CHAPTER 10

Interest Spreads and Tiering

Arguably, the rise of the Target balances largely results from the ECB’s resistance to allow growing interest spreads between the countries of the Eurozone, which would have lured in private capital and reduced the liquidity outflows. As the ECB saw international interest spreads as distortions in the transmission of monetary policy, it compensated for liquidity outflows by allowing the respective NCBs to issue and lend out more money. However, out of concern for the concentration of liquidity in only a few countries, above all Germany, the ECB Council ultimately decided to differentiate its marginal policy interest rates. It did so by exempting huge brackets or “tiers” of banks deposits from penalty interest, thus effectively differentiating the marginal deposit rates between the countries. The differentiation immediately implied bank lending from liquidity abundant countries like Germany to the liquidity scarce Mediterranean countries in order to exploit the unexploited bracket space, which reduced the Target balances.

10.1 The Interest-induced Shift of Liquidity, Interest Spreads and the Elasticity of Local Money Supply

The last chapter has shown that the international liquidity shift measured by the Target and cash balances by necessity induces a subsequent intra-Eurosystem interest flow from the debtor to the creditor countries by way of pooling the seignorage income. Pooling compensates for the fact that the former collect more, and the latter less, primary interest income from the non-central bank

1 Recall that these statements refer to marginal effects. As explained, intra-Eurosystem redistributive flows not only result from international liquidity shifts as measured by the Target and cash balances, but may also result from intra-country liquidity shifts between the NCBs’ assets and liabilities. The subsequent discussion abstracts from these shifts and assumes for simplicity that there would not be intra-Eurosystem interest redistribution without Target and cash balances. This is not essential for the discussion.
sectors, provided of course that the policy interest rates are positive (as they aren’t at this writing).

As we have seen, the intra-Eurosystem extraction of more interest from countries whose NCBs build up Target and cash debtor positions and less interest from the respective creditor countries shifts income and liquidity across the borders in a similar way as normal international interest flows between private agents would do. As there is compound interest, the original liquidity transfer measured by the initial Target and cash liability grows at the effective intra-Eurosystem rate of interest on the Target balances. Other things being equal, the permanent extraction of liquidity (Target and cash balance) from the debtor countries would eventually dry up the economies of these countries and make the creditor economies more and more liquid.

This would, however, prompt obvious reactions of the capital market. The liquidity extraction would raise the local market interest rates in the debtor economies as banks and private agents would try to borrow from abroad and offer the lenders better rates, while the opposite would be true in the creditor economies, as more and more liquidity piles up there.

The strength of this effect depends on the elasticity with which the Eurosystem reacts to the international liquidity transfers, that is how much it is willing to compensate for the scarcer or more abundant liquidity, respectively, by inducing or tolerating compensating changes the stocks of local money creation credit. Unless the system reacts perfectly elastically, interest spreads between the countries will grow over time.

These spreads have two effects. For one, they induce private capital flows from the creditor countries to the debtor countries. These capital flows reduce the Target and cash balances, as they involve payment orders by the creditor countries. The capital flows can be seen as a kind of debt rescheduling action for the NCBs, because the intra-Eurosystem interest flows and perhaps even the Target and cash balance credits are replaced with private capital.

For another, the interest spreads reduce private investment in the debtor countries and increase it in the creditor countries, with the result that the economies weaken in the former and pick up in the latter. The weakening economies will import less and the strengthening economies will import more. The changes in imports will result in net payment orders from the creditor to the debtor countries and thus also reduce the balances.

Interest rate differentials within a currency union were common before World War II in the US, which, with its twelve district central banks, bears some similarities to the Eurosystem. Money was scarce, and asymmetrical lending by local central banks triggered ISA balances. As explained in Chap. 2, ISA balances were similar to the Target balances, except that the debtor central banks had to settle their ISA debt with gold. The gold settlement reduced the incentive of local central banks of compensating for liquidity outflows with newly created credit money and made their money supply inelastic. So,
considerable spreads of the Federal Funds Rate emerged at the time, often 100 basis points and more.2

Yet the ECB did not like interest rate differentials, spoke of a disturbance in the process of transmitting its monetary policy, and tried to compensate for the missing liquidity with the sophisticated policy measures described above in Chaps. 5, 6 and 8 (collateral policy, ELA, ANFA, SMP, OMT, QE etc.). The measures had in common that they all avoided the liquidity squeeze in the Target and cash balance debtor countries. Some reduced the Target balances because they induced or were counted as private capital flows (SMP and OMT), and others (ELA, ANFA, QE) increased them even more, because they induced public capital flows through the Eurosystem.

The ECB also effectively eliminated the ongoing leakage of liquidity which resulted from the compound interest effect by reducing the policy interest rates to zero and by even pushing them into negative territory. Thereby, it reversed the interest-driven liquidity flow, allowing the debtor countries to order more goods and assets from abroad without increasing their Target debt.

However, in fear of violating the boundaries of its mandate, the ECB again and again pressed policy makers to take over by organizing fiscal rescue systems if not outright transfers (fiscal union), which would induce countervailing payment orders and hence reduce the balances. The parliaments of the euro member states, however, feared their electorates and were very reluctant to follow suit.3

Thus, in the end, the ball was back in the court of the ECB which realized that its ammunition had been used up. It ultimately gave in and accepted that spreads in its policy rates would be necessary to reduce the Target balances.

### 10.2 Differentiating the Interest Rates by Way of Tiering

For the first time in its history, the ECB in September 2019 decided to differentiate its policy interest rates between the countries of the Eurozone.4 In the Target creditor countries where liquidity had piled up, the marginal deposit facility rate was implicitly set 0.5 percentage points lower for most banks than in the Target debtor countries where the liquidity injected through the QE program did not stick, as was explained in Chap. 8.

The trick by which this was done is *tiering*. Banks were given an interest-free bracket or “tier” for their excess reserves equal to six times the minimum reserve. By the end of 2019, the volume of this bracket was €805 billion while the excess liquidity was €1786 billion, as was shown in Fig. 9.1. Thus the interest-free brackets were nearly half of the excess liquidity (45%). This is a truly huge volume.

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2 See Chandler (1958) and European Economic Advisory Group (2013, Figure 4.3, p. 103).
3 See the chronology (“The six steps of the crisis”) in Sinn (2014a, pp. 257–69).
4 European Central Bank (2019c).
This immediately meant that all banks tried to shift as much money as they could from their deposit facilities into their excess reserves to fill the interest free bracket space that the ECB Council had suddenly opened up. This shift is clearly visible on the right-hand side of the lowest graph of the triple Fig. 9.1 in Chap. 9.

More importantly, however, it also meant that those banks that could not fill their brackets by shifting funds from the deposit facility, because they did not have enough liquidity, contracted with others that had surplus liquidity not only beyond the minimum reserves but beyond the new interest-free brackets. As the second group of banks would have had to pay a penalty interest rate of 0.5% on their marginal excess reserves while the first group could park these reserves interest-free, both parties were able to profit from this contract if they agreed on credits with an intermediate interest rate $r^b, 0 > r^b > -0.5%$.

As the banks with surplus liquidity almost by definition would be sitting in the Target creditor countries, the immediate implication of these contracts was a reduction in the Target balances. Small wonder that banks made use of this to a very large extent and that the Target balances of the liquidity-abundant and liquidity-poor countries both shrank in absolute terms. This is the explanation for the rapid decline in the Target balances as shown in the most recent data in Fig. 5.1.

How far will the decline in Target balances go? Theoretically, if all brackets could be filled with surplus reserves above the brackets and all surplus reserves were located in Target creditor countries, while the entire free bracket space were located in Target debtor countries, the Target debt could decline by €805 billion. But of course it is implausible that this assumption is true, as there will probably be not only mismatches of liquidity across but also within the countries. Moreover, the maximum risk premium the creditors could earn would be 0.5%, or 50 basis points. That may be too little to convince many investors to put substantial parts of their surplus reserves at risk in deposits of countries from where they had fled in the first place.

The ECB downplayed its tiering decision in its communications, but given that it induced such a rapid change in the Target balances and is a fundamental deviation from the dogma that short-term policy interest rates should be the same everywhere in the Eurozone, it is justified to associate the new decision with a new phase in the development and management of the Eurozone crisis, as is done in Fig. 5.1.

Interestingly enough, as with the QE decision, the Target balances had already moved some months before the actual decision was made in the direction which had become plausible to many observers only in retrospect, including myself. This can be attributed in all likelihood to the cleverness of investment bankers, some of whom were particularly good forecasters of what would happen, to put it politely. Before the asset purchases under QE were formally decided, many investors bought them already at favorable conditions in the

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5See Sinn (2019c).
market, because they knew that they soon would be able to resell them with a profit to their local NCBs. This reduced the Target balances of the Mediterranean countries even before the formal QE decision in January 2015 of the ECB Council, because their government bonds were once distributed over the world given that they had previously financed their current account deficits with them. And before tiering was decided in September 2019, the banks of the Mediterranean countries that had large unexploited brackets borrowed in the interbank market at more favorable conditions than were later available when everyone would know what had been decided. The reader may wish to study Fig. 5.1 in detail to find out which of all countries had bankers with the very best forecasting abilities.

### 10.3 The Effective Marginal Rate of Interest with Non-uniform Policy Rates

A final word may be useful concerning the implications of having different policy interest rates for the effective marginal rate of interest on Target and cash balances. While equations (9.6) and (9.12) to (9.16) in Chap. 9 all assumed uniform policy rates, these equations can easily be generalized to the case of non-uniform rates. Assume there are just two different kinds of policy rates of each type, one for countries \(i^*\) and one for countries or country \(i\) and characterize the policy rates in equation (9.6) by these two different subscripts, respectively. Then it is straightforward that instead of (9.12) and (9.13) we get

\[
\rho_i = \alpha_i \tilde{\rho}_i^* + (1 - \alpha_i) \tilde{\rho}_i,
\]

and

\[
\tilde{\rho}_j = \gamma_j \left( \mu_j r_j + \left(1 - \mu_j \right) r_j^U \right) + \left(1 - \gamma_j \right) \left( \lambda_j r_j^L + \left(1 - \lambda_j \right) r_j \right), \quad j = i, i^*.
\]

As of this writing, as was explained in Box 9.2 in Chap. 9, term deposits are no longer allowed (\(\lambda_i = \lambda_i^* = 0\)), and the main refinancing rate is zero (\(r_i = r_i^* = 0\)). In this case, (10.1) and (10.2) imply

\[
\rho_i = \alpha_i \gamma_i \left(1 - \mu_i \right) r_i^U + \left(1 - \alpha_i \right) \gamma_i \left(1 - \mu_i \right) r_i^U
\]

for \(r_i, r_i^* = 0\), \(\lambda_i, \lambda_i^* = 0\), \(\gamma_i, \gamma_i^* > 0\), \(\mu_i, \mu_i^* < 1\).

To analyze the effect of the most recent tiering decision, assume in addition that the unused brackets have not been fully exhausted.\(^6\) Let \(i^*\) denote the

\(^6\)If they are fully exhausted, the equations of Chap. 9 all stay valid.
countries with unused bracket space \( r^U_i = 0 \) and \( i \) those with surplus liquidity. Now (10.3) simplifies to

\[
\rho_i = (1 - \alpha_i) \gamma_i (1 - \mu_i) r^U_i < 0 \quad \text{for} \quad r^U_i < 0, \ 0 < \alpha_i < 1, \ \gamma_i > 0, \ \mu_i < 1, \quad (10.4)
\]

provided at least some of the liquidity outflow induced by the tiering decision and measured by the decline in country \( i \)'s Target balance comes from excess liquidity deposits. The equation shows that the effective marginal rate of interest is still negative but less strongly than equation (9.15) revealed, since the first term in brackets on the right-hand side, \( 1 - \alpha_i \), is smaller than one. The explanation is that a reduction in the Target balances of country \( i \) which implies less penalty interest in \( i \) is not countered by the increase in penalty interest in country \( i^* \) as would have been the case before the tiering decision. Thus, tiering implies less redistribution and hence a lower absolute value of the marginal effective rate of intra-Eurosysten interest on Target and cash balances. Note that the difference between (9.15) and (10.3) would disappear in the small-country case where \( \alpha_i \approx 0 \).

### 10.4 A Lesson to be Learned

Given the strong and obvious incentive effect of differentiated policy interest rates on the Target balances, one may wonder why the ECB had not resorted to this policy tool before. The answer may lie in the disparate experiences many countries of the Eurozone had made in the pre-euro period when they persistently had to cope with the mistrust of markets in their creditworthiness which forced their firms and public institutions to pay very high interest rates, straining their budgets. This is why the ECB’s Governing Council developed the view that similar market interest rates with rather low spreads are a sign of a functioning currency union. Equal policy interest rates would contribute to reducing the spreads at which markets are trading.

After all, with some qualifications, the attempt to reduce the enormous interest rate differentials in the years before the euro seems to have been a major incentive for many countries to join the common currency in the first place. The expectation to be able to borrow in a currency that one could not only print at home, but that other countries would accept as legal tender, was rightly translated into the hope that the interest spreads would disappear or at least shrink strongly. That this expectation was indeed fulfilled is shown in Fig. 10.1.

When the euro was ultimately and firmly decided at the Madrid Summit 1995, the interest spreads between Italy, Spain and Portugal on the one hand and Germany on the other were in the order of 500 basis points. But thereafter they disappeared very quickly until May 1998, because that was the point in time when the exchange rates were to be irrevocably fixed. Even the Greek
interest rate, which had been about 25%, converged very quickly once it was clear that the country would be able to join the euro, if with a delay. This favorable situation lasted only until the outbreak of the financial crisis that culminated in 2008. Thereafter, the spreads grew even more than before and peaked in the crisis of 2012. They again decreased in the sequel, because the OMT program (“whatever it takes”), which basically was a public credit default insurance, had largely eliminated the investment risk. However, up to this writing the spreads never returned to the low levels that temporarily had prevailed in the first few years of the euro, indicating that despite the voluminous protection measures taken by the Eurosystem and the EU, investors still do not believe that all government bonds belong to the same risk class.

Given this history, it is understandable that the view that interest rates should not be differentiated among the Eurozone countries is widespread.
It is wrong nevertheless, as functioning capital markets do need significant interest spreads as signals that contain excessive borrowing. When the likelihood that a debt becomes unsustainable increases, creditors demand higher interest rates, and at higher interest rates debtors lose their appetite in borrowing even more.

In fact, higher notional interest rates are necessary to ensure that the mathematically expected rate of interest is the same for all assets of equal maturity. Suppose $q_i$ is the notional annual rate of interest of an asset $i$ and $\pi_i$ is the annual probability of default. Then the mathematically expected rate of interest is $q_i - \pi_i$. The most fundamental law in economics is the Law of one Price. Applied to rates of return on any two different kinds of assets $i$ and $j$ of equal maturity but different default risks it requires that $q_i - \pi_i = q_j - \pi_j$. This obviously implies that $q_i > q_j$ for $\pi_i > \pi_j$; i.e. that the asset with the higher default probability does need a higher rate of interest.

With its policy of reducing the interest spreads below what the Law of one Price would have required, the ECB has helped those firms and institutions that had a higher default probability or the country to which they belonged had a higher exit probability than it found justified by market fundamentals. By fixing equal policy rates for banks, it undercut market spreads and made it possible for banks to enjoy arbitrage gains by borrowing from their NCBs rather than in the interbank market. With a grain of salt this can be seen as the major explanation for the emergence of Target balances in the first phase of the Euro crisis and their subsequent reduction after the OMT decision of the Governing Council, which started Phase II, as was explained in Chaps. 5 and 6. The reader may wish to compare Figs. 5.1 and 10.1. The strong correlation between the turn-arounds in Target balances and interest spreads is striking and immediately obvious without resorting to econometric techniques.

Under normal conditions, the Law of one Price has important allocative benefits as it ensures that the world’s stock of capital is invested in a way that maximizes aggregate output and welfare. Seen from that perspective, the ECB made a mistake by not respecting the market spreads, providing in fact an implicit interest subsidy to those countries that were distrusted by markets. The ECB countered this view by arguing that at the time preceding the peak of the euro crisis in 2012 and its OMT decision markets were overly pessimistic, requiring much higher interest rates from some countries than was justified by the fundamentals. Markets were wrong when they assessed a non-zero probability to the break-up of the Eurozone.⁷ The European Court of Justice adopted and supported this view in its OMT ruling, arguing that there were in fact no systemic risks that would justify the spreads.⁸ However, given that the OMT program was decided only a few months after Berlusconi and Papandreou, the presidents of Greece and Italy, had negotiated secretly about potential euro

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⁷ Unpublished statement of European Central Bank (2014b, para 66) for the European Court of Justice.
⁸ European Court of Justice (2015, paras 76 and 77).
exits of their countries,\(^9\) this position represents political preferences rather than a description of the actual default and exit probabilities.

Whatever the truth, after the initial confidence crisis that disappeared after the OMT decision, (see Fig. 5.1), according to the ECB’s own judgment capital markets were free of stress and systemic risks.\(^{10}\) If the excess liquidity of the Eurosystem that was caused by the massive asset purchases under the QE program nevertheless assembled in Germany and a few other non-Mediterranean countries rather than spreading equally over the Eurozone, the reason can only have been that capital markets did see justified differences in idiosyncratic default risks that the ECB’s Governing Council did not want to respect when setting its policy rates.\(^{11}\)

And indeed there is ample evidence that the creditworthiness of European banks differed enormously in that period. The clearest one is given by the statistics about non-performing loans, as is shown in Fig. 10.2. Thus, for example, even by the end of 2018, Greek banks had 46% non-performing loans in the total loan portfolio, Cyprian banks 39%, and Italy 10%. These are extremely high numbers by all standards that without the implicit and explicit protection of the ECB would long have led to massive waves of bankruptcies.

![Fig. 10.2 Percentage of non-performing loans in the total loan-portfolio of commercial banks (2018). (Source: IMF, eLibrary-Data, financial soundness indicator, GFSR FSI Tables, Bank non-performing loans to total loans)](image)

\(^9\)See Bini Smaghi (2013, Chapter 3: “No turning back”, p. 29) and Djankov (2014, p. 3, 17, 105).

\(^{10}\)See European Central Bank (2016e, p. 22f.)

\(^{11}\)This is in line with the view of Westermann (2016a, b), according to which the rising Target balances in the QE phase resulted from a preference for safety rather than from technical aspects of the ECB’s Asset Purchasing Programme.
In view of this information about non-performing loans, the policy of choosing identical policy interest rates for different national financial systems is problematic. This policy means that the refinancing loans of the Eurosystem are available at much more favorable conditions than similar loans would have been provided by markets. Moreover, banks of the safer countries prefer to hold their liquidity in NCB deposits rather than lending them to banks with a shaky creditworthiness that hardly can offer more interest than they get from similar deposits at home. All of this implies that the excess liquidity of the Eurosystem assembles in only a few countries. The fact that the ECB Governing Council has ultimately given in and has begun to differentiate its policy rates, if only under the cover of “tiering”, gives hope that the ECB is gradually moving to a more realistic assessment of the problem of risk spreads.

Interestingly enough, the new ECB President Christine Lagarde (2020a), in her first press conference on Thursday, 12 March 2020, explaining the decisions of the ECB Governing Council, strongly supported this new approach, by stating,

Well, we will be there, as I said earlier on, using full flexibility, but we are not here to close spreads. This is not the function or the mission of the ECB. There are other tools for that, and there are other actors to actually deal with those issues.

However, given that the international implications of the Corona pandemic meanwhile had become visible, markets were not at all content with this statement. They, in fact, reacted furiously as they saw it as a fundamental and dangerous departure from the policy of reducing the spreads pursued by Lagarde’s predecessor Draghi, and they found no relief in the fact that the ECB Governing Council had agreed in the meeting on which Lagarde reported to slightly reduce the policy interest rates to negative territory and to start another asset purchasing program of €120 billion for 2020. They were not satisfied either when Lagarde (2020b) qualified her statement on the same day by returning to usual ECB vocabulary and stating that the Coronavirus would “impair the transmission of monetary policy” and that the ECB would “use the flexibly embedded in the asset purchase programme, including within the public sector purchase programme”. 12

After stock markets crashed on Monday, 16 March, the Governing Council agreed to further expand its asset purchases by another €750 billion in terms of the Pandemic Emergency Purchasing Programme (PEPP) in the late evening of Wednesday, 18 March. 13 This volume was considered to be sufficient and markets stabilized.

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12 See the footnote that her administration later added to the protocol of her speech, as reported in Lagarde (2020a).
13 See ECB (2020a).