments can be assigned to authorities and decision-making bodies.¹

In the rest of the paper, how to distinguish different economic policies in general is discussed in section 1, and how to distinguish monetary and financial-stability policies in particular, in section 2.

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1. This paper extends on the discussion in Svensson (2016) and has benefited from Kohn (2015).

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Section 3 discusses whether monetary policy should have financial stability as an additional goal. Section 4 examines whether monetary policy and financial-stability policy should be conducted separately or co-ordinately. Section 5 discusses whether monetary policy and financial-stability policy should be conducted by the same or separate authorities. Section 6 examines how to handle a situation in which monetary policy would pose a threat to financial stability. Section 7 takes up the issue of monetary policy “leaning against the wind” (LAW). This includes a summary of, first, the Swedish example of a dramatic LAW and, second, a complete turnaround of policy and abandonment of LAW. It also includes a summary of the research on costs and benefits of LAW, and a demonstration that LAW implies a lower average inflation and a lower average policy rate. Section 8 presents some conclusions.

1. HOW CAN DIFFERENT ECONOMIC POLICIES BE DISTINGUISHED?

In general, when we discuss different economic policies, we distinguish them according to their goals, their instruments, and the authorities that control the instruments and are responsible for achieving the goals. For example, without going into details, it is obvious that monetary policy and fiscal policy are different economic policies, with different goals, instruments, and responsible authorities. Furthermore, it is obvious that there is considerable interaction between the policies. For example, fiscal policy has effects on inflation and employment, and these effects have to be taken into account in the conduct of monetary policy. Also, monetary policy has effects on government revenues and expenditures, including interest on government debt, and these have to be taken into account in the conduct of fiscal policy.

In spite of this interaction, normally monetary policy and fiscal policy are conducted separately, with each policy taking the conduct and effects of the other policy into account. This corresponds to the so-called Nash equilibrium in game theory, where each player chooses his instruments independently to achieve his goals, while taking into account the conduct of the policy by the other player. This is different from the so-called cooperative equilibrium, where the two players jointly choose their instruments to achieve joint goals.

Given this, an interesting and relevant question is whether the relation between monetary policy and financial-stability policy is

similar to or different from the well-established and well-understood relation between monetary policy and fiscal policy.

2. HOW CAN MONETARY POLICY AND FINANCIAL-STABILITY POLICY BE DISTINGUISHED?

In order to distinguish monetary policy and financial-stability policy, let us look at the goals, instruments, and responsible authorities of the two policies.

For *monetary policy*, under flexible inflation targeting, there are two goals—price stability and real stability; more precisely, to stabilise inflation around the inflation target, and resource utilisation around its estimated long-run sustainable rate. The long-run sustainable rate of resource utilisation may be measured as the maximum sustainable employment rate, the minimum sustainable unemployment rate, or the potential output level. For example, under the Federal Reserve’s dual mandate, the two goals are price stability and maximum employment (what is often called full employment), that is, to stabilise inflation around the Federal Reserve’s inflation target, and employment around its (estimated) maximum long-run sustainable rate.²

In normal times, the instruments of monetary policy are the policy rate and the communication. The latter includes publishing forecasts of the target variables, such as inflation and unemployment, and possible forward guidance, such as publishing a policy-rate path, that is, a forecast for the policy rate. In crisis times, the set of instruments of monetary policy is larger and includes balance-sheet policies, such as large-scale asset purchases (quantitative easing), fixed-rate lending at longer maturities,³ and foreign-exchange interventions and exchange-rate floors. The authority controlling the instruments and responsible for achieving the goals of monetary policy is the central bank.

2. As is explained in Svensson (2011), I am sceptical about the usefulness of estimates of potential output as a reliable measure of full resource utilization and believe that the estimated long-run sustainable rate of unemployment normally is a more reliable measure.

3. Fixed-rate lending by the central bank can be classified as monetary policy, because it can be seen primarily as a commitment to keeping the current policy rate fixed at least until the maturity of the loan. Variable-rate lending can be seen as primarily liquidity support (credit easing) and lending of last resort. In crisis times and crisis management, classifying central-bank actions is sometimes not obvious. The same central-bank action may have aspects of fiscal, monetary, or financial-stability policy. In such cases, my preference is to classify actions according to their primary purpose.

Before discussing the goals, instruments, and responsible authorities of financial-stability policy, let me clarify that I consider financial-stability policy somewhat more broadly, including both macro- and microprudential policy as well as resolution. The discussion will nevertheless mostly concern macroprudential policy. Furthermore, it is important to distinguish between normal times and (financial) *crisis prevention* on one hand, and crisis times and *crisis management* on the other. Financial-stability policy involves both crisis prevention and crisis management. The discussion will mostly concern crisis-prevention financial-stability policy.⁴

For *financial-stability policy*, the goal is *financial stability*. The definition of financial stability is not as clear and obvious as the definition of price stability and real stability. An appropriate definition of financial stability is: the condition when *the financial system can fulfil 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.

The resilience of the financial system needs to be considered more broadly. Not only is it the resilience of lenders, banks and other financial intermediaries that matters, but also the resilience of borrowers, including households and firms, for example in real estate and construction.

Importantly, there may be a trade-off 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

4. See Tucker (2015, 2016) for a thoughtful discussion of these issues. However, Tucker's definition of macroprudential policy emphasizes the dynamic adjustment of regulatory parameters to maintain a desired degree of resilience in the system. I find the emphasis on dynamic adjustment a bit too restrictive; macroprudential policy might, to a large extent, include constant policies, such as fixed capital requirements, that are not dynamically adjusted, or at least very rarely changed. To make sure that more structural and constant prudential policies are included, I prefer to use the somewhat broader term financial-stability policy (which is somewhat more restrictive than the even broader term financial policy, which might include more policies, such as consumer protection and competition policy for the financial sector).

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 financial-stability policy needs to have a secondary goal. For example, the Bank of England's Financial Policy Committee has a secondary objective of "supporting the economic policy of Her Majesty's Government, including its objectives for growth and employment" (Hammond, 2017).

However, in this paper I will not discuss the role of such a secondary objective any further.⁵

Under normal times, that is, under crisis prevention, the instruments of financial-stability policy are supervision, regulation, and communication. They include capital and liquidity requirements, including restrictions on maturity transformation; mortgage loan-to-value (LTV) caps; stress tests of banks, other financial firms, and households; financial-stability reports; and so on.⁶

Under crisis times, that is, under crisis management, things are very different. Then, all the relevant authorities (fiscal, monetary, and financial-stability and resolution authorities) cooperate with all available and suitable instruments to minimise the scope and magnitude of the crisis and restore financial stability.

The authority or authorities controlling the financial-stability instruments and being responsible for achieving and maintaining financial stability vary across countries and may include the financial supervisory authority, the central bank, the ministry of finance, and other regulatory and supervisory agencies.

Clearly, from the above perspective, monetary policy and financial-stability policy are quite different and distinct policies. But how closely related are they? Should they really have different goals?

5. Given a possible long-run tradeoff between resilience and prosperity, Tucker (2015) discusses the need for an explicit political decision on a standard of resilience that financial-stability policy shall maintain.

6. The instruments of micro- and macroprudential policy overlap and the boundary between them is not clear. This is particularly the case when, as in Sweden, the financial sector is dominated by a few large and systemically important banks and microprudential policy of individual financial institutions thus have systemic consequences. This is an additional reason why I prefer to consider a broader financial-stability policy that includes both micro- and macroprudential policy and has the goal of financial stability (with microprudential policy's focus on the stability of individual financial institutions seen as a part of a policy for stability of the financial system). IMF (2013) provides an extensive discussion of the goals and scope of macroprudential policy and their relation to microprudential policy and to crisis management and resolution policies.

3. SHOULD MONETARY POLICY HAVE FINANCIAL STABILITY AS ITS THIRD GOAL?

In particular, should monetary policy have a third goal, not only price stability and real stability, but also financial stability? First of all, we should realise that the question “should *monetary policy* have financial stability as a goal?” is different from the related question “should *central banks* have a financial-stability goal?” The answer to the latter depends on whether we are considering crisis prevention or crisis management. In crisis management, central banks have a role as lenders of last resort.⁷ Therefore, it is obvious that central banks should have financial stability as an objective in crisis management. In crisis prevention, the answer depends on whether or not the central bank has control of any macroprudential instruments. If it has, the goal for the use of those instruments should of course be financial stability. Then the question still remains if the central bank’s *monetary policy* should also have financial stability as a goal. If instead the central bank lacks macroprudential instruments, as is the case for the Riksbank, the Bank of Canada, and (as far as I know) the Central Bank of Chile, the question is only whether *monetary policy* should have financial stability as an additional goal.

Regarding whether monetary policy should have financial stability as a goal, I am convinced that the answer is no. Monetary policy should not have financial stability as a goal. The reason is that monetary policy cannot achieve financial stability.

An important principle for economic-policy goals is that *economic policies should only have goals that they can achieve*.⁸ Monetary policy

7. However, the central bank does not have a monopoly on lending of last resort. The Ministry of Finance or the National Debt Office can also provide liquidity support at short notice. For instance, during the 2008-2009 crisis, the Swedish NDO provided immediate liquidity support to Swedish banks, by first issuing treasury bills to get cash and then lending the cash to the banks with mortgage-backed securities as collateral (Riksgälden, 2008).

8. Obviously this principle should apply to all public policies, not only economic policies. Furthermore, for economic policies, the ultimate goal for overall economic policy can be said to be to safeguard and improve the welfare of citizens. This ultimate goal is normally expressed in terms of a few more specific goals that contribute to the welfare of citizens, for example, efficient resource allocation (including an efficient financial system), high and stable growth, full and stable employment, price stability, fair distribution of living standards, regional balance, and a good environment. Each economic policy could have all these goals. But it is better to give each economic policy a specific goal that it can achieve and that contributes to the ultimate goals. This way policy can be more effective, and accountability for achieving each specific goal can be more directly assigned.

should thus have only goals that monetary policy can achieve. So what can monetary policy achieve?

Monetary policy can stabilise inflation around a given inflation target and resource utilisation around its estimated long-run sustainable rate. Because the inflation rate over the longer run is primarily determined by monetary policy, it is possible to select a fixed target for the inflation rate and for monetary policy to achieve an average inflation rate over a longer period at or close to the target. In contrast, the long-run sustainable rate of resource utilisation (measured by, for example, the maximum long-run sustainable employment rate or the minimum long-run sustainable unemployment rate) is largely determined not by monetary policy but by non-monetary factors that affect the structure and working of the economy. These factors may change over time and may not be directly observable and measurable. This means that it is not appropriate to set a fixed monetary-policy target for the long-run rate of resource utilisation. Instead, the long-run rate of resource utilisation must be estimated, and such estimates are necessarily uncertain and subject to revision (FOMC, 2017).

Thus, monetary policy can normally not increase the long-run sustainable rate of resource utilisation; for this, structural policies must be used.⁹ Generally, monetary policy cannot solve structural problems.

It follows that price stability and real stability in the above sense are suitable goals for monetary policy.¹⁰ But what about financial stability? Can monetary policy achieve financial stability?

The one thing we should have learned from the global financial crisis is that price stability does not imply financial stability. Monetary policy can achieve price stability, but it cannot achieve financial stability. Bear in mind that sufficient resilience is the crucial part of the definition of financial stability. There is no way monetary policy can systematically affect and thereby achieve sufficient resilience of the financial system; for example, there is obviously no way monetary policy can ensure that there are sufficient capital and liquidity buffers in the financial system.

9. There are exceptions. There can sometimes be hysteresis effects—or very persistent effects—of monetary policy on the labour-market participation rate or on the unemployment rate that need to be taken into account.

10. It goes without saying that fiscal instability or financial instability can make it difficult or even impossible for monetary policy to achieve its goals.

What about LAW? 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) and the Riksbank (but was later, in the spring of 2014, dramatically abandoned by the latter). 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 favour 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. To fill the cracks, the policy-rate would need to be increased so much that it may kill the economy (Svensson, 2017a). Often, *qualitative* effects are not sufficient; estimates of the *quantitative* effects are necessary for a final assessment.

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 instance, 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. Dell’Ariccia and others (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 U.S. banks, by 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 $0.052/0.85=6.1$ percent 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.

As far as I can see, if there are financial-stability problems, in order to ensure financial stability there is simply no choice but to use other policies than monetary policy, primary macro- and microprudential policy (or other policies, such as housing policy, that are appropriate for the precise problem at hand). If the existing financial-stability policy is insufficient or ineffective, there is no choice but to develop and apply a better financial-stability policy.

Furthermore, as discussed below, results of Svensson (2017a) indicate, somewhat surprisingly, that when financial-stability policy is weak or non-existent, the margin of costs over benefits of LAW is likely to be even larger. To the extent such weak financial-stability policy results in a credit boom with a higher probability of a crisis, a larger magnitude of a crisis, or a longer duration of a crisis, these changes all increase costs more than benefits. This is consistent with the statement of Williams (2015), that “monetary policy is poorly suited for dealing with financial stability, even as a last resort.”

4. SHOULD MONETARY AND FINANCIAL-STABILITY POLICIES BE CONDUCTED SEPARATELY OR CO-ORDINATELY?

Given the above principle for economic-policy goals, the conclusion is that financial stability is not a suitable goal for monetary policy, because monetary policy cannot achieve financial stability. What about financial-stability policy? What can and cannot it achieve?

Financial-stability policy can, with sufficient instruments, achieve financial stability. Thus, financial stability is a suitable goal for financial-stability policy. But financial-stability policy cannot stabilise inflation around the inflation target and resource utilisation around its estimated long-run sustainable level. Thus, by the above principle for economic-policy goals, price stability is not a suitable goal for financial-stability policy.

It follows that both monetary and financial-stability policies are needed to achieve the monetary-policy goals of price stability and real stability and the financial-stability-policy goal of financial stability.

But should monetary financial-stability policies be conducted in a separate or coordinated way? By being conducted in a separate way, I mean that the two policies are conducted as in a game-theoretic Nash-equilibrium, that is, each policy is being conducted so as to

achieve its goal while taking into account the conduct and effects, but not the goal achievement, of the other. By being conducted in a coordinated way, I mean that the two policies are conducted as in a game-theoretic coordinated equilibrium, that is, the policy actions of both policies are determined together so as to simultaneously achieve the goals of both policies.

Note that the question of whether the policies are best conducted separately or co-ordinately is relevant also if the same authority, the central bank, is in charge of both policies. In this case, the question is whether or not the policies work better with separate decision-making bodies within the bank for the two policies, each with its separate goals and its separate instruments.

There is certainly some interaction between the two policies. Financial-stability policy affects financial markets, spreads between different interest rates, and lending by banks. Via loan-to-value caps, it affects household borrowing, housing demand, housing prices, and construction. This way it may, depending on the situation, indirectly affect inflation and resource utilisation, but not systematically, not strongly, and not always in the same direction. For instance, some regulation may deteriorate the working of the economy, reduce activity, and reduce the sustainable rate of resource utilisation. But better regulation and more effective implementation of credit standards may allow financial deepening and more lending to suitable borrowers, thus increasing activity and the sustainable rate of resource allocation.

Monetary policy affects interest rates, output and employment, profits, credit losses, and assets prices. This way it affects debt service, balance sheets, and leverage. This way it may, depending on the situation, indirectly affect financial stability, but not systematically, not strongly, and not always in the same direction.¹¹

In summary, monetary policy has a strong and systematic effect on inflation and resource utilisation but a small and unsystematic effect on financial stability. Financial-stability policy has a strong and

11. Furthermore, as emphasized by Bernanke (2015), the neutral/natural/equilibrium interest rate is determined by structural factors, not monetary policy. It follows that monetary policy can only let the policy rate deviate somewhat above or below the neutral rate, this way conducting contractionary or expansionary policy, respectively. The monetary policy stance is therefore measured by the gap between the policy rate and the neutral rate, not by the policy rate. The effect of monetary policy should therefore be measured as the effect of the gap between the policy rate and the neutral rate, not of the policy rate itself. The effect of the latter will be the effect of the sum of the monetary policy stance and the neutral rate.

systematic effect on financial stability but a small and unsystematic effect on inflation and resource utilisation. This means that monetary policy can normally adjust to and neutralise any effect of financial-stability policy on inflation and resource utilisation, and financial-stability policy can normally adjust to and neutralise any effect of monetary policy on financial stability. This means that the conditions for a Nash equilibrium to be optimal are satisfied and it implies that the policies can successfully be conducted separately, while being fully informed of and taking into account the conduct of the other. Thus, under these conditions, the goals of both monetary policy and financial-stability policy can be achieved by each policy conducted separately to achieve its goal, while taking into account the conduct and effects of the other.¹²

Conducting each policy separately furthermore 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 to achieve its goals and makes it more likely.

As emphasized above, monetary policy and financial-stability policy are really very different policies, each with different suitable goals and different suitable instruments. In particular, they work through very different mechanisms. The mechanisms to achieve price stability and real stability, and the ones to achieve sufficient resilience of the financial system are quite different. In contrast, Borio (2017, 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 financial-stability policies work through very similar mechanisms. But I find this metaphor quite misleading. Staying within driving metaphors, I would suggest that a more relevant one is that monetary policy operates the accelerator and the brake to achieve a steady optimal speed of the car. This means monetary policy presses the accelerator when the road is uphill and the brake when it is downhill. Financial-stability policy makes sure

12. Bean (2014) provides a thorough discussion of why and how monetary policy and macroprudential policy can achieve a good outcome by each policy focusing on its own goals.

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 more or less orthogonal.

Still, the overall policy framework is more robust if it can explicitly handle the rare occasion when there would be considerable interaction between the two policies and some explicit coordination is warranted. More precisely, I have in mind the rare situation when the monetary policy stance might provide a significant threat to financial stability that financial-stability policy could not contain with its available instruments. This issue is discussed in section 6.

The above refers to normal times and crisis prevention. In *crisis* times, when there is crisis management rather than crisis prevention, things are very different. Then full cooperation and coordinated policies by all the relevant authorities would be warranted. These authorities normally include the financial supervisory authority(ies), the central bank, the ministry of finance, and the bank-resolution authority. In particular, in a crisis, coordinated policy packages by several authorities may have a strong effect on private-sector expectations and thereby help to stabilise the situation.

The central bank has a traditional role in crisis management, through its capacity to provide liquidity support, as a lender of last resort. However, as mentioned, the central bank does not have a monopoly on liquidity support in a crisis. The ministry of finance or the national debt office (NDO) can also provide liquidity support, in a very short time. This was demonstrated by the Swedish NDO during the 2008 crisis (footnote 7).

In Sweden, the fact that central banks have a role in crisis management and can provide liquidity support has been used by the Riksbank as an argument why it should be in charge of crisis prevention and macroprudential policy. However, the argument is hardly convincing. By the same logic, because foreign policy could result in a war, the defence department should be in charge of foreign policy. Furthermore, the central bank is not the only authority with a responsibility for crisis management and, as noted, it is not even the only authority that can provide liquidity support in a crisis.

Instead, the role in crisis management implies that the central bank, like all other authorities with such a role, should make *preparations* for crisis management, including crisis-management games (tabletop exercises) together with other authorities. This is not the same as crisis prevention.

5. SHOULD MONETARY AND FINANCIAL-STABILITY POLICIES BE CONDUCTED BY THE SAME AUTHORITY OR BY DIFFERENT AUTHORITIES?

As concluded above, monetary policy and financial-stability policy are quite different economic policies and are normally best conducted separately. This means that they should have separate decision-making bodies, each with its separate goals and separate instruments, and each accountable for achieving its own goals.

The efficiency of and accountability for financial-stability policy under crisis prevention is enhanced if one authority controls all financial-stability instruments. Splitting instruments across several authorities makes it difficult to hold authorities accountable, and the different authorities may apply the different instruments at cross purposes or at least inefficiently. Under crisis management, when all relevant authorities cooperate and coordinate their policies to reduce the magnitude of the crisis and restore financial stability, holding individual authorities accountable is obviously more difficult.

There are at least two clean models that are likely to work well. One of them is that of the U.K., where the Bank of England has the responsibility for both monetary and financial-stability policy. There are two decision-making bodies—the Monetary Policy Committee (MPC) in charge of monetary policy and the Financial Policy Committee (FPC) in charge of financial-stability 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 overlap of members in the two committees. This makes each committee fully informed about the policy of the other committee.¹³

Another model 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 different authorities. Finansinspektionen, the Swedish financial supervisory authority (FSA), 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 financial-stability instruments (except communication) for crisis prevention, only lending of last resort for crisis management.

13. See Kohn (2015) for details on the U.K. model and the case for two committees.

This assignment of goals and instruments enhances efficiency and accountability by assigning all the financial-stability instruments to one authority. Because the FSA already had control of all the microprudential instruments, it also puts both micro- and macroprudential instruments into one institution. In general, the boundary between micro- and macroprudential instruments can be somewhat unclear, and macroprudential policy is arguably much closer to microprudential policy than to monetary policy. Furthermore, in a financial sector similar to that in Sweden, where four major banks in a cosy oligopoly dominate the financial sector, microprudential policy has macroprudential consequences and the distinction between micro- and macroprudential policy is even less clear. Altogether, there are thus arguably some additional efficiency and accountability gains in putting micro- and macroprudential policy together. Because the FSA is an authority under the government, the government has the ultimate responsibility and accountability for financial stability, including any intergenerational and other distributional consequences and tradeoffs.¹⁴

Monetary and financial-stability policies in Sweden are conducted in a very transparent and open way, making it easy for the Riksbank and the FSA 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 the FSA 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.

In practice, history and political-economy aspects to a large extent explain the particular institutional arrangements in each country, for example in the U.S. There, financial-stability instruments,

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

regulation, and supervision are split across several authorities with different mandates. This, together with vested interests and extensive lobbying by the financial industry and related political influence over the authorities, makes effective financial-stability regulation quite difficult.

6. WHAT IF MONETARY POLICY WOULD POSE A THREAT TO FINANCIAL STABILITY?

On rare occasions, unforeseen situations could arise, in which monetary policy might pose a threat to financial stability even when it is fulfilling its monetary policy goals. In principle, the financial-stability authority should be able to contain such threats with its available instruments. But how should a situation be handled when such a threat cannot easily be contained?

The August 2013 forward guidance by the Bank of England's MPC provides a good example (Bank of England, 2013). At the time, the MPC agreed its intention not to raise the policy rate until the unemployment rate had fallen to a threshold of 7 percent, subject to three "knockouts" not being breached. The third knockout is the FPC judging that the stance of monetary policy poses a significant threat to financial stability that cannot be contained by the range of mitigating policy actions available to the FPC, the Financial Conduct Authority, and the Prudential Regulation Authority in a way consistent with their goals.

Thus, according to this example, the financial-stability authority should warn the monetary policy authority if monetary policy poses a threat to financial stability that the financial-stability authority could not contain with its available policy instruments. Then the monetary policy authority may choose to adjust monetary policy, by either tightening or loosening it, depending on the situation, and thus temporarily deviate from the monetary policy goals. This clarifies the responsibility of each authority and makes it possible to hold them accountable. Effectively, the MPC is put in a "comply or explain" position. Because the final decision of adjusting monetary policy is left with the monetary-policy authority, its independence to conduct monetary policy is maintained.

In particular, it should be the financial-stability authority, not the monetary-policy authority, which decides if monetary policy poses a threat to financial stability that it cannot contain with its available instruments. The principle should be that the authority in charge of

the goal decides if its goal is threatened in such a way that assistance is needed, not the other authority. The monetary-policy authority should not be the one to decide whether its policy poses a threat to the goal of the financial-stability authority. Without a warning from the financial-stability authority, the monetary-policy authority should not be allowed to deviate from the monetary policy goals.

Had such a principle been applied in Sweden in 2010, and the FSA had been the authority to judge whether monetary policy posed a threat to financial stability that could not be contained by FSA's available instruments, the much discussed and criticised aggressive LAW undertaken by the Riksbank in 2010-2011 would most likely not have occurred. This leads naturally to a discussion of whether monetary policy should ever lean against the wind in an attempt to promote financial stability.

7. SHOULD MONETARY POLICY EVER “LEAN AGAINST THE WIND”?

In the ongoing discussion about monetary policy and financial policy, there has been considerable focus on the particular issue of whether monetary policy should lean against the wind (of asset prices and credit booms)—more precisely, in order to promote financial stability raise the policy rate somewhat higher than justified by stabilizing inflation around the inflation target and resource utilisation around its long-run sustainable rate. Such a policy has been strongly advocated by the BIS, for example in BIS (2014, 2016).

7.1 The Swedish experience

The recent experience in Sweden provides, first, a dramatic example of LAW and, second, a dramatic and complete turnaround of policy.¹⁵ In June 2010, the forecast for inflation and unemployment by the Riksbank for Sweden and by the FOMC for the U.S. looked very similar. The inflation forecast was below 2 percent and the unemployment forecast was far above each central bank's estimate of a long-run sustainable rate (Svensson, 2011). With reference to those

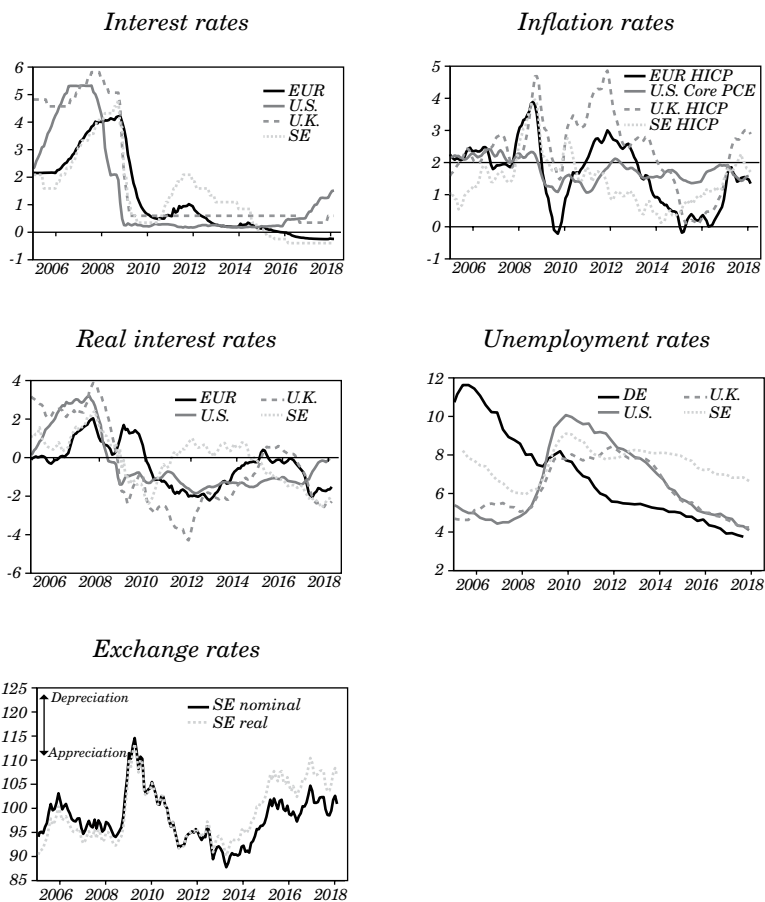
15. Turner (2017) provides a broad discussion of LAW with examples from several countries.

June 2010 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 and started preparing Quantitative Easing 2 (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 percent in July 2010 to 2 percent in July 2011, citing concerns about housing prices and household debt.¹⁶ Figure 1, upper-left panel, shows the policy rates in Sweden, the U.S., and the U.K. and the eonia rate in the euro area. We see the dramatic rise of the Riksbank’s policy rate starting in mid-2010. The upper-right panel shows the inflation rates (measured as HICP inflation—harmonised index of consumer prices—except for the U.S., as core PCE—personal consumption expenditure—inflation). Swedish inflation fell and reached zero in the beginning of 2014. The middle-left panel shows the real interest rates (measured as interest rates less inflation). The real interest rate rose dramatically in Sweden, creating a large real interest differential to the other economies. The bottom 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 of 2010-2011. The middle-right panel shows that the Swedish unemployment rate, which was falling after having peaked in early 2010, stabilised at a high rate after the policy tightening, and then even rose. In Germany and the U.S., the unemployment steadily fell.

16. As a deputy governor and member of the Riksbank’s executive board at the time, I dissented against every single rate increase, for reasons 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 1. Interest Rates, Inflation Rates, Real Interest Rates, Unemployment Rates, and Effective Exchange Rates in Selected Economies (SE Sweden, EUR euro area, U.S., U.K., DE Germany)



Source: Thomson Reuters Datastream.

In the early spring of 2014, the majority of the executive board apparently realised that the situation was unsustainable, with unemployment very high and inflation close to zero. 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 percent in February 2016 (upper-left panel). Inflation rose back to close to the target of 2 percent (upper-right panel), the real interest rate fell to below minus 2 percent (middle-left panel), the krona depreciated much (bottom panel), and unemployment started to come down (middle-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.¹⁷

The 2010-2011 dramatic tightening 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. 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.¹⁸

Furthermore, there was no work indicating that the level of housing prices and household debt posed any risks that the FSA could not manage on its own, for instance with its LTV cap of 85 percent for new mortgages that the FSA introduced in the fall of 2010. Also, the FSA could assess risks with considerable precision in its commendable annual mortgage market report, *The Swedish Mortgage Market*. Among other things, it 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

17. 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 and others, 2016).

18. See, for example, Assenmacher-Wesche and Gerlach (2010), Bean and others (2010), and Dokko and others (2011) (working paper available in 2009). In particular, using Swedish data, Riksbank staff members Claussen and others (2011) showed that preventing housing prices from increasing above the 2004-2010 trend 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 percent.

higher mortgage rates, falling housing prices, and income losses due to unemployment.¹⁹

7.2 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 cost and benefit 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, which arises if a crisis occurs. This is because the cost of a crisis of any 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, although it has been neglected by previous literature (including my own previous work).

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 cost from exceeding the marginal benefit by a substantial margin. The result that the cost exceeds the benefit 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.^{20, 21}

Furthermore, somewhat surprisingly, a less effective financial-stability policy, to the extent that it increases the probability, severity, or duration of a crisis, increases the marginal costs more than it

19. The 2010 report is only available in Swedish; from 2011 onwards, the mortgage market report is also available in English. The most recent is Finansinspektionen (2017).

20. As discussed in some detail in Svensson (2017a, section 5; 2017c), if the second cost of LAW is neglected, as in previous work and in recent papers by Filardo and Rungcharoenkitkul (2016) and Gourio and others (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 and others (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 and others (2016).

21. 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).

increases the marginal benefits, making the case against LAW even stronger. The reason is that the expected second cost of LAW mentioned above, the larger cost of crisis due to an initially weaker economy, increases more than the benefits from an increased probability, magnitude, or duration of a crisis.

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.” Former Federal Reserve Board Chair Ben Bernanke and Bank Presidents Charles Evans and John Williams have previously reached similar conclusions.²² More recently, the FOMC has also reached a similar conclusion.²³ The Independent Review of BIS Research (Allen and others, 2016) has noted that the BIS argument for LAW seems to have had little effect on those actually responsible for setting monetary policy, that convincing evidence that the benefits outweigh the costs is lacking, and that BIS research has been somewhat one-eyed and excessively focused on building a case for LAW (including trying to disprove my conclusion about the costs and benefits of LAW).²⁴

22. Bernanke (2015): “As academics (and former academics) like to say, more research on this issue is needed. But the early returns don’t favour the idea that central banks should significantly change their rate-setting policies to mitigate risks to financial stability.”

Evans (2014): “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.”

Williams (2015): “[M]onetary policy is poorly suited for dealing with financial stability, even as a last resort.”

23. FOMC (2016): “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.”

24. Allen and others (2016): “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.²⁵

7.3 LAW may result in lower average inflation and a lower average interest rate

In general, a LAW policy with a higher policy rate implies an equilibrium with lower average inflation and a lower average policy rate (Svensson, 2017b). To see this, take the simplest possible LAW policy rule,

$$i_t = r + \pi_t + \gamma (\pi_t - \pi^*) + \alpha, \quad (1)$$

where i_t denotes the policy rate, r denotes the average real interest rate, π^* denotes a fixed inflation target, and $\gamma > 0$. Furthermore, $\alpha > 0$ denotes a constant increase in the policy rate representing LAW (it could also be random and have a positive unconditional mean, without changing the result). Note that we can rewrite (1) as

$$i_t = r + \pi_t + \gamma (\pi_t - \pi^{**}), \quad (2)$$

where

$$\pi^{**} = \pi^* - \alpha/\gamma < \pi^*. \quad (3)$$

Writing the policy rule as (2) suggests that (1) is equivalent to having a lower inflation target given by π^{**} instead of π^* and that average inflation and the average policy rate will be lower.

To show this more rigorously, assume that the Fisher equation holds on average, so we have

$$E[i_t] = r + E[\pi_t + 1] = r + E[\pi_t], \quad (4)$$

where $E[\]$ denotes the unconditional mean. Taking the unconditional mean of (2), we then have

25. Sveriges Riksbank (2017, p. 13): “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.”

$$E[i_t] = r + E[\pi_t] + \gamma (E[\pi_t] - \pi^{**}). \quad (5)$$

Combining (4) and (5) gives

$$E[\pi_t] = \pi^{**} < \pi^*. \quad (6)$$

From (4) and (6) then follows

$$E[i_t] = r + \pi^{**} < r + \pi^*. \quad (7)$$

It follows that $\alpha > 0$, representing LAW, implies that average inflation equals the “effective” lower inflation target π^{**} rather than the “official” inflation target π^* and that the average policy rate will be correspondingly lower.

If LAW thus implies lower average inflation and a lower average policy rate, it is clear that the probability that the effective lower bound on the policy rate will bind will be higher. Furthermore, with lower average inflation, the real value of any fixed nominal debt is falling more slowly over time. Together, this seems to make the economy more sensitive to shocks.

7.4 No LAW without support from a thorough and convincing cost-benefit analysis

The main policy conclusion that I draw from this work is that any LAW should only be undertaken if it is supported by a thorough and convincing cost-benefit analysis. Given the available evidence, the burden of proof should arguably be on those proposing LAW. I would personally be quite surprised to see a convincing cost-benefit analysis supporting LAW.

8. CONCLUSIONS

We should not ask too much from monetary policy. Monetary policy can really at best just stabilise inflation around a given inflation target and resource utilisation around its estimated long-run sustainable rate. This way it can keep average inflation on target and average resource utilisation equal to its long-run sustainable rate. In particular, monetary policy cannot achieve financial stability; a separate financial-stability policy is needed for that. Then, by the above principle for

economic-policy goals, monetary policy should not have financial stability as a goal.

Monetary policy and financial-stability policy are different policies, with different goals, different suitable instruments and, in many countries, different responsible authorities. Still, there may be considerable interaction between the policies. In this regard, the relation between monetary and financial-stability policies is similar to that between monetary and fiscal policies. Furthermore, given that monetary policy is much more effective in achieving price stability and real stability, and financial-stability policy is much more effective in achieving financial stability, the two policies should normally be conducted independently, but with each policy fully informed about and taking into account the conduct of the other. This means that they should be conducted by separate decision-making bodies, even when the central bank is in charge of both. This allows each decision-making body to be held accountable for achieving its goals. Also in this regard are monetary and financial-stability policies similar to monetary and fiscal policies.

One cannot exclude that, on rare occasions, monetary policy might pose a threat to financial stability that cannot be contained by the instruments of the financial-stability authority. The authority judging whether such a situation has occurred should be the financial-stability authority. This authority should then warn the monetary policy authority about the threat, after which warning, the monetary policy authority may decide whether or not to adjust monetary policy. This clarifies the responsibility and makes it possible to hold each authority accountable. It also respects the independence of monetary policy.

The Swedish example of, first, a dramatic LAW and, second, a dramatic complete turnaround of policy provides a strong warning to other central banks (and to the Riksbank itself). At the current state of knowledge, there is little or no theoretical or empirical support for monetary policy leaning against the wind for financial-stability purposes, that is, a monetary policy that is somewhat tighter than justified by the monetary policy goals alone. The estimated costs are much larger than the estimated possible benefits. Given this, any leaning against the wind should be undertaken only if is supported by a thorough and convincing cost-benefit analysis. Given the currently available evidence, the burden of proof should be on the proponents of leaning against the wind.

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