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Monetary Ease – A Factor behind Financial Crises? Some Evidence from OECD Countries

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Abstract

This paper addresses the question of whether and how easy monetary policy may lead to excesses in financial and real asset markets and ultimately result in financial dislocation. It presents evidence suggesting that periods when short-term interest rates have been persistently and significantly below what Taylor rules would prescribe are correlated with increases in asset prices, especially as regards housing, though no systematic effects are identified on equity markets. Significant asset price increases, however, can also occur when interest rates are in line with Taylor rules, associated with periods of financial deregulation and/or innovation. The paper argues that accommodating monetary policy over the period 2002-2005, *in combination* with rapid financial market innovation, would seem in retrospect to have been among the factors behind the run-up in asset prices and financial imbalances -- the (partial) unwinding of which helped trigger the 2007/08 financial market turmoil.

JEL: E44, E5, F3, G15

Keywords: Interest rates; monetary policy; housing; sub-prime crisis; financial markets; macro-prudential; regulation; Taylor rule; house prices; asset prices; financial imbalances; market turmoil; financial innovation

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Introduction and main findings

1. This paper addresses the question of whether monetary policy ease may lead to excesses in financial and real asset markets and ultimately result in financial dislocation. A particular focus is on the role that earlier monetary policy may have played in the current financial market turmoil. More fundamentally, the question is whether monetary policy can be too accommodative, even if it does not lead to sustained upward pressure on current prices.

2. The main findings, based on data from twenty-one OECD countries, are as follows: [3]

- The evidence suggests that periods when short-term interest rates have been persistently and significantly below what Taylor rules would prescribe are correlated with increases in asset prices, especially as regards housing. No systematic effects are identified on equity markets, probably reflecting the fact that domestic monetary policy is less important for more globally integrated stock markets. Based on (limited) available information, it would appear that rates "below Taylor" in situations of *both* a severe recession and a credit crunch have not resulted in a built-up of financial imbalances.
- Significant asset price increases can also occur when interest rates are in line with Taylor rules, associated with periods of financial deregulation and/or innovation, which may often give a strong boost to economic activity by themselves and thereby may lead simple Taylor rules to be overly conservative.
- Monetary policy was accommodating over the period 2002-2005, and in combination with rapid financial market innovation, would seem in retrospect to have been among the factors behind the run-up in asset prices and financial imbalances -- the unwinding of which helped trigger the 2007/08 financial market crisis.

3. The paper is structured in the following way: Section one assesses monetary conditions of twenty-one OECD countries in recent decades, examining how far interest rates may have diverged from Taylor rule levels. Sections two and three examine the association of episodes of monetary policy ease with the build-up of financial imbalances. Section two focuses on developments in housing markets, and Section three synthesises the features of recent and historic episodes of monetary ease.

1. Identifying periods of monetary ease

4. As a first step towards examining whether periods of monetary ease tend systematically to be associated with instability in asset prices, this section compares actual interest rates with normative benchmarks based on Taylor rules. Indeed, in the early years of the 21st century, interest rates were, for many economies, below the level a standard Taylor rule would have suggested. This finding of policy rates being widely "below Taylor" is fairly robust to different assumptions and methodologies that can be used to estimate a Taylor rule.

3. It should be noted that a number of factors beyond the direct control of national central banks have also been important ingredients in the recent turmoil, acting to amplify the impact of monetary ease (or counter the effects of monetary tightening). External influences on bond yields, liquidity creation and risk premia are examples for such non-monetary drivers of accommodating financial conditions. See Ahrend et al. (2008) and Ahrend et al. (2006) for a more detailed discussion of these issues.

5. The Taylor rule stipulates the level of policy rates to be a function of the output gap, divergences of actual rates of inflation from a target, and the neutral level of interest rates.[4] In the following, a standard specification is used:

$$r_T = \pi + r^* + \lambda_1 (\pi - \pi^*) + \lambda_2 (GAP)$$

with r_T being the Taylor interest rate, π the rate of inflation as measured by core CPI,[5] π^* the desired rate of inflation, r* the assumed real "neutral" rate, and GAP the output gap. λ_1 and λ_2 are the weights given to, respectively, inflation and output stabilisation, with the constraint that they should add up to one. For simplicity, and as widely adopted in the literature, equal weights on output and inflation stabilisation are assumed here, i.e. $\lambda_1 = \lambda_2 = 0.5$. As monetary conditions are also influenced by exchange rate movements, the inclusion of some form of exchange rate variable into a Taylor-style equation could be envisaged. Studies on the subject indicate, however, that the inclusion of an exchange rate variable in Taylor-type rules is not helpful for inflation and output stabilisation[6] and this work therefore abstracts from exchange rates. Intuitively, as exchange rate misalignments can be very protracted, it would not seem a desirable feature to rely on a general rule that would bias monetary policy significantly up- or downwards for years just because of exchange rate levels.[7]

6. There are some potential difficulties in calculating Taylor rates which might affect their operational significance. For example, the output gap and the neutral rate are not observable, and estimates for these variables can be challenged. Problems are generally exacerbated when going back in time, especially where inflation was high and volatile, so that this study largely abstracts from the pre-1985 period. For simplicity, it is assumed that central banks historically pursued the same inflation objectives as they currently do during the late 1980s and early 1990s, even though inflation rates in many countries were still significantly above levels witnessed during the past decade and some central banks were still mainly focused on monetary aggregates. It also seems likely, and is supported by evidence for some countries, that real neutral rates have been time-variant, and may have come down somewhat over recent decades. However, with the exception of the United States, for which such a time path is readily available, estimates of current neutral rates are used as proxies for historical values.[8] This could bias Taylor-rate estimates downward in earlier periods. On the other hand, for the earlier years the inflation targets assumed in the current Taylor-rule calculations may be overly ambitious, possibly biasing Taylor-rate estimates upward. All in all, the approach chosen to calculate Taylor rates may result in some potential "below Taylor" episodes in earlier years not being captured, which may explain why pre-2000 only relatively few of such episodes are found.[9] This, however, is of lesser concern here, as the main objective is not to find all

4. This rule was first proposed for the United States in Taylor (1993). For a critical discussion of the Taylor rule see, for example, Kohn (2007).

5. For the United States, core PCE is used.

6. See, for example, Taylor (2002).

7. A stronger case for systematically considering exchange rates can be made when not looking at monetary policy stance in levels (as is done here), but in changes.

8. Neutral rates are derived from the OECD medium-term reference scenario. Time variant neutral rates for the United States are taken from Wu (2005).

9. This may also be connected with the fairly general need for disinflation during the 1980s, as well as the relatively benign global environment after 2000, which allowed for low interest rates resulting in relatively little inflationary pressure.

possible historical episodes, but simply to find *uncontroversial* historical precedents to the more recent episodes.[10]

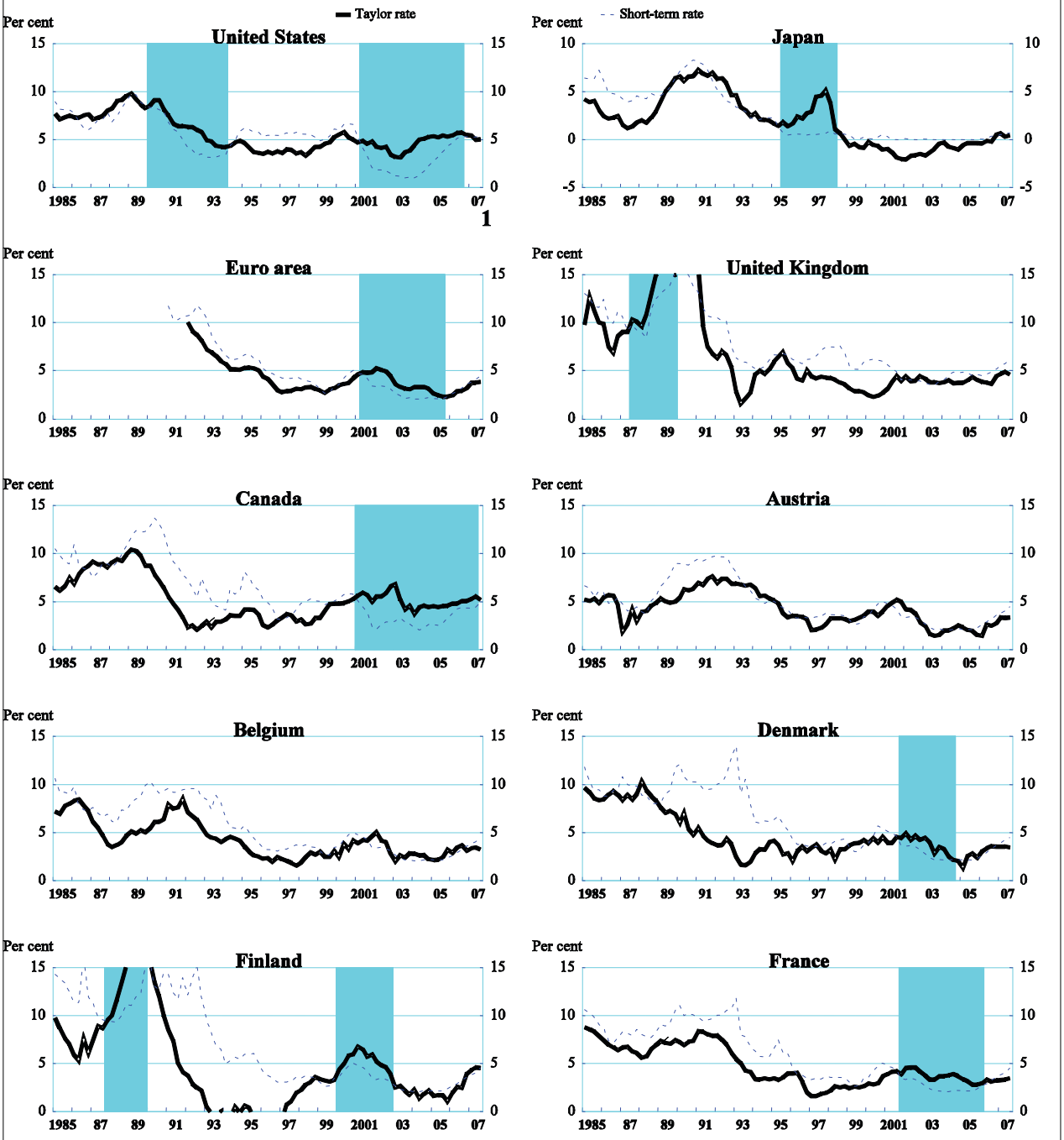
7. Using quarterly data, an episode is defined as a time period with a cumulated deviation from a Taylor rule of at least 12 percentage points. This would, for example, correspond to a deviation by one percentage point during three years, or a deviation by 1.5 percentage points during two years. For most episodes, deviations are well above this threshold. For the largest cases, this threshold is surpassed by a factor of above ten (Ireland 1999-2007), or above six (Portugal 1998-2005, Spain 1998-2007 and Greece 2000-07). For the United States 2001-06 episode, this threshold is still surpassed by a factor of almost four. Figure 1, based on data for more than twenty OECD economies from 1985 to 2007, shows Taylor rates, actual policy rates, and potential candidates for episodes.

8. With a standard Taylor rule as stipulated above, a fairly large number of episodes can be identified where policy rates have been persistently and significantly below prescribed levels. These include the United States (2001-06), Canada (2001-07), Norway (2004-07), Denmark (2001-04), and Australia (2000-03). Euro area interest rates were only slightly below what a Taylor rule would have called for, but were well below for some members, as Portugal (1998-2005), Spain (1998-2007), Greece (2000-07), the Netherlands (1998-2004), Italy (1999-06), France (2001-06), Ireland (1999-2007), and Finland (2000-02). In addition to these recent episodes of "being below Taylor", there are also some historical precedents, namely Switzerland (1985-88), Finland (1987-89), the United Kingdom (1987-90), and the United States (1990-93).

9. Given the potential difficulties in determining Taylor rates, the robustness of the identified episodes to different assumptions and methodologies has been tested. The general result is that, while the exact timing of identified episodes may differ somewhat, their identification is fairly robust. First, using a fixed or a time-varying neutral rate does not seem of major importance for the United States, for which time-varying estimates are available (see Annex, Figure 1). Also, identified episodes seem generally robust to the use of different (reasonable) assumptions about the level of the neutral rate, or inflation targets. Figure 2A of the Annex shows, for example, that negative neutral rates would need to be assumed in order to argue that US rates in 2002-05 were not below Taylor rates. Similarly, for any inflation target between 0 and 4%, actual US rates in 2002-05 were significantly below Taylor rates (Annex, Figure 2B). Identified episodes are, finally, also robust to different weights on inflation and output stabilisation. Even under fairly extreme scenarios with weights of 0.7 and 0.3 (using, in turns, a stronger weight on inflation or output stabilisation), identified episodes remain robust (see Annex, Figure 3).

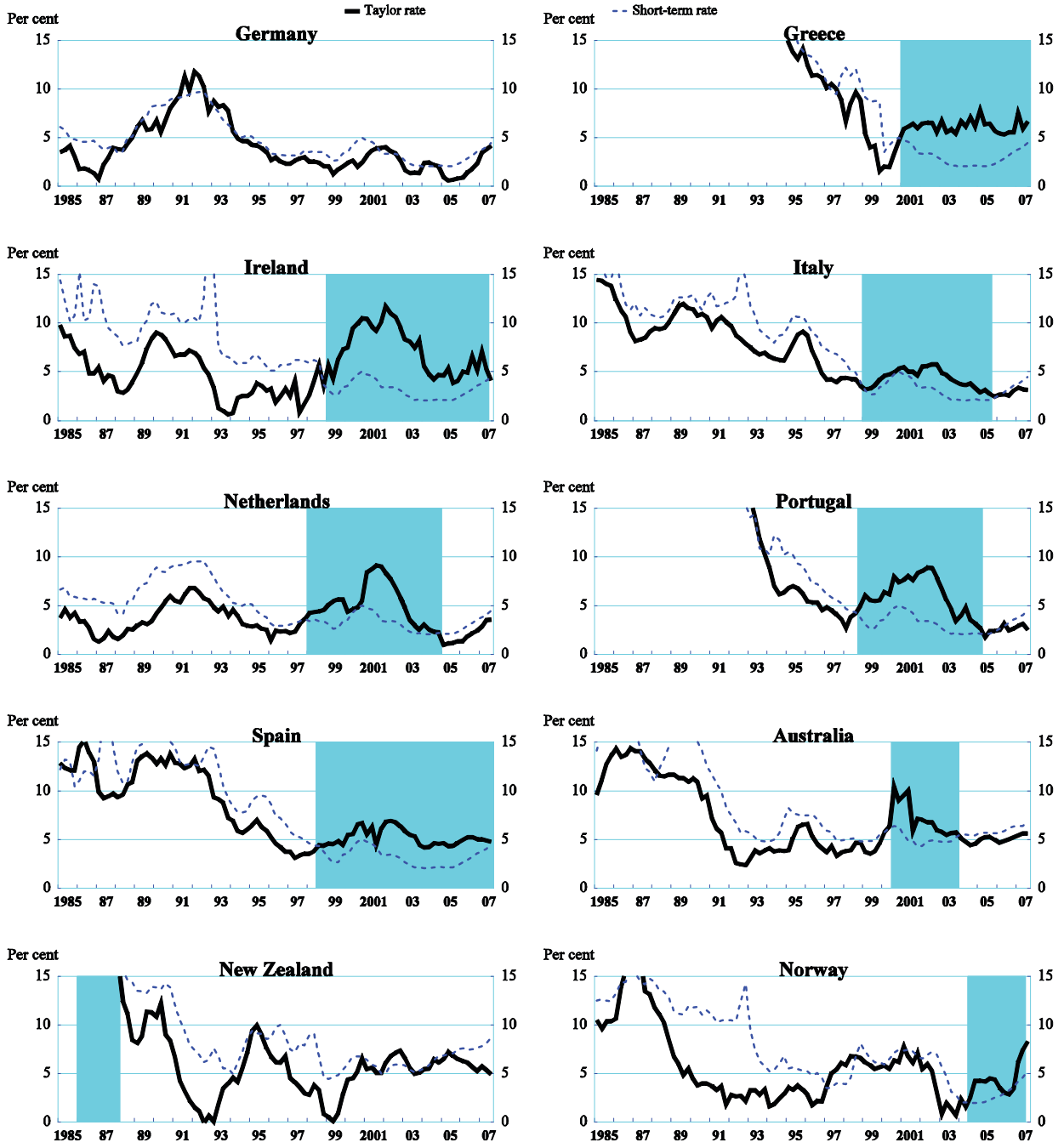
10 . In order not to rely on historical episodes that are probably artificial, and in any case would likely be controversial, Japan 1995-98 and New Zealand 1986-88 are not classified as episodes, as in both cases Taylor rates were artificially high due to one-off jumps in inflation driven by significant increases in consumption tax. Switzerland 1990-92 is also not classified as an episode, as the Taylor rate was also artificially high, with the increase in inflation being mainly driven by a type of one-off increase in rents, which *de facto* being indexed to mortgage rates, increased sharply when mortgage rates went up significantly in the aftermath of the late 1980s housing bubble. See for example OECD (1991a) and OECD (1992).

Figure 1. Taylor rule and actual interest rates



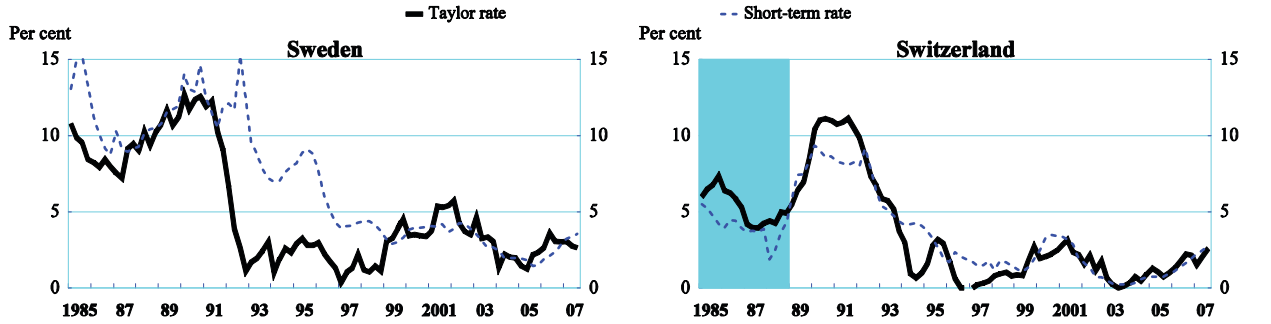
Note: The Taylor rule rate is a function of an equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap between actual inflation and the implicit inflation target.Equal weight is given to the inflation gap and the output gap.
For United States,the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.85%.
For Japan, the assumed price stability target is for inflation of 1.0% and the assumed equilibrium real interest rate is 1.2%.
For the euro area countries, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%.
For United Kingdom, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 3.0%.
For Canada, the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 2.75%.
Source: OECD.

Figure 1. Taylor rule and actual interest rates (cont.)



Note: The Taylor rule rate is a function of an equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap between actual inflation and the implicit inflation target.Equal weight is given to the inflation gap and the output gap.
The assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1 for the euro area countries.
For Australia, the assumed price stability target is for inflation of 2.5% and the assumed equilibrium real interest rate is 2.85.
For New Zealand, the assumed price stability target is for inflation of 2% and the assumed equilibrium real interest rate is 3.
For Norway, the assumed price stability target is for inflation of 2% and the assumed equilibrium real interest rate is 2.4.
Source: OECD.

Figure 1. Taylor rule and actual interest rates (cont.)



Note: The Taylor rule rate is a function of an equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap betwe actual inflation and the implicit inflation target.Equal weight is given to the inflation gap and the output gap.
For Sweden, the assumed price stability target is for inflation of 2% and the assumed equilibrium real interest rate is 2.1.
For Switzerland, the assumed price stability target is for inflation of 1.0% and the assumed equilibrium real interest rate is 1.6.
Source: OECD.

10. In the first half of the 2000s, a number of factors were seen as providing justification for keeping policy rates below those which a Taylor rule would have implied, warning against the interpretation of divergences from Taylor rule as necessarily implying a deviation from an optimal policy setting. Apart from the fallout from a number of high-profile corporate scandals in the early 2000s, which created financial headwinds not captured by simple Taylor rules, the most important was the fear that other large economies might follow Japan into deflation.[11] Given that costs involved were perceived as asymmetric[12] -- falling into deflation was considered as more difficult and costly to correct than some overshooting of inflation targets -- a risk management approach was thought to call for erring on the side of ease. This approach was easier to adopt in an environment of globalisation-induced disinflation, which was initially seen as helping central banks to keep domestic inflation at levels consistent with their respective understanding of price stability while running the economy at higher levels of activity.[13] Finally, in a monetary union as the euro area, the central bank obviously had to focus on the currency area in its entirety when setting interest rates, even if this had asymmetric effects on asset prices which, potentially, could lead to financial imbalances in some member countries.

11. Several factors, however, suggested that the potential problems of undershooting Taylor rates were increasing.[14] A corollary of the bond market "conundrum" was that long-term rates failed to rise when policy rates finally increased, meaning that financial conditions remained extremely accommodative,

11. See, for example, Kohn (2004).

12. The assumption of asymmetric costs, while widely shared, is not universally agreed upon (see e.g. White 2006, or Borio and White 2004). While the size of deflation costs remains speculative, evidence provided by Bordo and Filardo (2005) points to mild deflation being relatively benign, as long as it is not accompanied by banking crises or other asset busts. Also, asset price booms that turn sour may create potentially large costs. IMF (2003) argues that, post WWII, house-price collapses in industrial countries led, on average, to GDP losses of around 8%. Following Cecchetti (2006), housing booms worsen growth prospects particularly by creating large risks of very bad outcomes. Detken and Smets (2004), who distinguish between high- and low-cost booms, argue that real-estate price developments would play a larger role in high-cost booms.

13. See Pain et al. (2006). The effects of globalisation were to temporarily allow inflation targets to be achieved at lower rates of interest and higher rates of activity as low imported inflation compensated for higher domestic inflation.

14. For a discussion of the changes in the transmission of monetary policy as a result of financial market trends, see Cournede et al. (2008).

while risk premia and volatility were artificially low.[15] Also, low interest rates were occurring in an environment of strong financial innovation and off-balance sheet expansion, which meant that monetary policy influence on overall liquidity creation was diminishing. Finally, the wealth effects of monetary policy were being amplified by financial deepening, so that the potential problems of undershooting Taylor rates were increasing from the asset price side.

2. Monetary policy and housing market developments

12. While many observers see the monetary ease of 2002-05, when interest rates were significantly lower than the level indicated by a standard Taylor rule, as a factor behind the rapid run-up in house prices in the United States, this remains a matter of controversy.[16] During the same period, incomplete business cycle convergence within the euro area resulted in a situation where, for some member countries including Ireland and Spain in particular, monetary policy rates set to be consistent with conditions in the euro area as a whole were persistently and significantly below what a "country-focused" Taylor rule would have suggested. Most of these countries experienced particularly strong house price increases (Figure 4, Annex).[17]

13. Over the 2001-06 period, the correlation between various indicators of housing market buoyancy and the distance of respective euro area countries from a Taylor-rule benchmark rate is indeed striking (Figure 2). Mortgage lending, housing investment, construction investment, and house prices all show a fairly strong correlation with deviations from a Taylor rule. The correlation with house prices is actually the weakest, which is not surprising as differences in zoning restrictions (which should be uncorrelated with monetary policy stance) would also be expected to have a significant influence on price developments.[18] While somewhat weaker, the correlation between various indicators of housing market buoyancy and the distance of respective countries from a Taylor-rule benchmark rate also seems to persist when looking at a broader country sample (Figure 3).

15 . See Rajan (2006). See also Jimenez *et al.* (2007) for micro-economically based evidence that low interest rates increase bank risk taking.

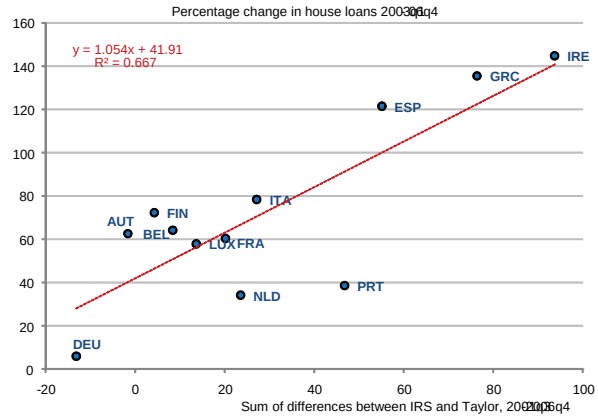
16. See, for example, Taylor (2007) and Negro and Otrok (2007) for opposing views.

17 . On the nexus between house prices and financial imbalances see, for example, Girouard et al. (2006) or van den Noord (2006). On the rareness of soft landings following residential investment booms, see Rae and van den Noord (2006).

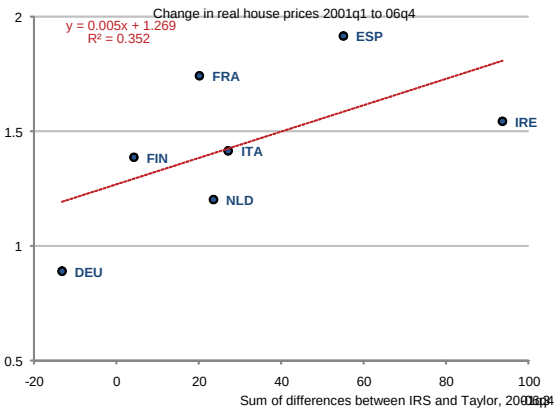
18. See, for example, Hoeller and Rae (2007).

Figure 2. Deviation from Taylor rule versus various measures of housing activity in the euro area

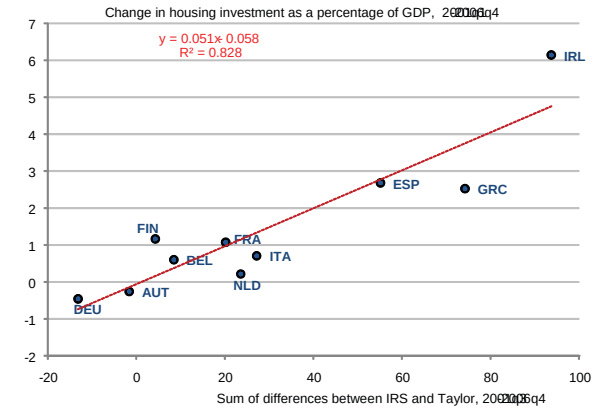
House loans versus deviation from Taylor



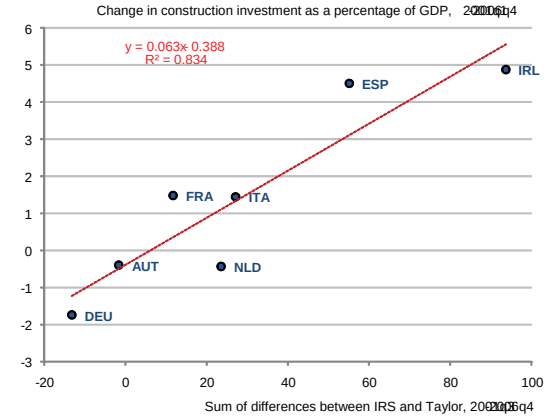
House prices versus deviation from Taylor



Housing investment versus differences between IRS and Taylor



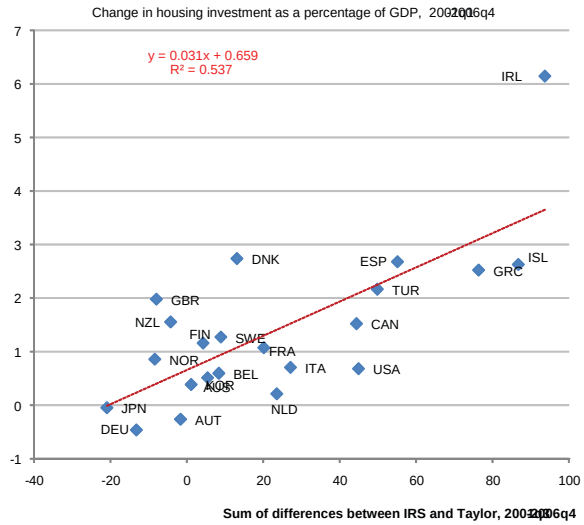
Construction investment versus differences between IRS and Taylor



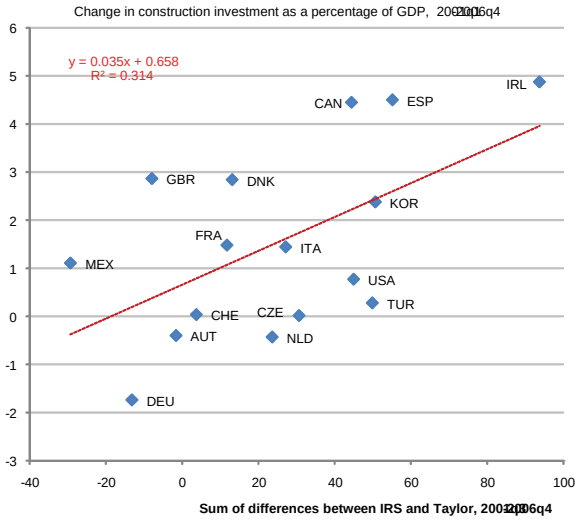
Source: OECD.

Figure 3. Deviation from Taylor rule versus housing and construction investment in the OECD

Housing investment versus deviation from Taylor



Construction investment versus deviation from Taylor



Source: OECD

3. Evidence on linkages between monetary policy, asset prices, and financial crises

14. This section examines to what degree episodes where monetary policy has been significantly and consistently below what a simple Taylor rule would have prescribed, coincided with booms in asset prices, and whether those booms resulted in subsequent financial problems, notably in the banking sector. Table 1, which synthesises information concerning the sampled episodes, shows that periods below Taylor seem to be particularly correlated with housing sector buoyancy. Close to 95% of the episodes saw strong house price increases (and 75% very strong increases). A similar picture emerges for mortgage credit, total credit to the private sector and, to a slightly lesser degree, housing investment. For monetary aggregates, the evidence is limited and less convincing, whereas equity markets were not systematically affected in a noticeable way.

Table 1. **Synthetic information concerning "below-Taylor" episodes**

		Real House Prices	Housing Investment	Mortgage Credit	Credit to private sector	M2	Stock Market Indices
US	2001-06	Strong increase	Very strong increase (initially)**	Very strong increase	Very strong increase	Moderate increase	Moderate increase
Canada	2001-07	Very strong increase	Very strong increase	Very strong increase	Very strong increase	Strong increase	Strong increase
Denmark	2001-04	Strong increase*	Very strong increase	Very strong increase	n.a.	Very strong increase	Strong increase
Norway	2004-07	Very strong increase	Moderate increase	Very strong increase	n.a.	Strong increase	Very strong increase
Australia	2000-03	Very strong increase	Moderate decrease	n.a.	Very strong increase	Strong increase	Moderate decrease
Portugal	1998-2005	n.a.	n.a.	Strong increase	n.a.	n.a.	Strong decrease
Spain	1998-2007	Very strong increase	Very strong increase	Very strong increase	Very strong increase	n.a.	Strong increase
Greece	2000-07	Very strong increase	Very strong increase	Very strong increase	Very strong increase	n.a.	Moderate increase
Netherlands	1998-2004	Very strong increase	Moderate decrease	Strong increase	Very strong increase	n.a.	Strong decrease
Italy	1999-2006	Strong increase	Strong increase	Very strong increase	Very strong increase	n.a.	Moderate decrease
France	2001-06	Very strong increase	Very strong increase	Very strong increase	Strong increase	n.a.	Moderate increase
Ireland	1999-2007	Very strong increase	Very strong increase	Very strong increase	Very strong increase	n.a.	Moderate increase
Finland	2000-02	Very strong increase	Strong decrease	n.a.	Strong decrease	n.a.	Very strong decrease
US	1990-93	Moderate decrease	Moderate increase	Strong increase	Moderate decrease	Moderate decrease	Very strong increase
Switzerland	1985-88	Very strong increase	Very strong increase	Very strong increase	Very strong increase	Strong increase	Very strong increase
Finland	1987-89	Very strong increase (initially)**	Very strong increase	n.a.	n.a.	n.a.	Very strong decrease
UK	1987-90	Very strong increase	Very strong increase (initially)**	Very strong increase (initially)**	Very strong increase	Moderate increase	Moderate decrease

* Strong increase in direct aftermath of episode (not taken into account in calculations)

** Strong decrease starting shortly before end of episode excluded from calculation of period average

Real house price increases (yearly average) between 0 and 4% are classified as moderate, between 4 and 8% as strong, and above 8% as very strong. Decreases are classified correspondingly.
Changes in the share of housing investment in GDP (over the whole period) between 0 and 0.5% of GDP are classified as moderate, between 0.5 and 1% as strong, and above 1% as very strong. Decreases are classified correspondingly.
Mortgage credit increases (yearly averages) between 0 and 5% are classified as moderate, between 5 and 10% as strong, and above 10% as very strong. Decreases are classified correspondingly.
Credit to the private sector increases (yearly averages) between 0 and 5% are classified as moderate, between 5 and 10% as strong, and above 10% as very strong. Decr. classified correspondingly.
Real M2 increases (yearly average) between 0 and 4% are classified as moderate, between 4 and 8% as strong, and above 8% as very strong. Decreases are classified correspondingly.
Real stock market index increases (yearly average) between 0 and 4% are classified as moderate, between 4 and 8% as strong, and above 8% as very strong. Decreases classified correspondingly.

15. It should be noted that the majority of episodes have occurred in the same post-2000 period, in a specific global environment which could have had a common effect on the countries involved. The extent to which earlier historical episodes conform to the general characteristics of more recent episodes is thus important. The following examines first historical episodes that resemble relatively clearly the recent experience, before turning to an episode that stands out.

- *Conforming episodes* The Swiss 1985-88, Finnish 1987-89 and the earlier part of the UK 1987-90 episodes resemble relatively closely the post-2000 experience. All countries witnessed housing booms, reflected in increases in housing credit, housing investment, and house prices (see Figure 5, Annex). There was also some growth in monetary aggregates, though not to a degree that would particularly stand out. Comparable to recent episodes, there is no evidence for a systematic impact on equity markets. Finally, all countries had witnessed relatively extensive financial sector deregulation prior to, and during, the episode,[19] probably to some degree the equivalent of the strong financial innovation of recent years. Both in Finland and Switzerland the

19 . See, for example, Honkapohja *et al*. (1999), Vihriälä (1997), OECD (1988), or OECD (1991b).

end of the property boom put stress on the banking system. While in Switzerland banking failures remained fairly exceptional, Finland experienced a full-blown banking crisis.[20]

- *Atypical episodes* The US 1990-93 episode is atypical, being characterised by a combination of credit crunch and recession, very weak, though recovering, housing activity, and actual falls in house prices and monetary aggregates (see Figure 5, Annex).[21] All in all, while the possibility that it may have contributed to the dot-com bubble cannot be totally discarded, it would be hard to argue that this episode of deviation from a Taylor rule stored up housing-market problems for the future.

16. There are also a number of cases of credit or housing booms, as well as banking crises, in situations where monetary policy was not below what a Taylor rule would have indicated. Striking examples are Japan in the second half of the 1980s, as well as the United Kingdom since 1997 (Figure 5, Annex). While, probably, there always are specific reasons in such cases, the UK example points to the role financial innovation may play. This would be in line with a fairly wide body of empirical evidence indicating that financial liberalisation, while beneficial in the longer-term, may initially raise the risk of financial instability.[22] In a similar vein, the recent strong innovation in financial markets, especially in derivatives and structured credit markets, likely contributed to credit booms, where effects may have been strongest in countries at the forefront of financial innovation, probably including the United States and the United Kingdom.

17. To summarise, the evidence drawn from episodes suggests that "below Taylor" periods have generally been associated with the build-up of financial imbalances in housing markets, and in some instances in credit markets. In contrast, there is no evidence that these periods had significant influence on equity markets, which seem to be driven much more by global conditions. There is also no evidence that episodes where rates "below Taylor" were largely restricted to periods of both a severe recession and a credit crunch have resulted in a built-up of financial imbalances. Such episodes have been scarce, though.

18. Monetary ease is not a necessary condition for imbalances, as they can also emerge during periods of financial deregulation and/or innovation (as such changes by themselves often strongly boost economic activity), even when rates are at or above those implied by a Taylor rule. This may be seen as a symptom of innovation temporarily boosting the neutral rate -- something the simple approach used here does not allow for. There is also some evidence pointing to particularly increased risk when below-Taylor interest rates coincide with periods of rapid financial innovation and/or deregulation.

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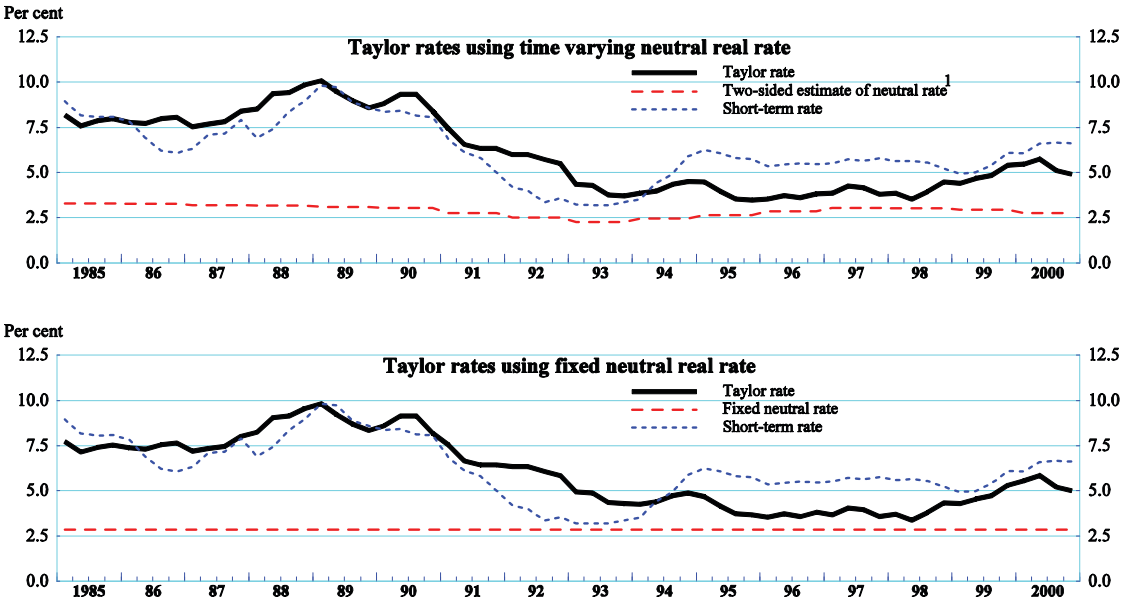
20 . In Switzerland the banking sector may be particularly resilient to domestic turbulences, given its large share of non-domestic clients. In Finland, the banking crisis may also have, to some degree, been driven by the implosion of the Soviet Union and collapsing terms of trade.

21 . For a characterisation of the credit crunch see Bernanke *et al*. (1991).

22 . See, for example, Drees and Pazarbasioglu (1995), Hutchinson (2002) or Demirgüç-Kunt and Detragiache (1998).

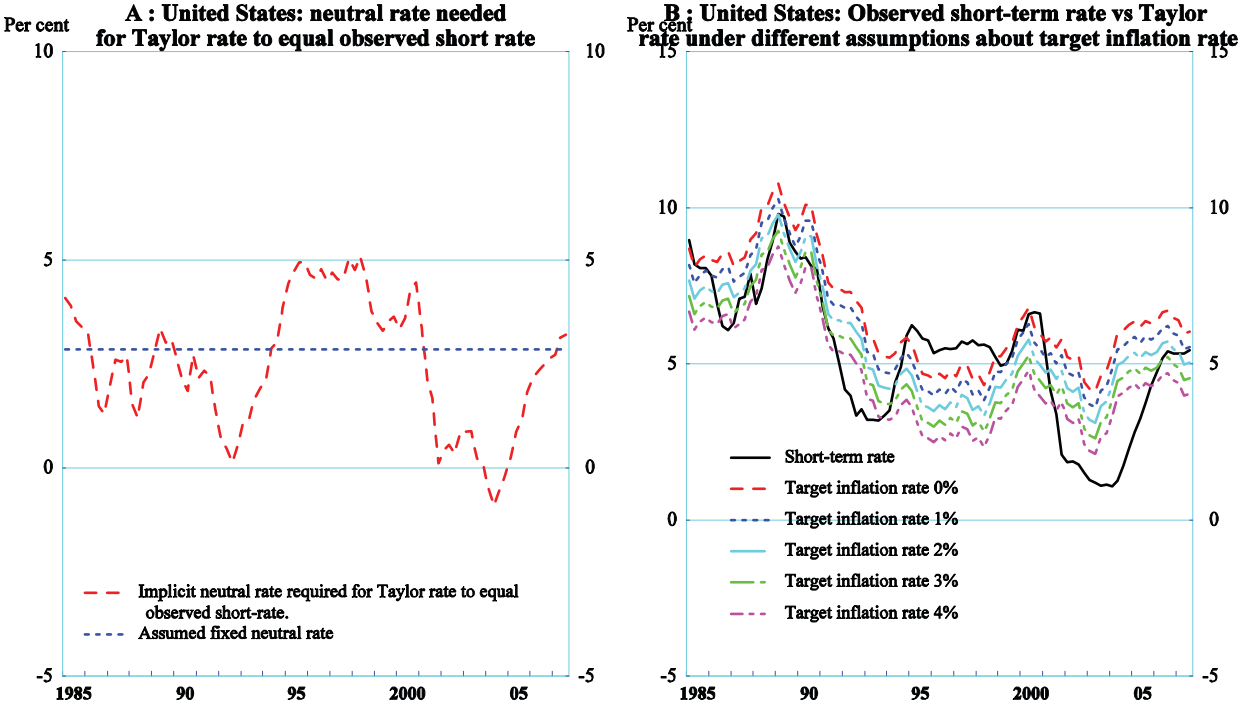
ANNEX

Figure 1. Robustness of US Taylor rates : fixed vs. time varying neutral rate



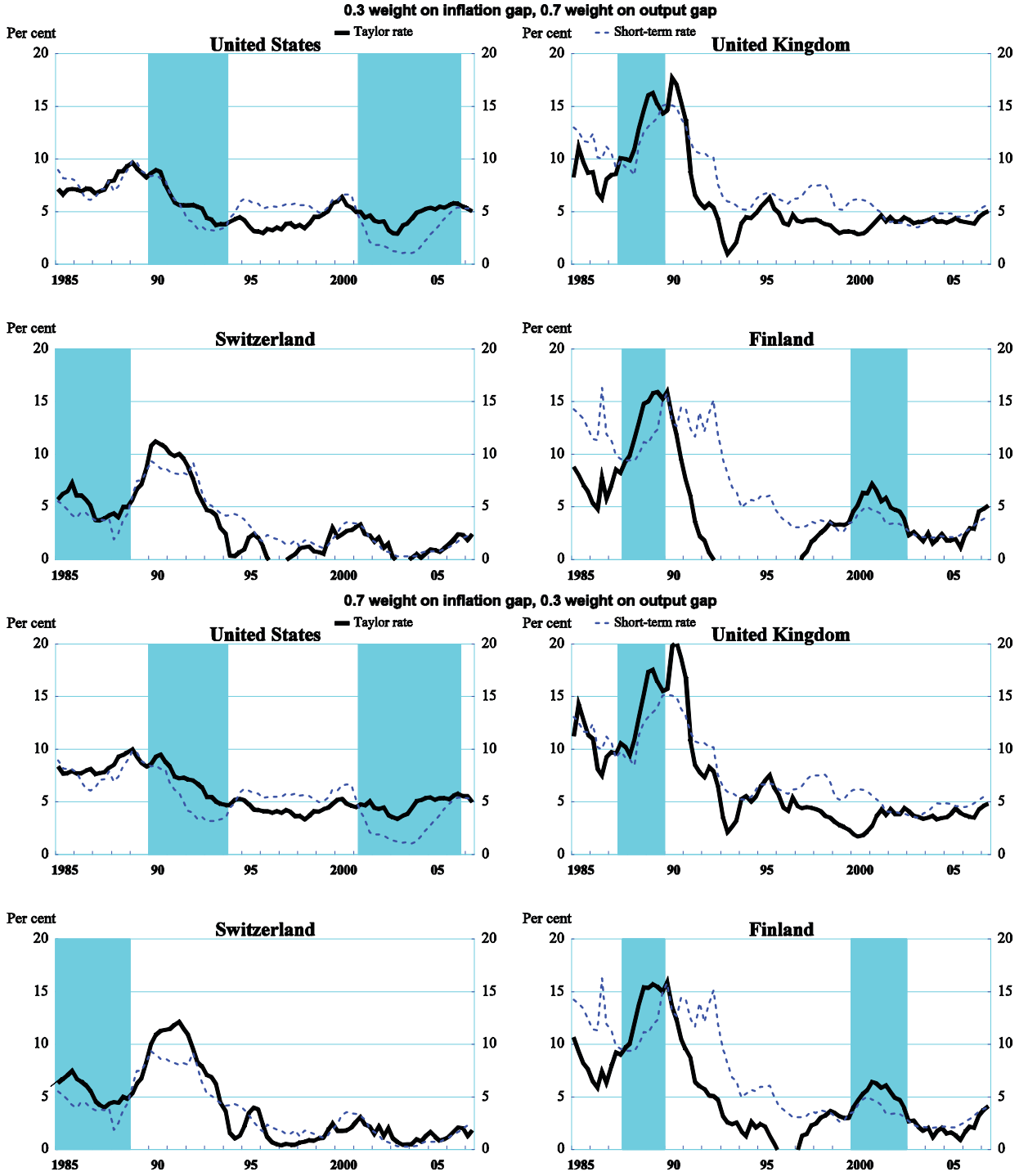
1. Time varying neutral rates are taken from Wu (2005).
Source: OECD.

Figure 2. Robustness of US Taylor rates : variation in assumptions



Source: OECD.

Figure 3. Robustness of Taylor rates to variations in weights for inflation and output stabilisation



Note: The Taylor rule rate is a function of an equilibrium real interest rate (short term), the (implicit) inflation target, the average output gap and the gap between actual inflation and the implicit inflation target. Similar graphs are available for most other OECD countries upon request.
For United States, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.85%.
For United Kingdom,the assumed price stability target is for inflation of 2.0% and the assumed equilibrium real interest rate is 3.0%.
For Switzerland, the assumed price stability target is for inflation of 1.0% and the assumed equilibrium real interest rate is 1.6%.
For Finland, the assumed price stability target is for inflation of 1.9% and the assumed equilibrium real interest rate is 2.1%.
Source: OECD.

Figure 4. House prices, Taylor rule and short-term interest rates

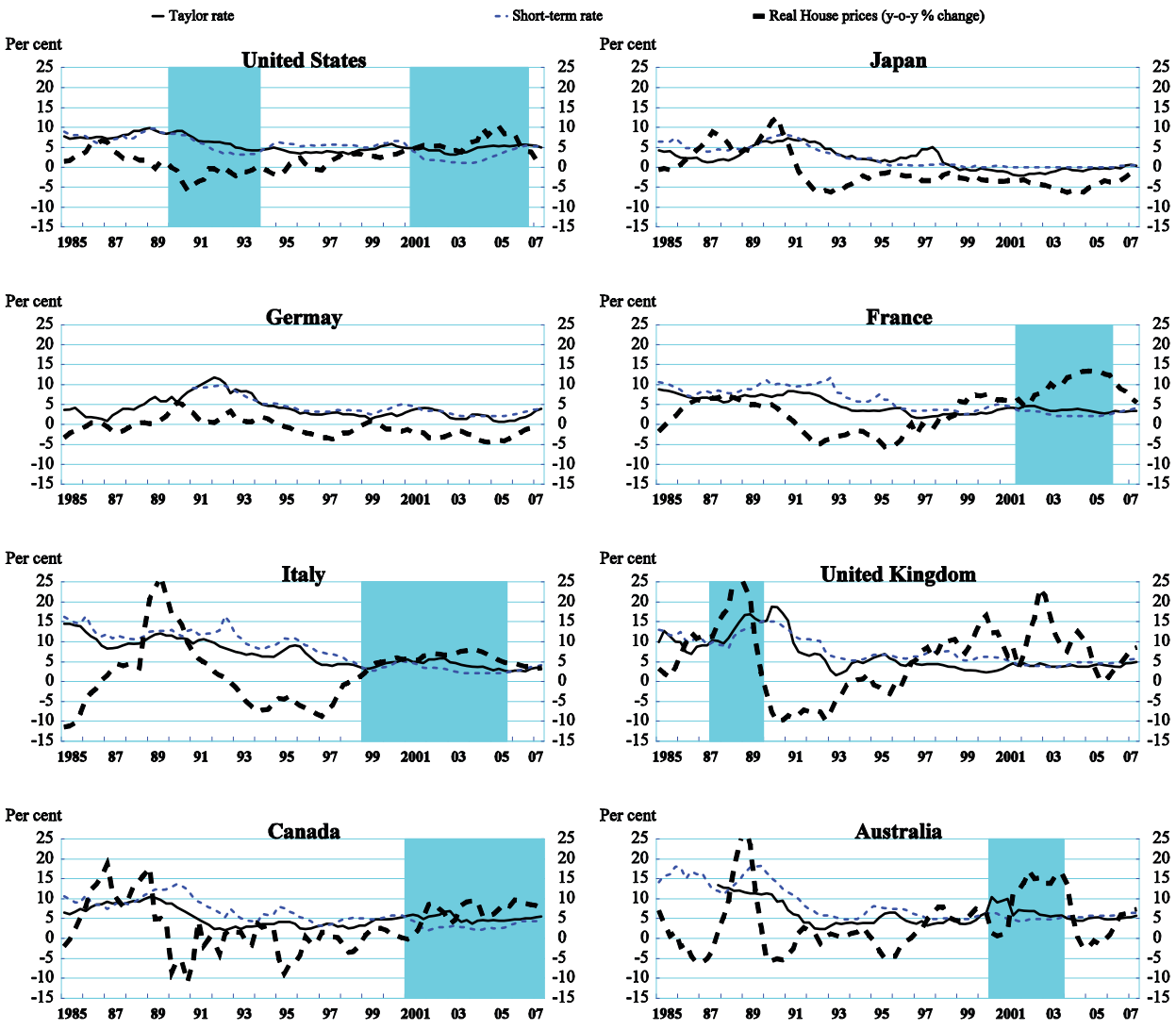


Figure 4. House prices, Taylor rule and short-term interest rates (cont.)

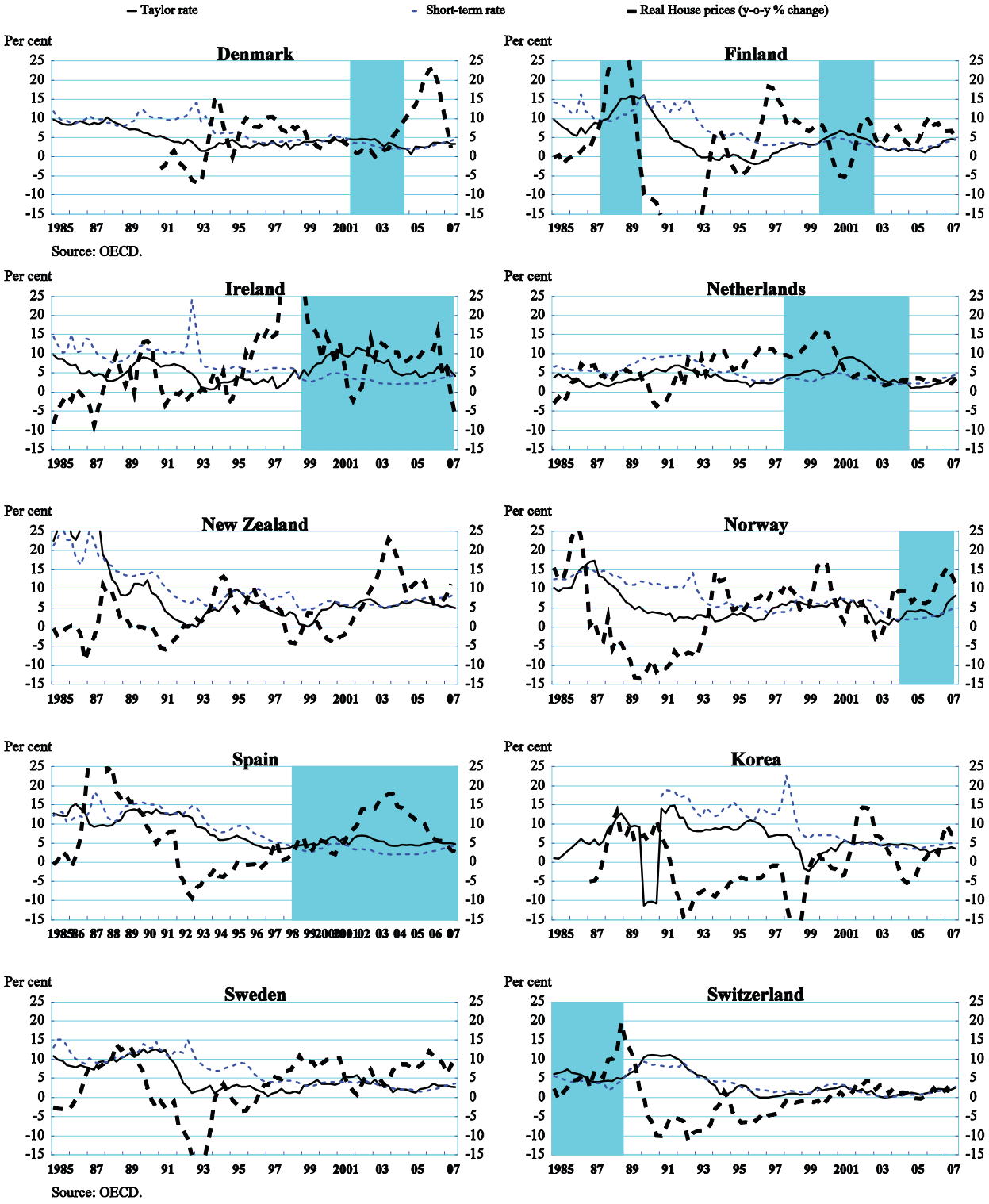
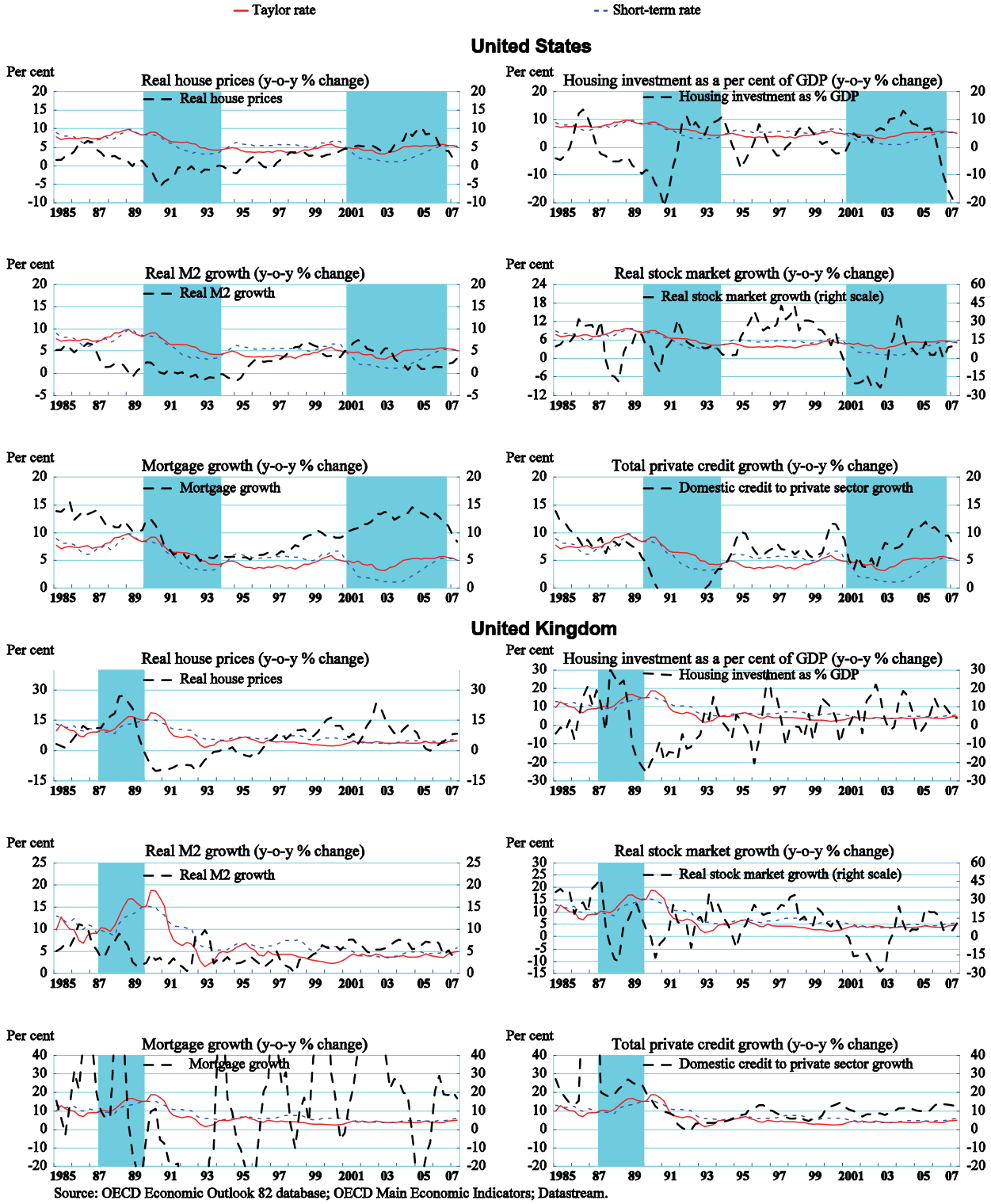
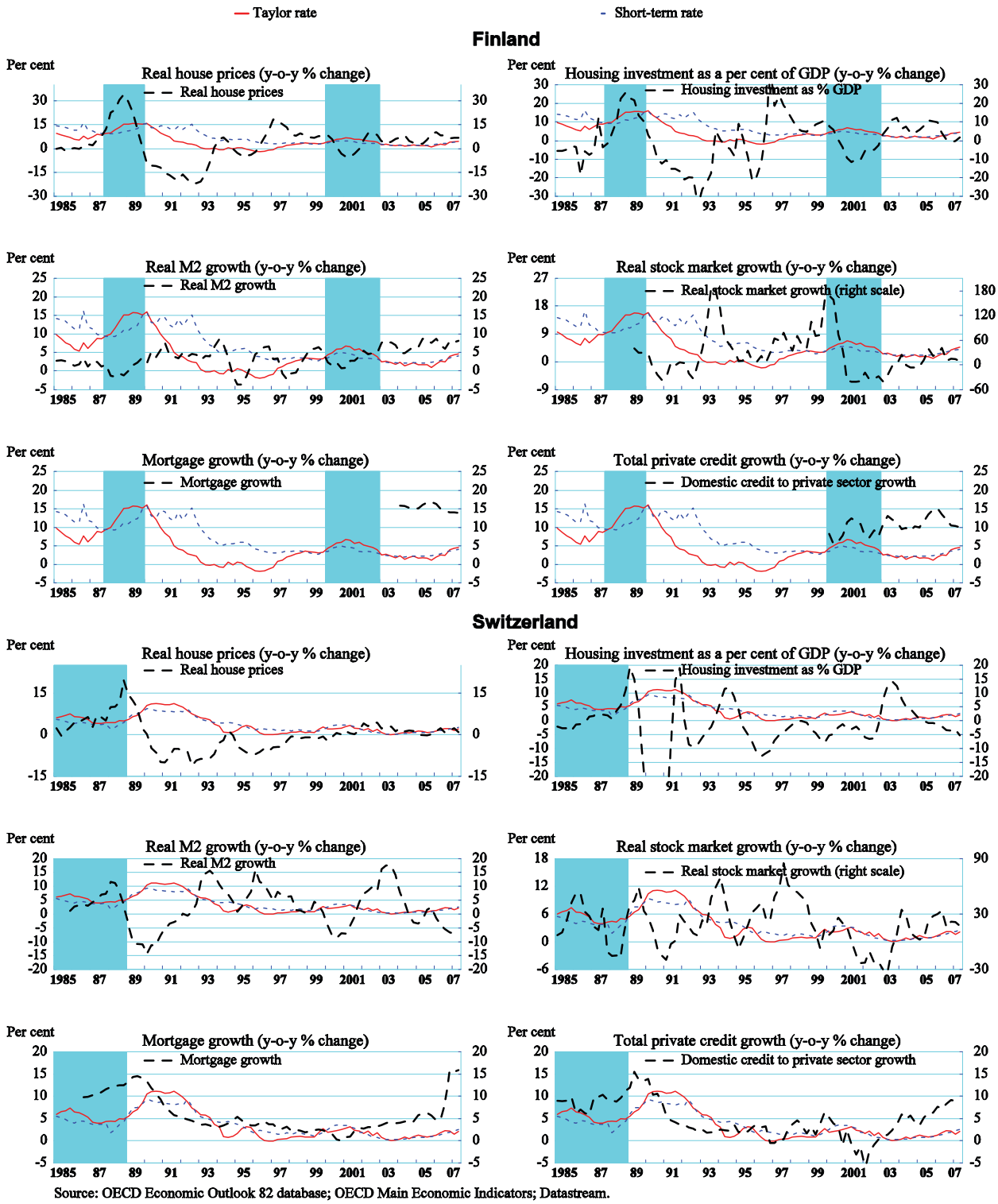


Figure 5. Deviation from Taylor rule versus various measures of activity for selected countries



Source: OECD Economic Outlook 82 database; OECD Main Economic Indicators; Datastream.

Figure 5. Deviation from Taylor rule versus various measures of activity for selected countries (cont.)



Source: OECD Economic Outlook 82 database; OECD Main Economic Indicators; Datastream.

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