Incentives for the finance sector: How the ECB affects banks’ business assembling

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Abstract

Central banks implement negative interest rate policies (NIRP) to incentivize economic subjects to spend and invest money for long term economic growth. Although nominal negative interest rates can not be effectively explained by economic theory, when inflation is included there are currently real negative interest rates in almost all industrial nations. We investigate the difference in banks’ performances regarding their core business composition in the short run after zero interest rate policy is announced first. Assigning European banks in the interval from a pure commercial bank to an investment bank leads to the observed heterogeneity within the industry.

Keywords: Monetary Policy, Bank Profitability, Globalisation, Financial Crisis

JEL-Classifications: E52, F65, G21
1 Introduction

Does the European Central Bank (ECB) destroy commercial banking?

The aim of this article is to demonstrate, theoretically and descriptively, that the ECB interest rate policy has a huge negative impact on the European banking sector justified by composition of firm structures within this industry. Since the financial crisis in 2007/2008, the ECB lowers its key interest rate constantly. Being initially an aggressive response to counteract the financial crisis in the European Monetary Union (EMU), the prolonged and persistent low interest rate policy of the ECB seems to become mainstream. This policy not only intends to prevent a macroeconomic downturn and collapse but also aims at keeping the inflation rate in the EMU at a stable level.

However, a long lasting low interest rate environment entails side effects because it can be perceived as an unnatural situation for consumers expectation and leads to structural changes in the financial sector. Especially the banking sector struggles with the current situation resulting in a realignment of their strategic direction regarding income sources in order to ensure profitability. Recent studies suggest that unusually low interest rates have a negative impact on bank profitability [5].

As this result may hold for banks on average, a more detailed look at the core businesses of banks may benefit give a different picture. As bank profitability for commercial banks who largely depend on the yield curve erodes on average, investment banks benefit from low interest rates as capital asset prices rise.

Based on a theoretical hypothesis, we observe that stock prices of investment and commercial banks react differently in the short run after the historical announcement of the ECB to lower the key interest rate to zero percent. Economics theory as well as broad econometric work on stock indices show the correlation between lowering the ECB key interest rate, respectively the Federal Reserve System (FED) fundamental fund rate, and boosting the economy [4], [11]. [12] argue that rate cuts outweigh the benefits from higher asset values and stronger aggregate demand. [9] show industry specific effects of US monetary policy. But even within the banking industry we find heterogeneity in many forms [13]. There is asymmetric interest rate pass-through [2] and different outcomes on different banking system stability [7] on international level. [10]
find international spill over effects between US and EU stock markets as a transmission of shocks. A tightened monetary policy also brings dynamics to the bank itself [8]. With quarterly balance sheet information for listed banks in the EU and USA, [1] find evidence that low interest rates contribute to banks’ risk. Uncertainty about policy decreases stock prices in the average [15]. In our case it means that there has never been a zero interest rate policy before.

2 Monetary Policy

Historically, the Great Depression was what may be seen as an intellectual failure of the economic policy makers of the day working on business cycle theory as macroeconomics was ordinarily called. As is well known and documented, John Maynard Keynes commanded the controversial position of the relevance of effective aggregate demand versus notional aggregate demand issues. It was argued that it is aggregate demand that determines the overall level of economic activity. Thus being, government intervention was a necessity to accommodate the observed cycles of economic activity. We focus briefly here on the so-called “New” monetary policy design attempts under ECB directed by Mario Draghi since November 1, 2011. It appears to be the case that a rethinking of policy design is needed. Since the deregulation of the financial sector in the 1980’s, central banks around the world have been attracted to implementing various types of unconventional monetary policy. Taking a look backwards at Keynes magnum opus, one observes that the classical economists belief in Say’s Law, that implies that supply creates its own demand did not appear to reflect reality as the concept of price stickiness did not permit an effective interaction of aggregate demand and aggregate supply to stabilize the world’s economy. As Keynesian macroeconomics emerged various building blocks of modern day macroeconomics were established as traditional knowledge:

- The relation of consumption to income and the derived multiplier effects.
- Liquidity preference aspects regarding the demand for money.
- The importance of expectations in affecting observed consumption and investment patterns and the idea that animal spirits are a major element behind shifts in demand and output.
Put in a nutshell various historical schools of thought gave rise to macroeconomic predictions seemingly based upon doctrines that are fundamentally flawed. In brief, by the end of the 1980’s, the challenges raised by the rational-expectations Lucas critique [6] have led to a total overhaul of traditional macroeconomic beliefs.

During the so-called “Great Moderation” central banks began to lower interest rates in view of stabilizing the economy in order to supposedly ensure full employment in times of demand shortage and low inflation. As [14] among others are convincingly pointing out, economists seem to have forgotten Keynes message that interest rates may not solve the problem. Savings and Investment may not adequately adjust to lower interest rates, resulting in a collective disaster instead of the desired collective optimum.

The question now is, is the unconventional monetary policy of low interest rates offered by the ECB negatively influencing the future role of national commercial banks as opposed to global investment banks such that money or unconventional monetary policy may not be neutral, but may indeed have real balance effects? Do interest rate induced changes in relative prices between stocks and credit cause a reshuffling or rebalancing of banks portfolios?

3 Pricing stocks in a heterogeneous bank industry

A firm’s profitability depends on different factors which can be summarized on three levels. The first of course is the macroeconomic level, which is above all other factors. Two identical companies are growing at different speeds in different economies. In a stable environment with secure structures and economic growth, a business flourishes more than in a recession. Sometimes industries suffer from regulations, reputation or the substitutability by a new branch. Therefore the second level, the industry level, plays a role in determining a firm’s profitability as well. It is much easier to tap a portion of the profits from a growing industry than to make profits in a down-turning industry. Firms’ performances themselves determine the third and last level for the composition of profitability. This mixture of effects can be found in every market, including of course the banking sector.

That is why we include the EuroStoxx50 and DAX30 as controls for the macroeconomic effects, to cover the economic climate of the Euro-zone. We also take a look on international banks, especially such located in the US, to cover industry-specific issues.
Subtracting all other factors we conclude that the heterogeneous bank profitability lies in the composition of the core businesses. Stock prices can reflect expectations immediately, which is relevant for decisions on a specific date. For this reason, we begin the derivation of heterogeneity, by defining stock prices as the reflection of expectations about the future.

\[
P_{j0} = D_{j1}/(1+i) + D_{j2}/(1+i)^2 + \ldots + (D_{jn} + P_{jn})/(1+i)^n
\]

\[
= \sum_{t=1}^{\infty} D_{jt}/(1+i)^t + P_{jn}/(1+i)^n
\] (1)

The current stock price of bank \( j \) is represented by \( P_{j0} \). Expected future Dividends \( D_{j1} \ldots D_{jn} \) are discounted by \( i \) in the corresponding period \( t \). If \( \lim_{n \to \infty} \), the second part of the sum in equation 1 vanishes and only expected dividends define the stock price \( P_{j0} \).

\[
P_{j0} = \sum_{t=1}^{\infty} D_{jt}/(1+i)^t
\] (2)

Now stock prices are defined by two factors \( D \) and \( i \). We only consider the expected dividends since the interest rate is homogeneous across the industry. Of course dividend payments strongly depend on shareholder management policies within a firm. For simplicity we assume a constant firm specific \( d_j \) over time, for the part of the profits that is passed on to the shareholders. We include a wide range of firms in the empirical section to cover the heterogeneity in \( d \). Splitting the expected dividend payments into the two core businesses of a bank, investment and commercial banking, defines \( D_{jt} \) as a linear combination times \( d_j \).

\[
D_{jt} = d_j(\lambda \Pi_{Inv,jt} + (1 - \lambda)\Pi_{Com,jt})
\] (3)
λ is in the range between 0 and 1 depending on how much the core business of the bank tends to investment. If λ is equal to 1, we observe a pure investment bank. If λ is 0, it is a pure commercial bank. In reality we observe hybrids within the interval [0;1]. A general version would be

\[ D_{jt} = f(\lambda \Pi_{Inv_{jt}}, (1 - \lambda)\Pi_{Com_{jt}}, X) \]

with the dividends as a function of profits in the investment and commercial sector of the regarding bank plus a term \( X \) to cover factors, which can not be contributed to neither \( \Pi_{Inv_{jt}} \) nor \( \Pi_{Com_{jt}} \). For simplicity and to illustrate our hypothesis in figure 1 we assume linearity. In [3] words, the business of banking ought to be simple; if it is hard it is wrong.

The ECB tries to boost economy, respectively investments \( I \), in the long run and therefore lowers the interest rate \( i \).

\[
\downarrow i \Rightarrow \uparrow I \Rightarrow \uparrow \Pi_{Inv}, \downarrow \Pi_{Com}
\]

Regarding equation 4 a decreasing interest rate \( i \) has two effects on banks’ businesses. On the one hand the investment business is boosted. On the other hand the commercial business suffers from lower interest rates. We assume that this effect can also be observed within the bank industry itself as banks are heterogeneous with \( \lambda \in [0;1] \) sketched in figure 1.

Lowering the ECB key interest rate is a general statement to boost the economy. Therefore we expect non-bank stock prices to rise, while banks with a low \( \lambda \), rather commercial banks, suffer.

4 Empirical Analysis

Figure 2 shows the performance of three leading US and EMU banks starting with the last major ECB key interest rate decision, announced on March 10, 2016 up to the end of 2016. It can be clearly seen that the performance of the EMU banks’ (INTESA SANPAOLO, Unicredit and Deutsche Bank) declines during this period, while the market, illustrated by DAX30 and EuroStoxx50, increases. The values of the three major US banks (Bank of America, JP Morgan and Goldman Sachs) show that the global banking industry has no structural problem. The break on June 24 in all time series is due to the Brexit decision. Figure 3 and 4 show the correlation matrices for the period considered here and over a longer period. The left-hand side shows the cross-correlation between the respective
European and US stocks over the period of three months before the decision, and the	right-hand side over the period of three months after the decision. We can see that the
correlation decreases significantly after this point. With one exception all correlations
drop very clearly. But this exception does not contradict our hypothesis as it is a bank
with relatively high shares in the investment sector, namely the Deutsche Bank. Figure
5 shows the volatility of the respective stocks. The volatility is calculated with a simple
Exponential GARCH(1,1) Modell, in our analysis the best model to measure the volatility
for this time series. The figure shows that the volatility (time span: after the decision from
the ECB in March 2016 to the end of 2016) of the US banks are all relatively stationary
and at a relatively low level. In contrast, the European banks are at a significantly higher
level and are more volatile. The volatility and, hence, the risk is increasing very strongly. This is also a good indicator of how the market responded to the decision on March 2016. Another key indicators that we can look at in this context are risk factors. Table 1 shows the mean volatility, the Value at Risk and the Expected Shortfall (both at the 5% level). It is easy to see that all risk measures of the three European banks are far above those of the US banks. The risk within these stocks is, therefore, much higher. Risk of the two market indices are on a low level because they are portfolios with 30 or 50 companies and are therefore diversified.
5 Conclusion

Our hypothesis, that banks with high shares in the investment sector perform consistently more positive than commercial banks, cannot be rejected descriptively. This is also evident in figure 2, where the Deutsche Bank, with a high share in the investment business, performs better than the two other major EMU banks.

The negative performance of European banks seems to be based on the ECB monetary policy. A distinction between commercial and investment banks is not possible in Europe since there is no pure investment bank. We assume that banks are within the interval \( \lambda \in [0; 1] \) and as they approach the investment bank limit with \( \lambda = 1 \) they perform better on the stock market than commercial banks.

Given that the challenge of unconventional monetary policy and its effects on transmission channels of the quantity of bank credit in the finance sector and inherently the riskiness of bank portfolios as discussed above have shifted, there is an intrinsic need for macro prudential tools to safeguard future macroeconomic stability avoiding one financial disruption after another. We need to develop a more fundamental understanding of liquidity-driven unconventional monetary policy. Old ideas that have entrapped our thinking need to be replaced with new real world economic understandings.
6 References


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