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Article

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DIW Economic Bulletin

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Bernoth, Kerstin; König, Philipp; Beckers, Benjamin (2016) : ECB asset purchases may affect wealth distribution, DIW Economic Bulletin, ISSN 2192-7219, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 6, Iss. 7, pp. 75-81

This Version is available at:

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ECB Asset Purchases May Affect Wealth Distribution

By Kerstin Bernoth, Philipp König and Benjamin Beckers

In the debate on monetary policy decisions, to date, little attention has been paid to distributional effects. One reason for this is that they are not included in the mandate of the European Central Bank (ECB). Given the loose monetary policy stance in the euro area and the large-scale program to purchase government and corporate bonds launched in January 2015, the question increasingly being asked is whether any distributional effects can be ignored any longer. The present report looks at the channels of monetary policy that are potentially relevant to distribution and conducts an initial assessment of their relevance to asset purchases in the euro area. The asset purchase program has probably led to rising asset prices, thereby mainly benefitting households at the upper end of the wealth distribution. This is likely to lead to a direct increase in wealth inequality. Whether or not this increase can be at least partially offset in the long term is uncertain. Indebted and/or low-income households could benefit if the program contributes successfully to economic recovery and higher inflation, and therefore helps to improve employment opportunities. So far, the overall distributional effect is therefore unclear. A more in-depth analysis is required in the future.

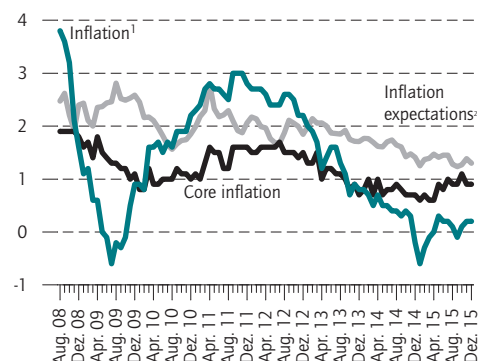
The rate of inflation in the euro area has fallen continuously since January 2012 and has been well below the ECB's medium-term two-percent target since early 2013. This trend is partly due to exceptional factors such as the sharp drop in oil and energy prices. However, also the core inflation rate (inflation adjusted for energy and unprocessed food) fluctuates around a low one percent since the end of 2013. Moreover, forecasts for longer-term inflation have also fallen well below the ECB's target (see Figure 1).¹

¹ See K. Bernoth, M. Fratzscher and P. König, "Weak Inflation and Threat of Deflation in the Euro Area: Limits of Conventional Monetary Policy," DIW Economic Bulletin, no. 7 (2014).

Figure 1

Inflation in the euro area

Annual inflation rate in percent



¹ Harmonized inflation rate.

² 5-year forward inflation expectations from inflation swaps.

Sources: ECB Statistical Data Warehouse; Datastream

Since 2013 key indices for the (expected) inflation rate decreased far below the medium-term two percent target of the ECB.

The ECB has attempted to counter this development by lowering its key interest rates. Since December 2011, it has gradually reduced the main refinancing rate for its monetary policy transactions from 1.75 to 0.05 percent in September 2014. As this was not sufficient to avert the threat of deflation in the euro area and to raise inflation expectations again, the ECB decided to introduce a large-scale asset purchase program in January 2015.²

Under this program, the ECB has been acquiring government bonds from public and private issuers in the euro area on a monthly basis worth 60 billion euros since March 2015 and will continue to do so at least until March 2017. This program has led to controversial discussions among the general public as well as within the ECB Governing Council. In view of the already very low interest rate level in the euro area, initially the question was raised as to whether the program would be effective in bringing about a sustained recovery of overall economic demand and inflation.³ As a result, some market observers were calling for asset purchases much earlier.⁴ However, questions were asked, particularly in Germany, as to whether the ECB was even allowed to implement such a purchase program, or whether the program was actually a form of “monetary state financing” which is prohibited in the monetary union.⁵ Finally, it was noted that the purchases had a variety of unfavorable “side effects.”⁶ In terms of possible distributional effects, only the redistribution of wealth from savers to debtors due to persistently low interest rates has been discussed to date.⁷

² The ECB had already conducted smaller purchase programs prior to January 2015. However, the program adopted in January was a significant expansion of previous ones to purchase covered bonds and assetbacked securities. Further, the ECB had already used other unconventional measures such as providing liquidity aimed at improving lending conditions, or adjusting their communication policy for the future course of monetary policy (“forward guidance”).

³ For a discussion on this, see K. Bernoth, P. König, C. Raab, and M. Fratzscher “Uncharted Territory: Large-Scale Asset Purchases by the European Central Bank,” *DIW Economic Bulletin*, no. 13 (2015): 189-198.

⁴ See, for example, Wolfgang Münchau, “Why Europe needs to try unconventional policy,” *Financial Times*, November 17, 2013, <http://www.ft.com/cms/s/0/34e2106a-4df5-11e3-8fa5-00144feabdc0.html>.

⁵ For example, President of the Ifo Institute for Economic Research, Hans-Werner Sinn, http://www.cesifo-group.de/de/ifoHome/presse/Pressemitteilungen/Pressemitteilungen-Archiv/2015/Q1/press_20150122_ezb.html.

⁶ These include the effects of these purchases on financial stability and increasing risks on central bank balances (according to German Bundesbank president, Jens Weidmann, for example, see Bundesbank “Kauf von Staatsanleihen birgt Risiken,” news release, January 26, 2015, https://www.bundesbank.de/Redaktion/DE/Themen/2015/2015_01_26_weidmann_kauf_staatsanleihen_birgt_risiken.html), and the danger of moral risks for the bond issuers (see, for example, Joel Lewin, “ECB QE alchemy transforms junk bonds,” *Financial Times*, April 13, 2015, <http://www.ft.com/cms/s/0/baeb1bdce1ad-11e4-bb7f-00144feab7de.html#axzz3xgD4P3Cx>).

⁷ See dpa (Deutsche Presse-Agentur GmbH), “Nullzins: Sparer verlieren durch EZB Politik Milliarden,” *Handelsblatt*, April 9, 2015: <http://www.handelsblatt.com/finanzen/vorsorge/altersvorsorge-sparen/nullzins-sparer-verlieren-durch-ezb-politik-milliarden/11613714.html>

Asset purchases could affect wealth distribution

In contrast, little attention has been paid in the past to any effects caused by asset purchases on the distribution of wealth. This is probably also due to central banks taking a position of benign neglect on this point while referring to their mandates. The primary mandate of the ECB is to ensure price stability. Only when this objective has been achieved should the central bank support general economic policies in the euro area in order to contribute, in particular, to full employment and economic growth.⁸ The central bank normally exhausts all its options to fulfill its mandate, even if these generate adverse side effects on the income or wealth distribution. Given this long-lasting phase of low interest rates and direct bond market interventions by the central bank as part of its unconventional monetary policy measures, however, the distributional effects may become more clearly visible.

Transmission channels of monetary policy on determinants of income and wealth inequality

In the scientific literature, a distinction is made between the following channels through which the distribution of income and wealth can be affected by changes in real and financial economic variables. If the central bank influences these determinants — intentionally or unintentionally — distributional effects of monetary policy measures will occur correspondingly.

In the short term, monetary policy initially affects financial variables such as interest rates and asset prices, thereby impacting on the wealth distribution through the following channels:

Interest rate risk channel

Changes in interest rates affect the asset and liability positions of households and financial market participants. Households wanting to borrow benefit from an interest rate cut.⁹ Households that own long-term fixed-rate bonds should also benefit as the price of the bond rises when interest rates fall. A distributional effect therefore occurs when households hold investments with different maturity profiles since short-term investments barely change their market value as a result of interest rate cuts. Conversely, distributional effects occur when some house-

⁸ See Treaty on the Functioning of the European Union, Article 127 (1).

⁹ A. Auclert, “Monetary Policy and the Redistribution Channel” (working paper, MIT, 2016).

holds hold liabilities with fixed interest rates and other households hold liabilities with variable interest rates.

Financial segmentation channel

Wealthy households typically invest more in financial markets and consequently tend to hold shares of financial intermediaries, such as banks, more often. Since an expansion of money supply directly affects these intermediaries, these relevant shareholders also benefit.¹⁰

Income composition channel

Expansionary monetary policy typically leads to a direct increase in asset prices, whereas real wages only react with a certain time lag. To the extent that households depend to varying degrees on labor income or income from capital investments, expansionary monetary policy can lead to a change in income inequality. In turn, if these incomes are used for asset accumulation, wealth inequality can be affected through the composition of income.

In contrast, there is a time lag before monetary policy affects the real economy, the consequence of which is that the following channels are more relevant in the long term, if at all:

Income from employment channel

When an expansionary monetary policy successfully revives economic growth and demand for labor, this has an impact on households' labor incomes, which is an important determinant of asset accumulation. On the one hand, low-income households are likely to benefit from a stable labor market and increased employment opportunities.¹¹ On the other hand, stronger economic growth and increased demand for labor may also lead to an increase in wages, which, however, is likely not divided equally between all sectors and households. As a result, distributional effects could also occur through the earned income channel, although the direction of these effects are ambiguous.

Portfolio channel

If inflation rises following monetary policy changes, the real value of cash balances, demand deposits, and other non-inflation-protected assets falls. Given that house-

holds at the lower end or in the middle of the wealth distribution hold relatively more of such investments, an increase in inflation may induce an increase in wealth inequality.¹²

Savings redistribution channel

Similarly to the portfolio channel, the savings redistribution channel describes the effect of inflation on asset positions. However, the focus here is on the role of unexpected inflation. If inflation is higher than expected, both the real value of savings assets and the real debt burden of borrowers are reduced. A distribution effect results when different households hold different types of investment.

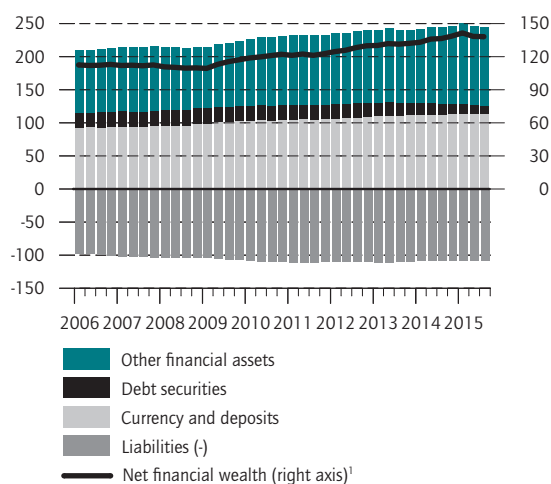
Current ECB asset purchases: increasing wealth inequality in the short term ...

Overall, euro area households are net creditors, meaning that their total interest-bearing assets exceed their debt positions (see Figure 2). Therefore, a decrease in

¹² A. Erosa and G. Ventura, "On Inflation as a Regressive Consumption Tax," *Journal of Monetary Economics*, vol. 49, no. 4 (2002): 761-795.

Figure 2

Financial assets of European Households In percent of disposable income



¹ Less stocks and other equity.

Sources: European Central Bank; own calculations.

Private households in the euro area are net creditors on aggregate and would therefore experience a decline in returns following a decrease in interest rates.

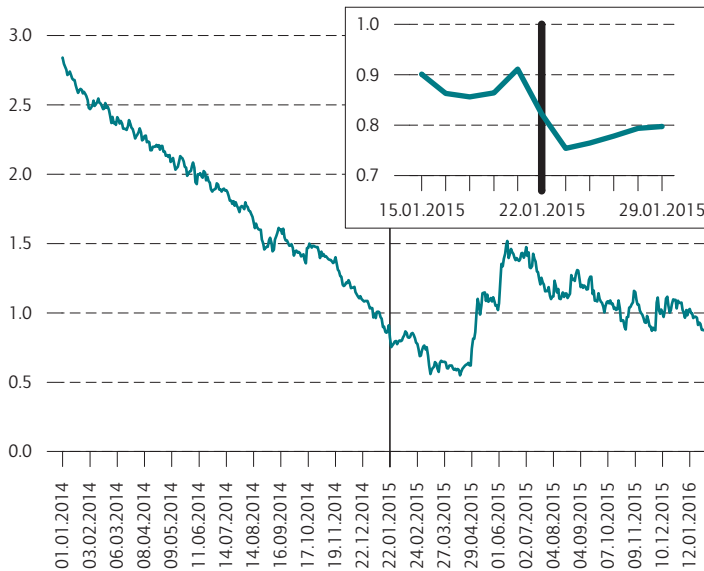
¹⁰ O. Ledoit, "The Redistributive Effects of Monetary Policy," *Working Paper Series*, no. 44 (University of Zurich, October 2011) and S. D. Williamson, "Monetary policy and distribution," *Journal of Monetary Economics*, vol. 55 (2008): 1038-1053.

¹¹ S. B. Carpenter and W. M. Rodgers III, "The Disparate Labor Market Impacts of Monetary Policy," *Journal of Policy Analysis and Management*, vol. 23, no. 4 (2004): 813-830.

Figure 3

Interest rates on government bonds in the Euro Area

Average in percent



Source: Datastream.

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Average interest rates on European government bonds decreased only by seven basis points on announcement day, which is in line with the existing, long-term trend.

the general interest rate level is likely to reduce the returns on net assets of euro area households.

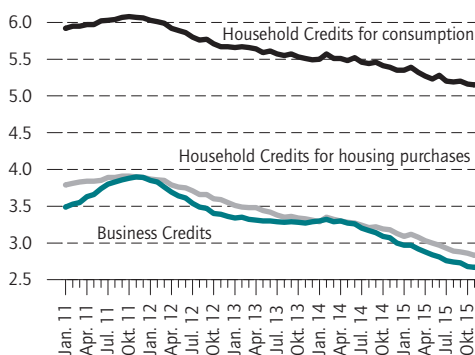
However, net assets in the euro area are not evenly distributed across different groups of households. The Household Finance and Consumption Survey (HFCS) indicates that households at the lower end or in the middle of the income distribution, as well as younger households are relatively more indebted both in nominal terms and relative to their total assets. These households are therefore likely to benefit from interest rate cuts through the interest risk channel, which in turn would decrease wealth inequality. Households holding shares in firms would also benefit from interest rate cuts. The reason for this is that firms often take out large loans and their interest burden on these loans falls when interest rates are reduced. This has a positive effect on their profits. Since shares in firms are more frequently held by wealthy households, this may lead to an increase in wealth inequality.¹³ The net effect is thus unclear.

However, the effect of interest rate cuts on the wealth distribution in the euro area is likely to be small for two reasons. First, a considerable part of existing household debt takes the form of fixed-rate mortgages which are not affected by interest rate cuts.¹⁴ Second, the interest rate cut caused by the ECB asset purchase program was rather small. Market participants would have already been expecting the program to be introduced, resulting in interest rates already falling to some degree before the anticipated announcement. However, compared to the US or the UK, interest rates in the euro area fell considerably less on the day the program was announced.¹⁵ For example, the average interest rate on government bonds of member states only fell by around seven basis points following the announcement (see Figure 3).¹⁶ Similarly, the interest rates on consumer, household, and corporate loans fell mostly as part of an already existing long-term trend (see Figure 4).

Figure 4

Bank lending rates in the Euro Area¹

In percent



1 On existing contracts.

Sources: Statistical Data Warehouse; ECB.

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Bank lending rates on existing credits decreased following the program announcement only within their existing, long-run trend.

¹³ See M. M. Grabka and C. Westermeier, "Persistently High Wealth Inequality in Germany," *DIW Economic Bulletin*, no. 6 (2014): 3-15.

¹⁴ M. Ehrmann and M. Ziegelmeier, "Household Risk Management and Actual Mortgage Choice in the Euro Area," *ECB Working Paper*, no.1631 (2014).

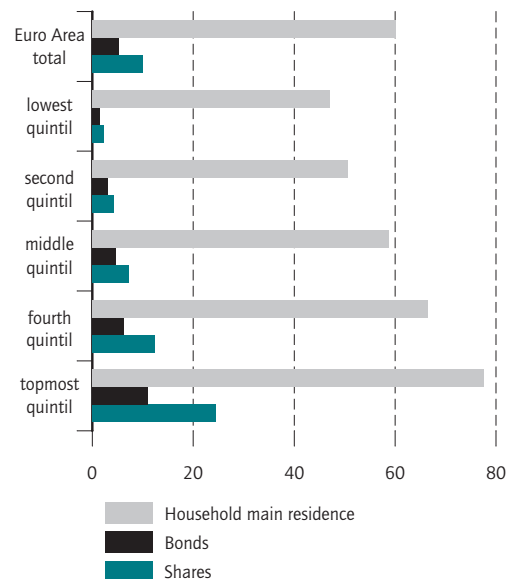
¹⁵ This direct effect is considerably less than for comparable programs in the US, UK, and Japan where interest rate cuts are estimated at 25 to 90 basis points (BPS). This has mainly to do with the already very low interest rates in the euro area, which has greatly limited the ECB's leeway. See, for example, A. Krishnamurthy and A. Vissing-Jorgensen, "The Effects of Quantitative Easing on Long-Term Interest Rates," *NBER Working Paper*, no. 17555 (National Bureau of Economic Research, 2011).

¹⁶ See G. Georgiadis and J. Gräß, "Global Financial Market Impact of the Announcement of the ECB's Extended Asset Purchase Programme," *Working Paper 232* (Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute, 2015).

Figure 5

Participation rate in real and financial assets by income quintils

In percent



Source: The Eurosystem Household Finance and Consumption Survey (2013).

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The participation rate in real and financial assets, especially in stocks, is strongly dependent on household income. Stock holdings are particularly accumulated among the highest-earning households.

Nevertheless, increasing the money supply and directly intervening in bond markets are likely to have led to portfolio shifts toward riskier asset investments, including stocks.¹⁷ It is safe to assume that relatively wealthy households benefited most from this increase (through the channels of financial segmentation and income composition). This is because the participation of households in financial markets and their investment choices are largely dependent on household income (see Figure 5). For example, in the euro area, almost 25 percent of the top income quintile hold some of their assets directly in stocks, while only two percent of the bottom income quintile do.

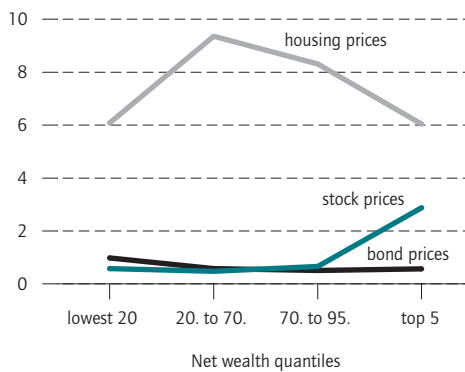
Consequently, in order to make an assessment of the direct distributional effects of the ECB's asset purchase program, we need to look at corresponding stock price developments. Recent studies show that a ten-percent increase in stock prices in the euro area results in a three-percent increase in the value of net assets of the richest five percent of households, while the remaining 95 percent of households would benefit considerably less (see

¹⁷ See Georgiadis and Gräß, "Global Financial Market Impact."

Figure 6

Net wealth gains from asset price¹ increases

In percent



¹ of ten percent

Source: Adam and Tzamouranis (2015).

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While in particular the middle class profits from house price increases, the wealthiest five percent benefit most from stock price increases.

Figure 6).¹⁸ If it is assumed that stock prices increased by around 15 percent as a result of the asset purchases (taking into account the strong price increases in January 2015 in anticipation of the program announcement), the net worth of the richest five percent of households would increase by up to 4.5 percent, whereas the growth in net worth of all remaining households would be just under one percent.

Since home ownership is distributed much more evenly, a comparable hike in housing prices, therefore, favors a substantially larger number of households. The increase in net worth is considerably more pronounced in this case at six to ten percent, with households in the middle-income range benefitting most. This is particularly due to the fact that the poorest households own less real estate, while the richest ones have invested a relatively smaller share of their total assets in real estate (see Figure 7).¹⁹

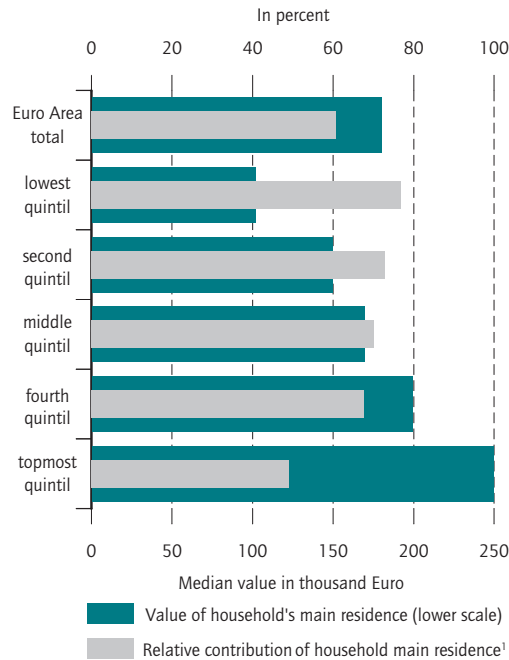
It can therefore be concluded that, overall, the observed increases in stock prices since (and in anticipation of) the ECB asset purchases are likely to have increased wealth inequality in the euro area. However, it should be noted

¹⁸ K. Adam and P. Tzamourani, "Distributional consequences of asset price inflation in the euro area," *Discussion Paper*, no. 27 (German Bundesbank, 2015).

¹⁹ K. Adam and J. Zhu, "Price Level Changes and the Redistribution of Nominal Wealth Across the Euro Area," *Journal of the European Economic Association* (forthcoming) (2015).

Figure 7

Home ownership in the Euro Area by income quintils



1 To total real assets of households.

Source: The Eurosystem Household Finance and Consumption Survey (2013).

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The value of households' main residences increases with household income, yet its relative contribution to households' total real wealth decreases simultaneously.

that these effects may differ widely among individual member countries of the euro area.

.... but reducing wealth inequality in the long term?

It is questionable whether this increase in inequality can be at least partially offset in the long run, as is argued for conventional interest policy.²⁰ It will first be necessary for economic growth to recover successfully and for inflation to increase. If the ECB achieves this through its asset purchase program, it may indeed affect the wealth distribution, but the overall effect is yet ambiguous.

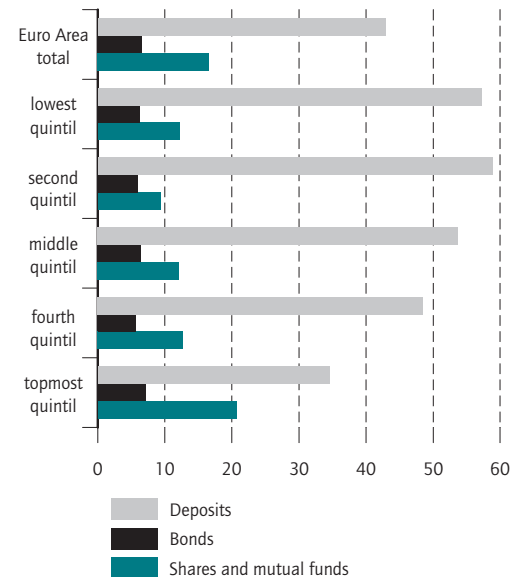
A higher inflation rate would, all else being equal, reduce inequality initially because creditor households in the euro area tend to have higher incomes and more val-

20 See C. D. Romer and D. H. Romer, "Monetary Policy and the Well-Being of the Poor," *NBER Working Paper*, no. 6793 (1998).

Figure 8

Financial wealth of households by asset class

Relative contribution to total financial assets in percent



Source: The Eurosystem Household Finance and Consumption Survey (2013).

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Less wealthy households hold the largest share of their total financial wealth in non-inflation-indexed deposits, whereas the wealthiest households invest stronger in real claims in form of stocks.

uable assets than indebted households. Since younger households are more often net debtors, this would also lead to a transfer from older to younger households.²¹

Conversely, an increase in inflation may, however, also act in the opposite direction. This occurs through the real loss of value of non-inflation-indexed investments via the portfolio composition channel. Low-income households often hold a larger share of their assets in the form of cash and savings deposits, whereas higher-income households invest more in real assets such as real estate and stocks (see Figure 8).

As a result, the ultimate effect of the ECB asset purchase program on income and wealth distribution still remains to be seen. In particular, it depends on whether and with which delay the medium- to long-term effects occur and how successfully the asset purchase program impacts on economic activity and inflation.

21 See Adam and Zhu, "Price Level Changes."

Success of the ECB asset purchase program is difficult to assess

Since there has been very little information available to date, it is difficult to estimate to what extent the ECB asset purchase program has contributed to stabilizing the euro area's economy. Its effect can be approximated from the experience of other central banks with comparable programs, however. Studies on asset purchases by the US Federal Reserve (Fed) and the Bank of England (BoE) indicate that they have considerably mitigated recessions in the respective economies. Without the programs, double-digit declines in GDP and price falls of up to four percent may have been recorded,²² while unemployment in the US would probably have been up to one and a half percentage points higher.²³

The corresponding effects of asset purchases by the Bank of Japan, on the other hand, were far less pronounced and occurred with a considerable lag. These purchases here only had an effect on economic growth after a time lag of up to 20 months.²⁴ Among other things, this may be due to the fact that the Japanese program, similar to the ECB program, only had a weak impact on long-term interest rates in its initial phase. Unlike the US and UK programs, both the Japanese and European purchase programs were not implemented in a time of large financial uncertainty and high interest rates in which asset purchases have proven to be particularly useful. It is therefore questionable as to whether the ECB asset purchases can actually bring forward the desired effect on economic activity and inflation in the medium and long term.²⁵

²² See C. Baumeister and L. Benati, "Unconventional Monetary Policy and the Great Recession: Estimating the Impact of a Compression in the Yield Spread at the Zero Lower Bound," *European Central Bank Working Paper*, no. 1258 (2010).

²³ See H. Chung, J.-P. Laforêt, D. Reifschneider, and J. C. Williams, "Have We Underestimated the Likelihood and Severity of Zero Lower Bound Events?," *Journal of Money, Credit and Banking*, vol. 44 (2) (2012): 47-82.

²⁴ See H. Schenkelberg and S. Watzka, "Real Effects of Quantitative Easing at the Zero Lower Bound: Structural VAR-based Evidence from Japan," *Journal of International Money and Finance*, vol. 33 (C) (2013): 327-357.

²⁵ Of course, it is still possible that the ECB purchase program has prevented an even deeper recession in the euro area. Since the corresponding "counterfactual" argument can neither be adequately identified nor observed, however, such considerations are purely speculative and cannot be studied empirically.

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JEL: D31, E52, E58

Keywords: Large-scale asset purchases, wealth inequality, monetary policy, zero lower bound

Conclusion

Whether the ECB asset purchases will aggravate or lower existing wealth inequalities in the euro area as a whole still remains to be seen. In the short term, the ECB purchase program is likely to have exacerbated the wealth inequality. Yet, it is difficult to assess whether the distributional effects induced by asset price changes, in particular the increase in stock prices, are permanent in nature. On the one hand, excessive increases in asset prices that have occurred as a result of the expansionary monetary policy measures are likely to be corrected over time because monetary policy stimuli are likely not able to detach asset prices permanently from their fundamental values. On the other hand, capital gains and adjustments may well occur in different households and therefore still trigger distributional effects that are also more permanent in nature.

In addition, further distributional effects may occur in the long run if the ECB asset purchase program successfully helps to stabilize or even to revive economic growth and consequently employment and inflation. However, since it is not entirely clear which households would benefit most from these positive developments, the longer-term distributional effects of these purchases are difficult to predict.

However, this should not be mistaken for justification of adopting an attitude of benign neglect on the distributional effects of monetary policy measures. Recent literature suggests that distributional effects play a major and previously underestimated role also in the transmission of monetary policy stimuli, which should be examined in more depth in future research.²⁶ Finally, it should be noted that possible adverse distributional effects may also occur when the ultra-loose monetary policy of asset purchases is eventually phased out. For example, the current low interest rates encourage households to take on additional debt. A sudden rise in interest rates would, in this case, burden the asset positions of these (newly) indebted households.

²⁶ A Süfi, "Out of Many, One? Household Debt, Redistribution and Monetary Policy during the Economic Slump," Andrew Crockett Memorial Lecture, Bank für Internationalen Zahlungsausgleich, June 2015, <http://www.bis.org/events/agm2015/sp150628.pdf>.

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