ASSET PRICES IN ECONOMIC THEORY[1]

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Differentiating selected types of asset price bubbles

In the case of asset price bubbles it is necessary to mention that they may be subject to differing interpretations. Where this concerns a movement induced in accordance with basic macroeconomic fundamentals, we call this a "normal bubble" or "no bubble". If however it concerns an asset price development founded on unrealistic expectations and which deviates from the development of economic fundamentals, then this is termed a price bubble [3]. It is these prices movement in a market that are the most dangerous. In such a case the situation is much more complicated, where it also influence conduct of monetary policy.

Normal, or no price bubbles and harmful price bubbles

The position of asset prices in the monetary policy of central banks oriented on price stability is very significant. Over the long term asset prices (primarily in the perception of stock prices, mutual fund prices, other equity and real estate prices) are influenced in particular by real factors such as productivity, a society's preferences, or demographic development. Resultantly a central bank cannot influence these factors nor manage them and on the basis of this it cannot target these asset prices. Asset prices may, however, serve monetary policy as an important indicator of expected future development and may therefore often provide to the central bank necessary information connected with the future development of risk in connection with price stability, which is the main aim of monetary policy.

However, it is necessary to emphasise that a growth in asset prices need not always indicate a possible growth in inflationary pressures. Whether such a growth is a signal of inflation or not is influenced by various shocks in the economy. From the aspect of monetary policy it is therefore crucial to ascertain the nature of the shocks which induced changes in asset prices, where the aim of which is to assess the future risk to price stability and the subsequent appropriate setting of monetary policy management.

Positive supply-side shocks (for example an increase in the supply of labour, a reduction in public expenditure and debt, or an expected reduction in taxation revenues), for example in consequence of structural reforms may increase productivity and profitable opportunities in the economy. In case these economic shocks act as a spur to a growth in asset prices (for example stock prices), but where the economy's production capacity does not concurrently increase, this may have the negative consequence of higher inflation.

Asset price formation (rational and speculative expectations)

The formation of asset prices is influenced to a large extent by investors' expectations as regards future economic development, which however may be rational or speculative.

Rational expectations of investors [3] as regards the predicted development of economic activity, which influence the net present value of future asset yields, are formed mostly in standard economic conditions (in a stably functioning economy) and they should not deflect their expected value of yields from their balanced level. Changes in long-term expectations in connection with the future development of the economy and its main fundamentals, such as productivity, production input prices, tax policy, or real interest rates, all have an impact on changes in asset prices. The changes of these expectations directly affect not only asset prices, the level of inflation, but also overall economic activity.

Harmful price bubbles

Speculative expectations, which mostly induce increasing asset prices, may result for example from speculative demand for investments, and which arise in an environment of persistent growth in the price level. The expectations of speculative investors are

[1] This article is based on documents presented at the ECB workshop entitled "Asset prices and monetary policy", where all materials and sources stated in the text are published on the ECB website (www.ecb.int). The opinions stated in this article are those of the author and do not necessarily reflect those of the NBS.

founded on an assumption of inflation increasing further and from this a resultant depreciation of savings, in consequence of which asset prices grow. In such conditions the real value of the cost of credit (loans) concurrently falls, while the value of investments does not decrease. It is this process that leads to turbulence on asset markets and to the emergence of a price bubble. The private sector can thus precisely in consequence of the possibilities of investing borrowed finance (the leverage effect) cause a financial crisis. Under the influence of an increase in asset prices (real estate) the possibilities of financing (borrowing) are simplified for firms (and households), since their risk premium is reduced (the value of the collateral is increased, which however may, under the influence of speculation, be overvalued), in consequence of which investment (consumption) grows. In this way there may thus occur an overvaluation of collateral prices (stocks or real estate), which can then cause a collapse (disrupting balance of economic subjects) and a subsequent credit crunch and a crisis in the financial system.

Speculative expectations ↑ inflation ⇨ expectations ↓ cost of credit ⇨ ↑ demand for credit ⇨ ↑ speculative investment ⇨ in the case of a fall in asset prices (↓ value of collateral, i.e. security) ⇨ collapse of the financial system ⇨ negative impact on GDP.

Speculative expectations ↑ inflation ⇨ expectations of a depreciation of savings ⇨ ↑ demand for other assets ⇨ expectations ↑ price of other assets (overvaluation of collaterals) ⇨ expectations ↑ income from assets ⇨ expectations ↑ of wealth ⇨ ↑ demand for credit ⇨ ↑ speculative investment ⇨ in the case of a fall in asset prices (↓ value of collateral, i.e. security) ⇨ collapse of the financial system ⇨ negative impact on GDP.

Besides the negative impact on the banking and financial sector these speculative investments however also have an adverse impact on the overall economic result of the economy, which it counts on. In consequence of their overvaluation, or in the case of the collapse of some of them, there can in the final consequence occur also a reduction in GDP.

A next risk of a speculative growth in asset prices is the impact on public finance. In this case in consequence of a speculative growth in stocks and increase in tax revenues to the state budget are expected, since a growth in income from capital is expected. This "optimistic" prediction permits in consequence of the expected higher tax revenues on the other hand a reduction in other non-tax revenues and also an increase in expenditures. A possible collapse of asset prices can thus have a negative impact also on the development of public finance (since the subsequent increase in taxes would be very demanding, and the only possible solution would be to increase public debt).

From these facts it results that speculative expectations are very dangerous also in the process of planning macroeconomic indicators, since predictions influenced by such distorted information can equally trigger turbulence on the financial markets and set off a process of increasing asset prices. For example unjustified and excessively optimistic expectations mean for the population a signal of increasing incomes, in consequence of which a growth in consumption will occur, which will then have a negative impact on the price level.

Ensuring against the risk of the asymmetric information effectn"

An adverse impact on the banking and financial system may also be brought about by the asymmetric information effect [2] (between creditors and debtors), influencing the net wealth of the population, but primarily the business sector, which is also one of the determinants of their creditworthiness. One of the most effective ways of reducing the risk of such negative impacts, such as moral hazard and adverse selection, is a sufficient financial, or asset exposure of the firms' owners [2], in the interest of the best management and attainment of an appropriate profit. Another way how to insure against the possible negative impact of a collapse in real estate prices (one of the possible collapses) is that banks require sufficiently high coverage for loans provided, i.e. collateral. The health of the banking system depends to a large extent on the quality and value of collateral. A no less important factor in supporting financial stability is the exercising of a monetary policy aimed at price stability, and which acts to break down a speculative investment demand, since an environment of a persistently growing price level can support speculative demand for investment

High-cost asset prices and low-cost asset prices

According to some approaches [2] asset prices (or rather the impacts in the case of their collapse) are also classified according to their effect on the economy as high-cost asset price booms and low-cost asset price booms. High-cost asset price booms are mostly accompanied by a growing share of money in relation to GDP, the share of credit in relation to GDP (connected with the leverage effect), as well as with an increase in investments (in

particular investment in housing). The period directly following high-cost asset price booms is characterised by a sharp fall in real economic growth and it is real estate prices, or apartment prices that set off high-cost booms. One of the explanations why it is that apartment and real estate prices play such a role is that real estate forms a substantial part of household assets.

The overall costs of a collapse in asset prices are influenced by the susceptibility of financial institutions to financial crisis, primarily in connection with for preferences of holding assets in the framework of their financial portfolio holding.

Central bank monetary policy aimed primarily at price stability

Possible conflict between financial and price stability [5]

A central bank whose main aim is price stability, in managing monetary policy uses interest rates as its main instrument, a change of which can have an impact on the level of consumer prices also through their influence on asset prices. Price stability eliminates uncertainty in connection with expected yields and reduces the risk of asymmetric information between debtors and creditors. Price stability thus concurrently supports the stability of asset prices, since it reduces the risk of speculative expectations, in consequence of which financial stability is strengthened. Over the long term such price and financial stability are mutually consistent, where a disruption to one can have a negative impact on the other.

Over the short term period however there can occur a conflict between the objective of price and financial stability if changes in asset prices may be influenced by speculative investment with the aim of maximising welfare. In such a situation the central bank can react by tightening monetary conditions (in an effort to stabilise asset prices), which may concurrently have the consequence of reducing consumption and a decline in inflation below the targeted level and a related undervaluation of the target, which is not consistent with the aim of price stability. Over the medium term, or long term period the price level should however be stabilised at the targeted value.

Attempt to ↑ financial wealth ⇨ ↑ demand for equities ⇨ ↑ Pe (equity prices) ⇨ risk ↑ speculative investments ⇨ MP reaction with the aim of preventing speculative investments and stabilising equity prices ⇨ ↑ interest rates ⇨ ↓ consumption ⇨ ↓ price level (below the planned level) (⇨ impact over the short term horizon)

It is on the basis of this short term conflict between financial stability and the aim of price stability that doubts arise as to whether a central bank should intervene in the development of asset prices, since it cannot correct these deviations simultaneously. The possible short-term conflict between achieving the inflation aim and financial stability may however disappear in the case that the aim of price stability covers a sufficiently long time horizon. A central bank with a sufficiently forward-looking monetary policy, and with the aim of price stability in the medium term, will usually perform complex analyses with regard to the potential risk of the impact of the emergence and bursting of a price bubble.

Predicting the development in an asset market (mainly equities and other stocks, i.e. in the capital market) provides important information for the right setting and conduct of monetary policy [2]. Asset prices, for example those of equities, are an important component of wealth, the expected development of which it is necessary to estimate in connection with the future development of consumption. The expected level of consumption is essential for any prognosis of the future development of GDP. From the expected level of GDP the output gap is then derived, which is also necessary in predicting inflation. From this it results that the central bank should deal with monitoring the development of asset prices. A growth in the volatility of asset prices in the end is manifested also in an increase in the volatility of economic growth and inflation, thus representing a threat to the stability of the financial system as a whole.

Possible monetary policy reactions of a central bank in case of identifying the risk of a price bubble occurring

In the literature on the issue of asset prices there is not given an unequivocal position as regards the optimal reaction of a central bank in the period of the emergence, or growing of a price bubble. However, the general opinion prevails that the most appropriate monetary policy setting of a central bank aiming at price stability, appears to be in a case of excessive increase in asset prices a tightening of monetary policy via an increase in interest rates. Despite the fact that such a reaction can have the short-term consequence of a reduction in inflation below first targeted level, under the influence of such a change the economy should over the medium term avoid the macroeconomic disequilibrium connected with increased volatility on the asset market and fluctuation in the price level.

According to selected literature [1] the timely identification of an emerging financial disequilibrium, with the accompanying threat of a negative impact on output

and inflation, in certain cases is possible. For capturing such a potential disequilibrium a target horizon longer than one-two years is necessary, that is consistent with the followed time horizon common in the application of an inflation targeting regime in the majority of countries using this regime. In connection with the recognition of the role of financial disequilibrium in an economy's development it is necessary to expand the time horizon forward (to the medium term). Monetary policy and its setting should be founded on a monitoring of the development of variables with a certain time shift. It is on the basis of this approach in predicting the impacts of changes in monetary policy on its medium term and long term aims that forward-looking indicators should be used (such as prices of assets traded on the capital markets). The probability of the timely identification of disequilibrium in a monetary policy management regime set in this way is increased significantly.

In managing its monetary policy a central bank should however react to asset price changes only in the case of a risk that their development could negatively influence the expected level of inflation, or threaten the aim of price stability (over the medium term), or the stability of the financial system.[2] According to certain theories the best way how to limit (or have under control) the impact of price bubbles on inflation and economic growth is to adapt interest rates to the movement of asset prices. This however does not mean that the central bank should target asset prices. The mentioned method is however consistent also with the aim of price stability. Since an indicator of growing price bubbles is a sharp growth in asset prices over a relatively short period, a central bank should in such a situation decide flexibly and relatively quickly whether to give priority to relatively strict adherence to the targeted level (of inflation), or to intervene against the bubbles growth.

The central bank may influence asset price changes, or respond to them in several ways:

- through interest rate policy, i.e. a change in interest rates[3],
- through including housing prices in the targeted price index (thus getting them under control), [2]
- through implementing regulatory instruments, or measures (direct monetary policy instruments – credit limits, moral suasion, capital restrictions, i.e. the Cook rule on capital adequacy).
- through exercising the central bank's role of lender of last resort in a period following the bursting of a price bubble (i.e. in the recession phase of low economic growth when the economy needs a supply of liquidity).

A bursting of a price bubble (a sharp fall in asset prices) can have the consequence of a significant fall in aggregate demand and in connection with this a reduction in inflation (over the long term) through the action of the wealth channel (in consequence of its decline), where likewise the stability of the financial system is threatened under the influence of the negative impact of a possible credit crunch effect. In connection with this there arises the question as to whether a central bank should not in advance (aware of these impacts) loosen monetary policy and reduce interest rates, if the probability of the bubble bursting is high. In the case that there is no room in the economy for such a change (a reduction in interest rates), since interest rates are already at a very low or zero level, one of the possibilities could be to supply liquidity to the banking sector by means of purchasing assets in the form of stocks, which would at the same time help to restore the prices of these assets.

In the context of monetary policy and its impact on overall financial and macroeconomic stability it is unambiguous that a clearly declared and enforced anti-inflationary policy helps to strengthen financial stability.

In conclusion, we may use the quotation used by prof. Otmar Issing, Member of the Executive Board of the ECB, in his presentation on this topic: "I admit that nobody has yet found a definite answer to how central banks should best deal with asset prices. This issue will not go away but will become even more important over time as our society continues to accumulate wealth. It is my conviction that central banks cannot escape easily from this challenge." [5]

References:

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[2] Mishkin and White (2002), Schwartz (2002)

[3] Borio and Lowe (2002) give three arguments why central banks should not fight against instability using interest rate policy in the case of price bubbles: (1) the difficulty from the aspect of the central bank in identifying bubbles in real time, (2) the risk that the monetary policy reaction will have negative side effects, (3) the problem of justifying the reaction to the public.