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CONVERGENCE IN EUROZONE RETAIL BANKING?

WHAT INTEREST RATE PASS-THROUGH TELLS US ABOUT MONETARY POLICY TRANSMISSION, COMPETITION AND INTEGRATION

by

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and

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Abstract:
This study aims at unifying the empirical research on the financial part of the monetary transmission process in the Eurozone between 1993 and 2002. After endogenously determining structural breaks, we select an optimal pass-through model for a series of national retail interest rates for each break-free sub-period. We apply these models to the pass-through of monetary policy shocks as measured by the overnight money market rate as well as to a measure of cost of funds and furthermore allow the pass-through process to be characterised by thresholds and asymmetries. We find that structural breaks occur on average well before EMU. We confirm the result of previous studies that report increases in size and speed of the pass-through. This finding holds, however, only when using the monetary policy rate proxy, indicating an increase in monetary policy efficiency. When using pass-through measures as an indicator for Eurozone banking market integration, the view that the markets are still fragmented is supported, with the possible exemption of short-term lending to enterprises. Finally, our analysis of the structural determinants of the pass-through process confirms the widely held view that nominal, real, and structural convergence can lead to a more homogenous transmission process in the Eurozone. However, full convergence may yet be precluded by legal and cultural differences.

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1. Introduction

Do structural divergences in the monetary transmission mechanism in various member countries of the Eurozone lead to asymmetric effects of a single European monetary policy across countries? To answer this question, researchers inside and outside the ECB have increasingly focussed on investigating the Eurozone transmission mechanism. Traditionally the monetary mechanism can be described to consist of two parts: the financial market reaction and the wage-price mechanism. Given the importance of bank finance in the Eurozone, credit is considered to play an important role, both, through the "interest rate channel" and through the "lending channel" (see e.g. Bernanke and Gertler 1995, Kashyap and Stein 1993). With banks as conveyers of monetary signals, (divergences in) national banking market structures, (lack of) Eurozone banking market integration, and – subsequently – the (country specific) size and the speed of interest rate pass-through are key to the influence that monetary policy has on the economy. This is the more important as banking markets are often considered to be more resistant to convergence than other parts of the transmission mechanism. Consequently, the recent empirical literature has increasingly focussed on an explicit empirical analysis of the pass-through of monetary policy in the financial sector and its possible convergence of the Eurozone monetary mechanism.

The object of this study is to unify previous research into the Eurozone pass-through mechanism by addressing five issues: First, we will investigate whether and when the pass-through over the whole post ERM-crisis period 1993-2002 has changed. Unlike other studies a structural break - if existent - will be determined endogenously rather than postulated and then tested. This is done for all available retail lending and deposit rates in ten Eurozone countries. Second, and building on our previous work (Sander and Kleimeier, 2002) we suggest to use a methodology that takes into consideration various pass-through models, in particular those allowing for asymmetric adjustment of retail rates. Third, the pass-through is investigated as the impact of monetary policy-controlled market interest rates on retail rates as well as the impact of cost of funds on retail rates as advocated by industrial organization-inspired studies. We will argue that comparing the results of both approaches offers additional insights as the pass-through process appears to become more responsive to monetary policy changes as compared to changes in the cost of funds. Fourth, we make use of the information that the

pass-through results provide to evaluate the state of Eurozone banking market integration. Finally, we will investigate the structural determinants of the pass-through of monetary policy impulses.

The results of this study can be summarized as follows: First, the pass-through mechanism in all Eurozone countries and for almost all retail interest rates has undergone considerable structural changes in the past decade. It would nevertheless be too simple to attribute these changes simply to the introduction of the single currency on January 1, 1999. In fact, we find most structural breaks occurring much earlier. Second – and in line with other pass-through studies – we find that in the post-break part of the investigation period both, the size and the speed of the pass-through has gone up. This is, however, only true for lending rates and not for deposit rates. Third, this conclusion does generally not hold when using cost of funds proxies. Forth, and with the notable exemption of short-term corporate loans, the long-term pass-through appears to be incomplete, thus supporting the view that credit rationing remains an empirically important phenomenon in Eurozone retail banking.[1] Fifth, the size of pass-through typically increases with a reduced maturity of lending rates. However, as the pass-through of monetary policy impulses has generally increased for all lending rates, the grip that monetary policy has now even on long-term lending rates, such as mortgage rates, has also improved. Sixth, the pass-through mechanism has become more homogenous across the Eurozone countries thus conveying the (statistical) picture that the Eurozone retail lending markets may have become more integrated for some but not all retail lending markets. Seventh, our structural analysis highlights the importance of the competitive environment in the banking market and the role of stable monetary regime. While the latter variables suggest that a potential for structural convergence exists, legal and cultural differences are still important and may remain so for the nearer future.

2. Eurozone Interest Rate Pass-Through Studies: Quo Vadis?

Pass-through analyses serve several distinct purposes in the Eurozone-related literature. First, they provide a measure for the workings of the financial part of the monetary mechanism. As such, the transmission from monetary policy rate onto lending and deposit rates is considered and, consequently, either a policy rate or a policy

controlled money market rate[2] is used as exogenous variable. This approached has e.g. been followed by Cottarelli and Kourelis (1994), Cottarelli, Ferri, and Generale (1995), BIS (1994), and Borio and Fritz (1995) and – more recently – by Sander and Kleimeier (2000, 2002), and Toolsema, Sturm and de Haan (2002).

Second, pass-through analyses are used to investigate the degree of competition or imperfection in the banking market. Typically starting with an industrial organization approach, such studies view the size and speed of the pass-through mechanism as an indicator for market imperfection in the banking market segment under consideration. For example, de Bondt (2002) starts from a marginal cost pricing model suggested by Rousseas (1985). In this model, the bank interest rate (BR) is set by banks depending on a marginal cost price approximated by a market interest rate (M) that is comparable to the bank rate under consideration:

$$(1) \qquad BR = \theta_0 + \theta M.$$

The coefficient θ_0 is a constant mark-up on marginal costs, while the size of the parameter θ depends on the demand elasticity for banking products, such as deposits and loans. A not fully elastic demand and/or some degree of market power will result in a value for θ less than unity. A direct consequence is an imperfect pass-through, which can therefore be viewed as a result of imperfect competition. Next to market structure and market contestability, switching cost and asymmetric information are important causes of a θ value below 1. Switching costs are particularly high in markets where long-term relationships and repeated transactions are important (see e.g. Sharpe 1997). Asymmetric information in the sense of Stiglitz and Weiss (1981) manifests itself in moral hazard and adverse selection phenomena which may cause banks to set lending rates below market clearing levels, thus leading to credit rationing. In contrast to this approach, de Bondt (2002) argues that even with moral hazard and adverse selection, lending rate stickiness and credit rationing must not a occur. Under the assumption of perfect competition and provided banks are able to distinguish between risky and non-risky borrowers (those with a default probability of zero), they may price higher default probabilities into the lending rates rather than rationing credit. In this case the long-run pass-through coefficient θ should exceed 1 and as such empirical studies should find lending rates being very

[1] See de Bondt (2002) and de Bondt, Mojon, and Valla (2002) for a different view.

sensitive to changes in market interest rates, i.e. θ should exceed 1. For such an analysis, the market interest rate chosen in equation (1) is often taken to reflect the cost of funds or the opportunity cost (in the case of deposits) for the banking product under consideration. One way of doing this is searching for market rates with matching maturities. However, as several maturities can increasingly be found in the same market segment - such as mortgages with fixed rates over various maturities as well as flexible rate mortgages – finding matching maturities is no easy task and can be done only approximately. For example, de Bondt (2002) bases his selection of cost of funds proxies on correlations between bank and market interest rates, while de Bondt, Mojon and Valla (2002) use a combination of money market rates and 10-year government bond yields. Because of this, cost-of-funds-oriented studies are lacking in comparability and are as such not of much use in comparing the workings of the monetary transmission process across rates and countries.

Third, pass-through studies are of use for assessing the degree of financial integration in the Eurozone banking market. For example, despite the fact that retail interest rates have been converging to some degree, Kleimeier and Sander (2002, 2003) argue that the Eurozone retail banking markets, in particular consumer lending and mortgage markets, are still not integrated. However, these studies show that integration – measured by employing a cointegration-cum-errror-correction-model-approach – appeared to have increased after the introduction of the single currency, in particular with respect to short-term lending to enterprises. The authors argue that this (statistical) picture may mainly be "produced" by a faster and more homogenous pass-through in some retail lending markets in the Eurozone. Heinemann and Schüler (2001) have been following up on those analyses and argue that integration is a sufficient, though not necessary condition for a convergence of pass-through speed. Consequently, they advocate to use national differences in the speed of the pass-through as an indicator of integration. As the Kleimeier and Sander (2002, 2003) studies answer the question whether Eurozone markets for mortgage, consumer lending and short-term lending to enterprises are integrated with a short "No, No, and Maybe", these propositions can and

[2] Within the US context Bernanke and Blinder (1992) have suggested to use the federal funds rate as a monetary policy proxy.

will subsequently be investigated in the present study by utilizing a pass-through approach.

Fourth, pass-through studies are forming the base to detect structural differences in banking markets and their driving forces, by means of a cross-sectional analysis of the structural determinants of the speed and size of the pass-through process. The key reference for such approaches is Cottarelli and Kourelis (1994) in an international context. For the Eurozone, this approach has been followed by Cottarelli, Ferri, and Generale (1995) and Mojon (2000).

All recent Eurozone pass-through studies make five major points: First, since impact (and interim) multipliers are typically below 1, this is pointing to some degree of bank interest rate stickiness. Second, regarding a possible full-pass-through in the long-run there is no clear consensus yet. Third, there are considerable differences in the pass-through across different bank lending and deposit rates. Fourth, there are severe asymmetries across countries, which may have a differential impact of a single monetary policy. Fifth, the pass-through has increased in both, size and speed in the recent years, probably pointing to the potentially unifying role of the single currency (project). Sixth, structural differences in the pass-through are typically attributed to the structural features of the financial system and should eventually disappear with structural convergence.

Nevertheless, the remaining differences in the quantitative and – at times – qualitative results of pass-through studies remain high[3]. These differences can be contributed to three major factors:

1. The choice of exogenous market interest rate.
2. The length and timing of the investigated periods.

   As ECB retail lending rate statistics are only available from 1993 onward with a more or less full coverage, typically the data base is either too limited, or too general, or not sufficiently harmonized. Moreover, the sample period from 1993 up to now is subject to the risk of a number of structural breaks, such as those caused by the increasing implementation of the EU's 2nd banking directive, the run up to EMU and finally the introduction of the single currency itself, not to mention further regulatory efforts at the EU level, financial innovations and technical progress in general.

[3] For an overview see Sander and Kleimeier (2002) and de Bondt (2002).

3. The chosen methodology for the pass-through study.

   The basic reference of pass-through studies is Cottarelli and Kourelis (1994) who utilize an autoregressive distributed lag specification. Later studies recognize that when retail and wholesale interest rate are cointegrated in the long run, the pass-through equation must be extended by an error correction mechanism, which drives the rates back toward their long-run equilibrium relationship. Examples of such studies are Sander and Kleimeier (2000, 2002), Mojon (2000), Heinemann and Schüler (2001), Toolsema, Sturm and de Haan (2002), de Bondt (2002), and de Bondt, Mojon, and Valla (2002). Moreover, even if the same approach is chosen, the selection of lag-lengths and the estimation process itself can generate substantial differences in the results. For example, while most authors follow a conventional two-stage estimation process with investigation first the long-run cointegration relationship and then the pass-through, de Bondt (2002) utilizes a one-step non-linear estimation approach. Finally, the nature of the pass-through process may be characterized by non-linear asymmetries. Recent research has increasingly shifted toward analysing asymmetric adjustment in interest rates (see Tong 1983, Scholnick 1996 and 1999, Balke and Fomby 1997, Enders and Granger 1998, Baum and Karasulu 1998, Ender and Siklos 2000). However, using state-dependent error correction models has so far not made its way into the Eurozone pass-through literature with the notable exemption of Sander and Kleimeier (2002) and de Bondt, Mojon, and Valla (2002).

4. The design of the structural analysis, particularly regarding the choice of explanatory factors.

As the object of this study is to unify previous research into the Eurozone pass-through mechanism, we suggest to address the three above-mentioned issues as follows:

1. Pass-through studies should focus on both, the impact of policy-controlled wholesale interest rates on retail rates and the industrial organization-inspired cost of funds approach. Both approaches should be viewed as complementary and not substitutive as comparing the results of both offers additional insights.
2. Structural breaks should not be postulated but endogenously determined. In analysing the data for the period 1993 to 2002 we show that such breaks are indeed signifying the whole period under investigation. Just postulating a breakpoint and then testing

for structural breaks will typically justify a break at many different points in time. For example, putting the break point at January 1, 1999 may yield a significant results for a structural break test, although the true breakpoint may be somewhat earlier. Consequently, changes in the pass-through process may wrongly be attributed to the introduction of the single currency, while it may be affected by the impact of earlier changes in EU banking market regulation, or because in the run up to EMU important expectation effects have been at work, or the reduction of money market rate volatility has already made its impact felt.

3. We suggest to use a methodology that takes into consideration a wide variety of available pass-through models and to select the best model on the base of predetermined criteria, as demonstrated by Sander and Kleimeier (2002) and described shortly in the following.

3. Data and Methodology

3.1. Data Selection

Our analysis is based on monthly national retail interest rates for Austria, Belgium, Finland, France, Germany, Ireland, Italy, Netherlands, Portugal and Spain[4] that have been obtained from the European Central Bank (ECB). The ECB collects interest rate data for 3 types of consumer loans – overdrafts on cash accounts (N1), mortgage loans to households (N2) and consumer loans to households (N3) - and two corporate lending rates – short-term loans to enterprises (N4), medium and long-term loans to enterprises (N5) – and a final category for other lending rates (N6). Regarding deposits, the ECB collects interest rate data for 3 types of deposits – current account deposits (N7), time deposits (N8), and savings accounts (N9) – and a final category for other deposit rates (N10).[5] Whereas some national series start as early as 1980, data for a larger number of EMU member countries are available only since the mid 1990s. Considering

[4] Note that Greece has not been included in our study. The reasons are twofold: First, Greece did not join EMU until January 2001, and second there are no money market rates available for Greece for the full sample period. Furthermore, only rates available in monthly frequency are included. Thus, quarterly series available for example for France are not included in the sample.

[5] For details on data, see the ECB's National Retail Interest Rates – Methodological Notes. From series N6 and N10 only one rate has been included (N6 for Ireland), all other national series are excluded as they do not clearly refer to a national retail interest rate but represent euro denominated instruments or synthetic rates based on several different instruments.

potential disturbing effects of the EMS crisis on our results, we decided to focus on the period from January 1993 until October 2002.

In order to model the monetary policy approach of interest pass-through, overnight money market rates have been used as a proxy for the central banks' policy rates. These rates are obtained from Datastream. Exceptions are Germany, the Netherlands, and Portugal where overnight money market or call money rates have been obtained from line 60b of the CD-ROM version of the International Monetary Funds' International Financial Statistics[6]. For the cost of funds approach of interest rate pass-through market interest rates of instruments with different maturities have been obtained from Datastream including national interbank rates with 1 month, 3 months, 6 months, and 12 months maturities and 10 year government bond yields.

For the cost of funds approach, a selection of the most appropriate market interest rate has to be made. Our choice is presented in table C1 of appendix C. Mortgages are typically considered as long-term lending where inflation expectations play an important role. This would suggest the use of a market interest rate with a long maturity. De Bondt (2002) uses a 5-year interest rate for a Eurozone average mortgage pass-through model. De Bondt, Mojon and Valla (2002) use a weighted average of money market rates and 10 year government bond yields. Following de Bondt (2002) and using correlation between market interest rates and mortgage rates to select the pass-through variable suggests in most countries a selection of the 10-year government bond yield. However, this result is not uniform. Particularly, an increasing use of variable rate mortgages can be observed. This is especially true for Ireland where a 3-month interbank rate would be the most appropriate choice. Similar results are obtained for Portugal and Spain where a mix of fixed and floating rate mortgages are offered. Since we already investigate the pass-through of short-term money market rates on mortgage rate in the monetary policy approach, we choose for the cost of funds approach to investigate the impact of long-term interest rates as measured by government bond yield on mortgage rates.

Regarding consumer credits, Diez-Guardia (2000) postulates that there is no one model of a consumer credit in the Eurozone. This would speak against using a common rate. Particularly in Austria where the maturities are long-term and Belgium where the

[6] Note that national rates are used from January 1993 to December 1998 and rates reported for the euro area have been used as off January 1999.

rates are fixed, Table C1 in Appendix C shows the highest correlation to be with government bond yields. For the remaining countries the evidence is mixed but in general speaks against using government bond yield and favour of shorter-term interbank rates. As the monetary policy approach already uses short-term money market rates, we conduct for all countries the analysis for 12 months interest rates.

For short-term corporate loans, lending is for short maturities and with floating interest rates. Thus for the majority of cases a one month rate should be selected with the exception of Austria. Thus, for the cost of funds approach a common 1 month rate is chosen. Medium and long-term corporate loans typically with a maturity over 1 year show a mixed picture but are somewhat leaning towards selecting a 6 months rate. This appears to be most often due to the fact that interest rates on these loans are floating.

For deposit rates, the maturity of the market rate with the highest correlation seems to increase with the maturity of the deposit type thus leading to a choice of a 1 month rate for current account deposits and a 3-months rate for time deposits and savings accounts.

For the analysis of the structural determinants, we collected a large number of banking market descriptors from recent publications of the ECB (2000, 2002) and the OECD. Moreover, the usual macro-economic and financial development control variables have been collected and calculated. The details and sources are available in Table B1 of appendix B and motivated more specifically in section 5.

3.2. The Empirical Pass-Through Approach

3.2.1. Standard Pass-Through

Beginning with Cottarelli and Kourelis (1994) the pass-through process has often been modelled as a VAR, such as

$$(2) \qquad BR_t = \beta_0 + \sum_{i=1}^{k^*} \beta_{BR,i} BR_{t-i} + \beta_1 M_t + \sum_{i=1}^{n^*} \beta_{M,i} M_{t-i} + \varepsilon_t$$

where BR_t and M_t are lending and market rates. The optimal lag length is indicated by k* and n*, respectively. The impact multiplier is estimates by the coefficient β_1, where a value of less than 1 indicates sluggish adjustment, also known as lending rate stickiness. The long-term multiplier can be calculated from (2) as

$$(3) \qquad \theta = \frac{\beta_1 + \sum_{i=1}^{n^*} \beta_{M,i}}{1 - \sum_{i=1}^{k^*} \beta_{BR,i}}$$

In the long run equation (2) therefore has the form of

$$(4) \qquad BR_t = \theta_0 + \theta M_t + u_t$$

If θ is equal to one, we speak of a full pass-through in the long run. Not fully elastic credit demand functions and imperfect competition may lead to a less than full pass-through. If θ<1 switching costs, information asymmetries and other market imperfections are considered to have caused an imperfect pass-through. If θ>1 bank are considered not to ration credit supply, but increase lending rates to compensate for higher risks (see de Bondt 2002).

3.2.2. The Symmetric Cointegration Approach

It is important to recognize that time series for interest rates typically exhibit an I(1) property.[7] In this case pass-through models like equation (2) are regularly estimated in first differences to avoid spurious regression problems. It should be noted that by doing so, important information about the long-run relationship is lost. Equation (2) can, however, directly be estimated and will contain the long-run information if both interest rates are cointegrated in the sense of Engle and Granger (1987). The deviation from the long-run equilibrium will then be measured by the estimated error from equation (4) and used in the pass-through model as an "error correction term" (ECT). Building on the cointegration approach, a proper pass-through measurement should be based on a well specified error correction model (ECM) that explicitly incorporates the long-run relationship between retail bank rates and market rates provided the series are cointegrated as given by equation (5):

$$(5) \qquad \Delta BR_t = \sum_{i=1}^{k^*} \beta_{BR,i} \Delta BR_{t-i} + \beta_1 \Delta M_t + \sum_{i=1}^{n^*} \beta_{M,i} \Delta M_{t-i} + \beta_{ECT} ECT_{t-1} + \varepsilon_t .$$

[7] We employ various tests to establish whether or not the interest rate series used in this study exhibit unit roots. Given the likely presence of a structural break during the sample period, we conduct standard unit root test for the pre and post break periods. For the full period we additionally estimate unit root tests, which are valid even in the presence of a structural break. Details on these test statistics can be found in Appendix A. Results are reported in Tables B2 and C2 in the Appendix B and C.

For this symmetric cointegration model, the usual Dickey-Fuller (DF) and augmented Dickey-Fuller (ADF) testing procedures have to be conducted. If cointegration is established, equation (7) will be estimated while searching for optimal lags using the AIC criterion over all combination of lags up to a lag length of 4.[8]

3.2.3. Asymmetric and Threshold Cointegration

While most pass-through studies focus on symmetric adjustment, we have advocated elsewhere (Sander and Kleimeier 2002) to incorporate threshold and asymmetric adjustment mechanisms in pass-through studies. Several reasons can be given for this: Interest rate adjustment may in itself be either asymmetric or only occurring beyond a certain threshold. As our previous work shows, such adjustment patterns are frequent in the Eurozone and should therefore not be ignored. Furthermore, using models with asymmetries allows us to detect cointegration in cases where there are asymmetries and where other methods would thus fail to detect cointegration and wrongly re-direct the researcher to a standard pass-through model.

As explained in more detail in Appendix A, we consider five different specifications for asymmetric adjustment of interest rates. The first model we consider is the threshold autoregressive model (TAR^0) developed by Tong (1983). The model makes a distinction whether the explained interest rate (retail lending or deposit rate in our case) is above or below its equilibrium level. Thus, the TAR^0 allows for asymmetric adjustment depending on the sign of equilibrium-deviation. For example, if the money market rate decreases without an immediate adjustment in the lending rate, we obtain a positive realization of the error term u_t. When in this case the autoregressive decay is faster than in the case of money market rate increases, then the lending rate adjustment is faster downward than upward. The second model (TAR*) is a modification of the TAR^0 in the sense that the threshold that was formerly implicitly set at zero is now allowed to deviate from that value. The rationale behind such a non-zero threshold is that one or both variables may only adjust to a dis-equilibrium once it exceeds a certain minimum deviation in one direction. For example, the lending rate will adjust fast only when out of an equilibrium situation the cost of funds rate drops in a way that the deviation from

[8] Details on the methodology for all symmetric model and asymmetric models can be found in Sander and Kleimeier (2002) and are also shortly described in Appendix A.

equilibrium exceeds an optimal threshold a_0* of, say, 0.25 percentage points. For lower deviations or increases in the cost of funds rate, adjustment takes place at a significantly slower pace. The third variation is a Band-TAR model (B-TAR*). Such a model has often been applied to model interest rate cointegration where infrequent and discrete adjustments in the rates occur (e.g. Balke and Fomby 1997, Baum and Karasulu 1998). For example, if deviations from equilibrium are small and will therefore not lead to an adjustment of the dependent interest rate, one may find no cointegration within a narrow band bordered by a_0* and $-a_0$* while outside this band cointegration and thus an error correction mechanism may be present. In the context of our study, such behaviour could be related to the "menu cost" argument of retail rate stickiness such that banks only adjust retail rates when deviations are sufficiently large. On the other hand, if it happens for example for lending rates that inside the band cointegration is found but not outside, this could indicate that banks implicitly insure their customers against excessive deviations from equilibrium by smoothing the response of the lending rate. Finally, our fourth and fifth models represent momentum threshold autoregressive (M-TAR) models. Whereas in the TAR models the autoregressive decay always depends on the degree of deviation from equilibrium, one could also imagine situations where the adjustment speed depends on how fast the rates move away from or towards equilibrium. Such M-TAR models have been successfully applied to the term structure of interest rates by Enders and Granger (1998) and Enders and Siklos (2000). According to the latter authors, M-TAR adjustment can be especially useful when decision makers (in our case banks) are viewed as attempting to smooth out large changes in an interest rate.

3.3. The Estimation Procedure

The objective of the methodology employed in this study is to obtain the optimal pass-through model. As such, we initially try to identify break-free time periods. Rather than setting a breakpoint exogenously such as defined by interest rates cycle like Mojon (2000) or using the introduction of the common currency, like de Bondt (2002), in our study the breakpoint is endogenously determined. To this end, a supremum F (supF) test is calculated which indicates if and when a break is present in the long-run relationship

given by equation (3).[9] After determining this breakpoint we proceed as follows for each country and each retail interest rate: First, the interest rates included in this study are tested for unit roots. If interest rates are found to be I(0), we secondly estimate a standard pass-through model in levels. If however interest rates are found to be I(1), the long-run relationship between retail and market rates can be interpreted as a cointegration relationship and can thirdly be estimated to obtain the estimated residuals $\hat{u}_t$. Fourth, we estimate of all five TAR-type models and then, fifth, test for cointegration for each TAR-type model. In case the cointegration hypothesis could not be rejected we, sixth, perform asymmetry test for equality of coefficients for each TAR-type model. Seventh, all steps from four to six are repeated with varying lag-length to optimise AIC for each TAR-type, before, eighth, the optimal TAR-type model based on the minimum AIC across all model specifications is selected. Ninth, if however, we are not able to establish asymmetric cointegration based on the optimal TAR-type model, a symmetric model will be considered. A failure to establish cointegration here, will tenthly and finally redirect us to use the standard pass-through model as a last resort.

This model will be estimated in first differences as the interest rates have unit roots. After the optimum pass-through model is selected, multipliers are obtained for a variety of positive and negative interest rate shocks. Two peculiarities of the asymmetric models should be noted: First, as the speed of adjustment in asymmetric pass-through models depends on the model's estimated error, multipliers cannot simply be obtained by comparing two sets of forecasts - with and without changes in the explanatory variable – at any point in time. As in all non-linear models, multipliers obtained this way apply only to the particular context. In order to provide "general" or "state-independent" multipliers, we calculate them based on an equilibrium situation.[10] Second, since the reaction of the retail rates depends on the size and direction of the shock, multipliers are also varying with the specific type of the shock.

[9] For details on this test see Appendix A.

[10] In particular, we force the change in the monetary policy or cost of funds rate to zero at the end of each estimation period and allow the retail bank rate to converge to an equilibrium, before the impact of a shock in the monetary policy or cost of funds rate is simulated. The multipliers are then calculated based on the resulting retail bank rate's adjustment. Note that some asymmetric pass-through models may not converge to an equilibrium. In such cases, we would only obtain state dependent multipliers. To avoid this, we decided to select the next-best converging asymmetric model based on the AIC criterion or – in extreme problem cases – the symmetric or standard pass-through model. Such problems were, however, rare. Details regarding the finally selected next-best models are given in Tables B6 and C6 of the appendix.

4. The Results of the Pass-Through Analysis

The Eurozone banking system has undergone dramatic structural changes in the past decade. Consequently, the first step in analysing the role of the banking system in the monetary transmission process is to identify structural breaks in the long-run relation between market and retail rates. Some authors highlight the importance of the introduction of the single currency by exogenously imposing and testing for a structural break in January 1999. It is however not obvious that the break point should coincide with the introduction of the single currency. Rather, after the 1992/93 ERM crises and the realignment of exchange rates in particular then so-called non-core countries experienced a marked change in the long-term relationship between market rates and retail rates. We therefore prefer to determine the unknown timing of the break endogenously for all rates and countries. Table 1 reports the results of the rolling Chow tests. In fact, it appears that on average breaks occurred already at the end of 1996. As the average breakpoint is October 1996 for the monetary policy approach and December 1996 for the cost of funds approach[11], this result appears to be relatively insensitive to the choice of the market rate selection. Nonetheless, different banking market segments in different countries show different breakpoints. It would therefore be too simplistic to exogenously impose a breakpoint and could thus result in misleading conclusions about the role of the single currency. In particular for Spain and Portugal but also for Italy breakpoints are as early as 1995 and 1996, possibly showing the impact of the run-up to EMU with reduced money market rate volatility and inflation convergence. Another earlier starter is Ireland where some breakpoints are already found in December 1993.

4.1. The Average Pass-Through in the Eurozone

In the next step, we estimated for all national interest rates the optimal pass-through model according to the methodology described in the previous section for both, the monetary policy and cost of funds approach, as well as for both break-free periods. This allows us to compare today's speed, size, and heterogeneity of the pass-through to the period prior to the statistically identified structural changes that have occurred in the Eurozone. Loosely speaking, our before-after analysis therefore compares the present

[11] These averages are calculated by ignoring insignificant breakpoints.

Table 1: Structural Breaks in the Long-Run Relationship

		monetary policy approach			cost of funds approach		
country	bankrate	supF	breakpoint		supF	breakpoint	
Austria	2	196.25	July-97		14.41	February-99	
	3	253.10	September-98		188.86	August-97	
	4	196.26	August-97		236.56	August-97	
	7	221.39	November-99		200.23	November-99	
	8	199.14	March-97		220.36	March-97	
Belgium	2	89.26	August-95		60.78	May-98	
	3	319.18	December-95		182.81	December-95	
	4.1	48.19	April-95		54.69	March-95	
	4.2	21.25	January-94		24.45	December-93	
	5	65.56	October-95		38.12	August-96	
	8	23.91	December-93		26.79	December-93	
	9	226.14	December-95		221.73	December-95	
Finland	2	105.93	September-96		99.64	March-94	
	3	101.80	September-96		86.25	September-97	
	5	56.00	January-96		47.41	April-98	
	7	49.11	February-97		46.62	February-98	
	8	170.27	August-97		193.92	November-99	
France	4	132.42	June-97		150.03	June-97	
	5	222.29	March-97		169.78	April-97	
	8	11.38	January-00	insignificant	8.24	January-00	insignificant
	9	112.11	May-98		104.56	May-98	
Germany	2	56.62	October-96		36.16	June-95	
	3	442.05	February-97		480.06	March-97	
	4	71.72	July-00		81.82	February-03	
	5	11.22	January-00	insignificant	9.99	January-00	insignificant
	8.1	40.30	September-99		22.97	September-99	
	8.2	22.35	September-99		9.06	January-00	insignificant
	9.1	935.80	September-99		732.66	September-99	
	9.2	36.67	October-95		33.47	November-95	
Ireland	1	128.80	December-98		145.26	December-98	
	2	61.51	August-99		49.53	March-94	
	4	33.00	November-95		35.15	December-93	
	5	40.68	December-93		70.41	December-93	
	6	45.07	January-00		4.66	January-00	insignificant
	9.1	149.76	December-93		152.03	December-93	
	9.2	129.03	December-93		205.33	December-93	
Italy	2	69.42	December-97		131.97	May-98	
	4.1	31.26	February-95		30.09	July-99	
	4.2	39.91	February-95		21.20	June-94	
	5	48.08	November-97		43.01	December-96	
	7	70.21	February-95		44.16	February-95	
	8	110.97	September-97		102.79	January-97	
Netherlands	2	61.82	September-96		41.20	June-95	
	4	30.02	August-97		66.16	August-98	
	7	466.47	December-98		466.47	December-98	
	8.1	64.49	November-95		51.29	November-95	
	8.2	65.67	December-95		56.09	December-95	
Portugal	2	98.82	September-97		58.86	December-95	
	3	178.60	April-95		73.79	April-98	
	4.1	100.14	July-94		235.71	October-99	
	4.2	173.12	February-95		74.02	November-99	
	8.1	43.22	January-96		13.83	November-00	
	8.2	47.58	February-96		32.09	July-96	
Spain	2	69.89	September-96		69.89	September-96	
	3	111.60	November-96		103.25	March-94	
	4	9.52	September-96		12.18	November-96	
	5	59.41	March-96		60.49	September-94	
	7	48.46	February-95		99.52	January-95	
	8	80.42	March-96		113.56	December-93	

pass-through with that of the mid-1990s. The details of this analysis are available Appendix B for the monetary policy approach and Appendix C for the cost of funds approach. In general, the pass-through of monetary policy actions has increased in size and speed. An improved pass-through can on average, however, only be found for lending rates but not for deposit rates. Regarding the cost of funds approach the result are less clear cut and where improvements occur the extent of the change is less. Broadly speaking, monetary policy actions that target overnight money market rates have increased in relevance as compared to the role of cost of funds. In order to investigate this overall observation in more detail we look now at individual retail interest rates. Figure 1 summarizes our analysis as an average of the pass-through in ten Eurozone countries for the most common retail rates.

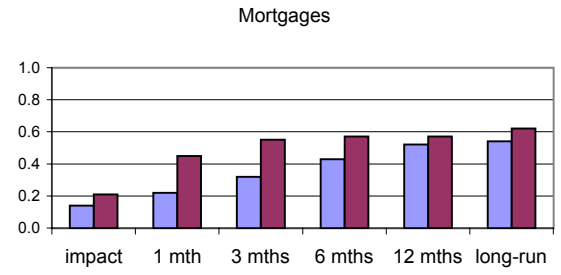
Starting with the mortgage market, we find an increase in size and speed of the pass-through process when using the monetary policy approach. Two points should be noted: First, in the long run the pass-through process is still far from complete as long-run multipliers of about 0.6 reveal. It is noteworthy that this result does not depend on the choice of the market rate proxy and is thus standing in contrast to the studies by de Bondt (2002) and de Bondt, Mojon and Valla (2002). Given the partly different approaches and timing of the structural breaks, reconciling these differences remains an important task for future research. Second, it is striking that the efficiency of the pass-through process has increased for the monetary policy proxy while the role of cost of funds has diminished in the short-run adjustment up to 6 months. For example, the 3-months multiplier is today on average 9 basis points lower than in the pre-break period. Possibly the increasing use of flexible rate mortgages is reflected in these results. Consequently and as argued by Sellon (2002) in the US context, also in the Eurozone monetary policy targeted at short-term market rates has increased its impact on the cost of mortgages.

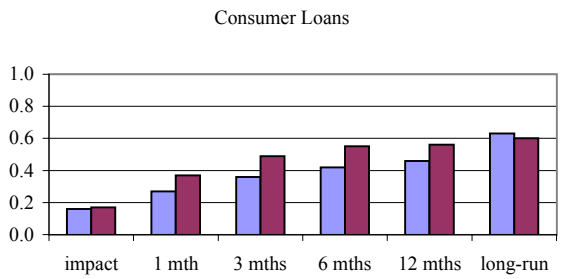
In consumer lending, though some improvements have been taking place, the pass-through remains among the least perfect but the speed of adjustment has improved in post-break period. This, however, is not true when looking at the cost of funds approach, which shows a general but slight decrease in speed of adjustment in the post break period.

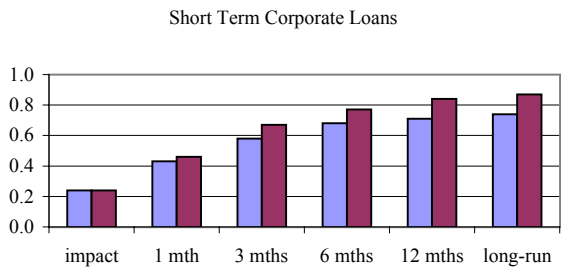
For corporate loans in general the picture is mixed. Regarding short-term corporate loans the already fast and almost complete monetary policy pass-through

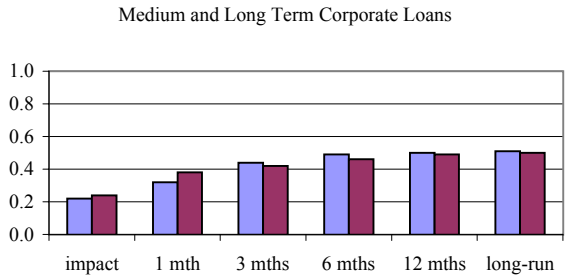
Figure 1: The Average Pass-Through in the Eurozone

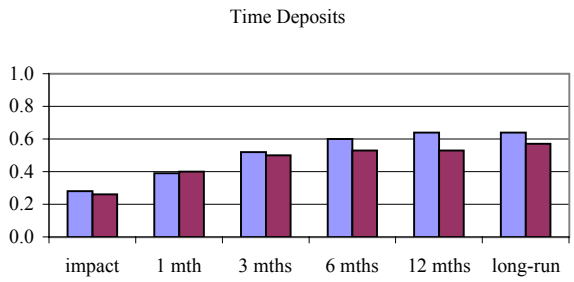
Panel A: Monetary Policy Approach



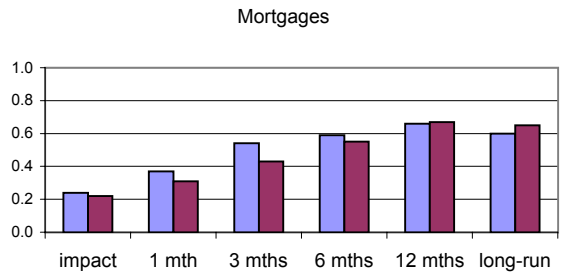


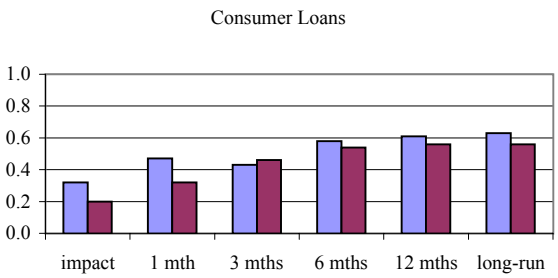


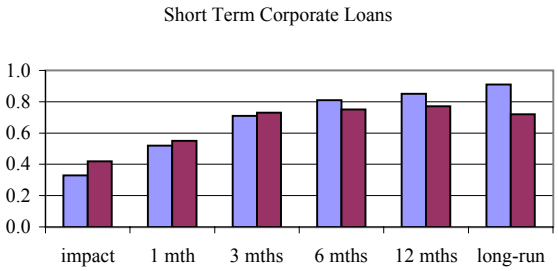


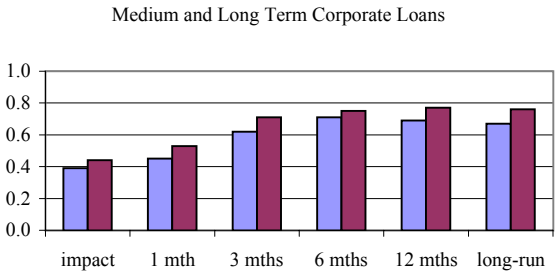


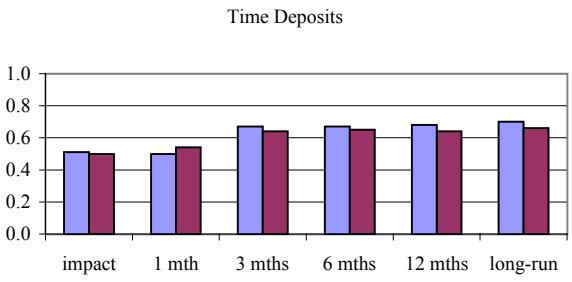
Panel B: Cost of Funds Approach











Note: The bars represent the average multipliers for a 1% increase in the independent interest rate where light blue bars refer to the pre-break period and dark red bars to the post-break period.

process has improved over time while the cost of funds pass-through mechanism has been weakening in the longer term. The opposite picture emerges for longer-term corporate loans. Given the nature of these loans it is clear that a market rate with a matched maturity is a better explanatory variable. In fact, using the cost of funds approach we find improvements in the pass-through for medium and long-term loans. Consequently, monetary policy targeted at short-term interest rates has only an improved influence on the cost of short-term rather than long-term lending to enterprises. If for example the central bank wants to influence the cost of investment borrowing of small and medium size enterprises (SME) it appears that she should particularly consider her policy's impact on longer-term market rates. Finally, the pass-through regarding time deposits remains incomplete. However, after typically 3 months the long-term multiplier of about 0.5 to 0.6 is reached.

In sum, monetary policy has increased its impact on all retail lending rates except longer-term corporate loans while cost of funds influences show similar improvements only for medium and long-term corporate loans, implying that the cost of funds as a determinant of longer-term borrowing cost for SME have increased in relevance. With the possible exception of short-term corporate loans the long run pass-through is imperfect, eventually pointing to credit rationing phenomena.

4.2. Asymmetries in the Eurozone Pass-Through

Pass-through mechanisms are best described by asymmetric models for the majority of national retail interest rates. We select these models in with 51% of all cases for the cost of funds pass-through and 46% of all cases for the monetary policy pass-through. In particular, in the post-break period the share of cases where the asymmetric model had to be selected increased from 42% to 60% and from 29% to 62%, respectively. This does not only strengthen our case in favour of utilizing all proposed asymmetric models to obtain the optimal pass-through model but will also have an impact on the interim multipliers[12] which are now dependent on the direction and size of the market interest rate shock. It should be noted that the asymmetries in direction and responses to the size of the interest rate shocks as they are reported in Tables 2 and 3 are qualitatively

[12] Recall that the long-run multipliers are either determined by the cointegration regression or in the case of no cointegration by a standard symmetric pass-through model.

different from the notion of asymmetry used in the TAR modelling. Specifically, in these models asymmetry is defined as a state-dependent error correction process when interest rates deviate from their long-run equilibrium relationship. Depending on the type of interest shock, this may or may not have a quantitatively important impact on the interim multiplier.[13]

In Tables 2 and 3, asymmetries regarding the direction of the shocks are illustrated by dividing the multipliers for the positive 1% shock by the multiplier for the negative 1% shock. Deviations from 1 indicate asymmetries. For example a ratio of 1.1 for the 3-months multiplier implies that after 3 months the impact of a positive shock on retail rates is 10% higher than that of a negative shock. Thus, at a given time retail rates adjust faster to a positive than to a negative shock of the same size. It should, however, be recalled that these data are averages and as such primarily reported for illustrative reasons, as they could easily be misinterpreted. For example, with some countries being faster in upward adjustments and others in downward adjustments, the average would still be 1. In such cases, only the high standard deviation can reveal the asymmetric pattern, which will therefore also be reported.

For example, while on average the adjustment of all lending rates appears to have become slightly more asymmetric in the post-break period, this result is primarily driven by developments in the mortgage and short-term corporate loan markets. The reaction of short-term corporate loan rate shows the interesting result that the earlier near symmetry has been replaced by a relatively faster reaction to positive shocks, independent of whether these shocks are measured by the monetary policy or cost of funds proxy. Given that in this area the pass-through was found to be most efficient, one interpretation could be that short-term lending is hardly characterized by credit rationing. For mortgages, the reaction to monetary policy rate shocks appears on average almost symmetric, but looking at individual country results reveals a large number of cases with a relatively faster downward adjustment. Interestingly, the opposite is found when using the cost of funds proxy where we find four countries for which upward adjustment is relatively faster. In sum, it appears that there is no common form of asymmetry – rather,

[13] Based on the fact that most of our interim multipliers are smaller than 1, we can indeed interpret a positive interest rate shock with a negative ECT and thus a below-equilibrium state. Thus, the two types of asymmetry are somewhat comparable.

Table 2: Asymmetries in the Pass-Through Process for the Monetary Policy Approach

			multipliers for a +1% change in the monetary policy rate						asymmetries in multipliers: +1% versus -1% shock				+1% versus +0.25% shock			
retail rates	period	statistic	impact	1 mth	3 mths	6 mths	12 mths	long-run	1 mth	3 mths	6 mths	12 mths	1 mth	3 mths	6 mths	12 mths
all	pre	average	0.20	0.31	0.42	0.49	0.53	0.56	1.00	0.98	0.98	0.98	1.00	1.00	1.00	0.99
		std dev	0.17	0.23	0.29	0.31	0.31	0.32	0.00	0.10	0.08	0.06	0.00	0.08	0.07	0.06
	post	average	0.20	0.37	0.48	0.53	0.54	0.57	1.00	1.01	0.99	0.99	1.00	1.00	0.99	0.99
		std dev	0.17	0.28	0.31	0.33	0.36	0.38	0.00	0.13	0.11	0.08	0.00	0.07	0.07	0.06
all lending	pre	average	0.20	0.33	0.46	0.54	0.58	0.62	1.00	0.98	0.99	0.99	1.00	1.00	1.01	1.00
		std dev	0.15	0.23	0.31	0.33	0.34	0.35	0.00	0.10	0.07	0.03	0.00	0.06	0.03	0.01
	post	average	0.22	0.43	0.56	0.62	0.65	0.68	1.00	1.02	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.15	0.26	0.30	0.31	0.34	0.37	0.00	0.16	0.13	0.07	0.00	0.06	0.05	0.01
all deposit	pre	average	0.20	0.28	0.38	0.43	0.46	0.47	1.00	0.97	0.97	0.97	1.00	1.00	0.99	0.99
		std dev	0.20	0.24	0.25	0.26	0.27	0.26	0.00	0.10	0.09	0.09	0.00	0.09	0.10	0.09
	post	average	0.17	0.27	0.35	0.38	0.38	0.40	1.00	0.98	0.97	0.97	1.00	0.99	0.99	0.99
		std dev	0.20	0.27	0.30	0.31	0.32	0.34	0.00	0.06	0.08	0.09	0.00	0.08	0.09	0.09
2	pre	average	0.14	0.22	0.32	0.43	0.52	0.54	1.00	1.02	1.01	1.00	1.00	1.02	1.01	1.00
		std dev	0.12	0.19	0.26	0.32	0.39	0.34	0.00	0.05	0.04	0.01	0.00	0.05	0.04	0.01
	post	average	0.21	0.45	0.55	0.57	0.57	0.62	1.00	0.97	0.95	0.96	1.00	0.99	0.98	1.00
		std dev	0.18	0.28	0.29	0.29	0.29	0.32	0.00	0.10	0.10	0.08	0.00	0.03	0.04	0.01
3	pre	average	0.16	0.27	0.36	0.42	0.46	0.63	1.00	0.98	0.98	0.98	1.00	1.00	1.00	1.00
		std dev	0.13	0.24	0.30	0.34	0.35	0.51	0.00	0.05	0.05	0.05	0.00	0.00	0.00	0.00
	post	average	0.17	0.37	0.49	0.55	0.56	0.60	1.00	1.03	1.01	1.00	1.00	1.01	1.01	1.00
		std dev	0.12	0.33	0.43	0.51	0.54	0.53	0.00	0.05	0.02	0.00	0.00	0.03	0.02	0.00
4	pre	average	0.24	0.43	0.58	0.68	0.71	0.74	1.00	0.98	0.99	1.00	1.00	0.98	1.00	1.00
		std dev	0.16	0.22	0.31	0.31	0.30	0.29	0.00	0.08	0.02	0.00	0.00	0.09	0.02	0.00
	post	average	0.24	0.46	0.67	0.77	0.84	0.87	1.00	1.08	1.05	1.03	1.00	0.99	1.00	1.00
		std dev	0.15	0.22	0.23	0.21	0.27	0.36	0.00	0.24	0.19	0.09	0.00	0.06	0.07	0.02
5	pre	average	0.22	0.32	0.44	0.49	0.50	0.51	1.00	0.94	0.96	0.97	1.00	1.01	1.01	0.99
		std dev	0.19	0.25	0.36	0.36	0.36	0.36	0.00	0.19	0.15	0.05	0.00	0.03	0.05	0.05
	post	average	0.24	0.38	0.42	0.46	0.49	0.50	1.00	0.96	0.97	0.99	1.00	0.97	0.98	1.00
		std dev	0.14	0.28	0.24	0.22	0.22	0.23	0.00	0.06	0.03	0.02	0.00	0.06	0.03	0.01
7	pre	average	0.06	0.10	0.15	0.19	0.21	0.23	1.00	0.91	0.92	0.96	1.00	1.05	1.03	1.02
		std dev	0.08	0.13	0.18	0.21	0.22	0.22	0.00	0.21	0.14	0.07	0.00	0.11	0.07	0.05
	post	average	0.04	0.09	0.16	0.21	0.23	0.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.08	0.14	0.22	0.29	0.32	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	pre	average	0.28	0.39	0.52	0.60	0.64	0.64	1.00	0.99	0.97	0.96	1.00	0.97	0.96	0.96
		std dev	0.23	0.25	0.21	0.16	0.15	0.16	0.00	0.05	0.09	0.12	0.00	0.10	0.12	0.12
	post	average	0.26	0.40	0.50	0.53	0.53	0.57	1.00	0.96	0.94	0.94	1.00	0.98	0.97	0.97
		std dev	0.22	0.28	0.27	0.27	0.28	0.31	0.00	0.08	0.10	0.12	0.00	0.11	0.13	0.13
9	pre	average	0.14	0.20	0.27	0.30	0.31	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.10	0.16	0.22	0.25	0.25	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	post	average	0.11	0.18	0.22	0.21	0.21	0.20	1.00	1.01	1.01	1.01	1.00	1.01	1.01	1.01
		std dev	0.13	0.24	0.28	0.28	0.27	0.25	0.00	0.03	0.03	0.02	0.00	0.03	0.03	0.02

Note: Asymmetries in multipliers are defined as the multiplier for a +1% change divided by the multiplier for the -1% or +0.25% change respectively.

Table 3: Asymmetries in the Pass-Through Process for the Cost of Funds Approach

			multipliers for a +1% change in the cost of funds rate						asymmetries in multipliers							
									+1% versus -1% shock				+1% versus +0.25% shock			
retail rates	period	statistic	impact	1 mth	3 mths	6 mths	12 mths	long-run	1 mth	3 mths	6 mths	12 mths	1 mth	3 mths	6 mths	12 mths
all	pre	average	0.33	0.43	0.55	0.61	0.63	0.65	1.00	1.00	0.98	1.00	1.00	1.01	1.01	1.01
		std dev	0.29	0.25	0.31	0.32	0.32	0.34	0.00	0.07	0.26	0.20	0.00	0.06	0.04	0.05
	post	average	0.33	0.42	0.53	0.58	0.60	0.60	1.00	1.03	1.03	1.03	1.00	1.04	1.05	1.06
		std dev	0.31	0.27	0.30	0.30	0.34	0.34	0.00	0.12	0.17	0.20	0.00	0.17	0.30	0.37
all lending	pre	average	0.31	0.46	0.60	0.69	0.72	0.73	1.00	1.00	1.02	1.03	1.00	1.00	1.01	1.01
		std dev	0.19	0.25	0.31	0.31	0.31	0.33	0.00	0.09	0.19	0.24	0.00	0.03	0.03	0.05
	post	average	0.33	0.45	0.60	0.66	0.71	0.69	1.00	1.05	1.06	1.06	1.00	1.04	1.08	1.10
		std dev	0.22	0.22	0.25	0.26	0.31	0.31	0.00	0.13	0.21	0.26	0.00	0.21	0.39	0.47
all deposit	pre	average	0.35	0.39	0.49	0.50	0.51	0.54	1.00	1.00	0.93	0.95	1.00	1.02	1.01	1.00
		std dev	0.39	0.26	0.31	0.30	0.29	0.31	0.00	0.04	0.33	0.13	0.00	0.08	0.05	0.04
	post	average	0.34	0.39	0.44	0.46	0.45	0.47	1.00	1.00	0.99	0.98	1.00	1.03	1.01	1.00
		std dev	0.40	0.33	0.34	0.33	0.32	0.35	0.00	0.08	0.07	0.06	0.00	0.10	0.07	0.05
2	pre	average	0.24	0.37	0.54	0.59	0.66	0.60	1.00	1.04	1.10	1.13	1.00	0.98	1.02	1.03
		std dev	0.21	0.31	0.41	0.37	0.39	0.37	0.00	0.15	0.35	0.45	0.00	0.06	0.05	0.09
	post	average	0.22	0.31	0.43	0.55	0.67	0.65	1.00	1.06	1.12	1.15	1.00	1.00	1.03	1.04
		std dev	0.20	0.23	0.23	0.29	0.44	0.44	0.00	0.15	0.34	0.44	0.00	0.08	0.06	0.09
3	pre	average	0.32	0.47	0.43	0.58	0.61	0.63	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.21	0.26	0.26	0.31	0.36	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	post	average	0.20	0.32	0.46	0.54	0.56	0.56	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.09	0.15	0.22	0.30	0.34	0.35	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
4	pre	average	0.33	0.52	0.71	0.81	0.85	0.91	1.00	0.98	0.97	0.97	1.00	1.01	1.00	1.01
		std dev	0.17	0.23	0.28	0.29	0.28	0.28	0.00	0.05	0.07	0.06	0.00	0.01	0.01	0.01
	post	average	0.42	0.55	0.73	0.75	0.77	0.72	1.00	0.11	1.08	1.07	1.00	1.11	1.20	1.24
		std dev	0.26	0.21	0.21	0.21	0.24	0.20	0.00	0.17	0.20	0.21	0.00	0.34	0.65	0.80
5	pre	average	0.39	0.45	0.62	0.71	0.69	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.22	0.18	0.20	0.23	0.20	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	post	average	0.44	0.53	0.71	0.75	0.77	0.76	1.00	1.06	1.01	0.99	1.00	1.02	1.02	1.01
		std dev	0.19	0.21	0.20	0.22	0.24	0.28	0.00	0.10	0.03	0.03	0.00	0.05	0.06	0.03
7	pre	average	0.10	0.17	0.22	0.25	0.25	0.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.09	0.18	0.24	0.25	0.25	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	post	average	0.10	0.18	0.23	0.27	0.28	0.28	1.00	0.97	0.98	0.99	1.00	1.01	1.00	1.00
		std dev	0.10	0.16	0.20	0.25	0.28	0.28	0.00	0.07	0.07	0.02	0.00	0.03	0.02	0.10
8	pre	average	0.51	0.50	0.67	0.67	0.68	0.70	1.00	1.01	1.00	0.98	1.00	1.04	1.01	1.01
		std dev	0.44	0.20	0.27	0.22	0.20	0.21	0.00	0.05	0.04	0.05	0.00	0.11	0.06	0.06
	post	average	0.50	0.54	0.64	0.65	0.64	0.66	1.00	1.01	1.00	0.97	1.00	1.05	1.03	1.00
		std dev	0.47	0.32	0.31	0.27	0.25	0.27	0.00	0.11	0.09	0.05	0.00	0.15	0.10	0.07
9	pre	average	0.17	0.25	0.32	0.33	0.35	0.37	1.00	0.99	0.73	0.90	1.00	1.00	1.00	1.00
		std dev	0.16	0.21	0.21	0.28	0.29	0.26	0.00	0.05	0.66	0.25	0.00	0.01	0.00	0.00
	post	average	0.12	0.15	0.17	0.17	0.17	0.17	1.00	1.01	1.00	1.00	1.00	1.00	1.00	1.00
		std dev	0.13	0.17	0.19	0.20	0.20	0.20	0.00	0.02	0.01	0.01	0.00	0.01	0.00	0.00

Note: Asymmetries in multipliers are defined as the multiplier for a +1% change divided by the multiplier for the -1% or +0.25% change respectively.

asymmetries may depend on specific patterns and circumstances, which require further investigation.

A second type of asymmetry reflects the impact of large versus small shocks onto retail interest rates as measured by the multipliers. The last columns of Tables 2 and 3 give the relative multiplier for a large +1% versus a small +0.25% interest rate shock. Thus a coefficient larger than 1 implies that the rate under investigation reacts more strongly to large interest rate shocks. While the overall picture is one of symmetry, we directly highlight the impact on mortgage and short-term corporate loan rates. Here, the size of the monetary policy interest rate shocks does not matter unless it alters the cost of funds where large increases tend to be passed on faster than small ones. This result could well be in line with the menu cost argument.

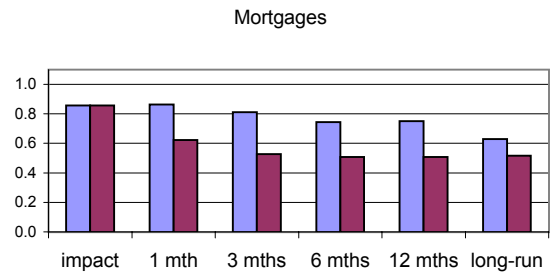
4.3. Pass-Through and European Banking Market Integration

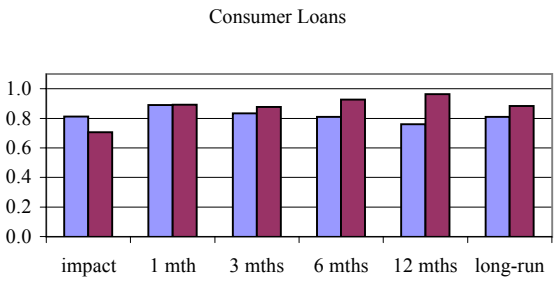
Pass-through studies are increasingly regarded as important for assessing the degree of financial integration in the Eurozone banking market. Although retail interest rates have been somewhat converging, this is not necessarily an indication of an integrated market as argued for example by the European Commission's Economic and Financial Committee in a special report (2002) and in a recent ECB study by Cabral, Dierick, and Vesala (2002). Kleimeier and Sander (2002, 2003) have shown that Eurozone retail banking markets are still not integrated when cointegration is considered as an integration indicator. In the context of the present study, we re-investigated the Kleimeier-Sander proposition on integration of retail banking markets by calculating the coefficient of variation for multiplier across countries for major retail interest rates. Figure 2 presents a visualisation of this analysis, which generally is supporting the "No – No – Maybe" proposition with respect to the integration of mortgage, consumer lending, and short-term corporate lending markets.

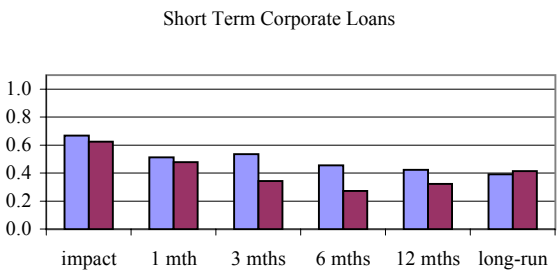
Mortgage and consumer lending rates show a highly heterogeneous response to monetary policy and cost of funds rate. For consumer lending rates, the response to monetary policy rates is, however, most heterogeneous and shows even signs of increasing heterogeneity. In line with the increasing signs for a more integrated short-term corporate lending market, the pass-through is not only the fastest - as discussed in the previous sections - but also the by far most homogeneous one. Moreover, this

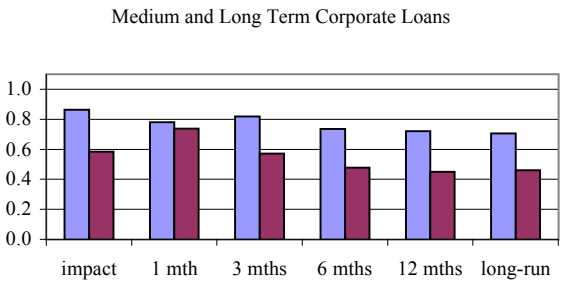
Figure 2: Cross Country Variations in the Pass-Through Process

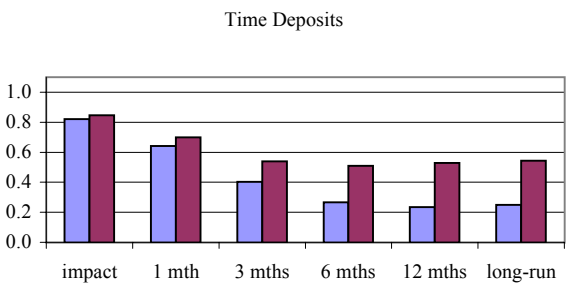
Panel A: Monetary Policy Approach



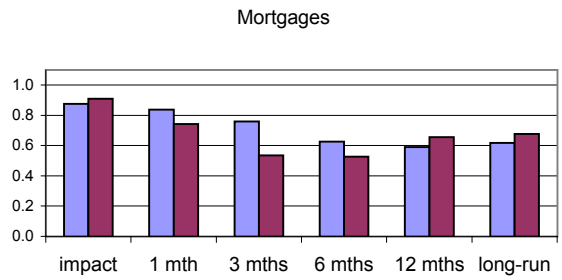


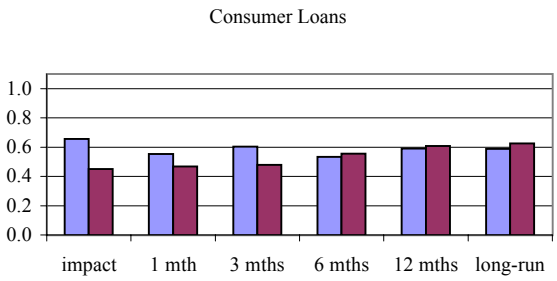


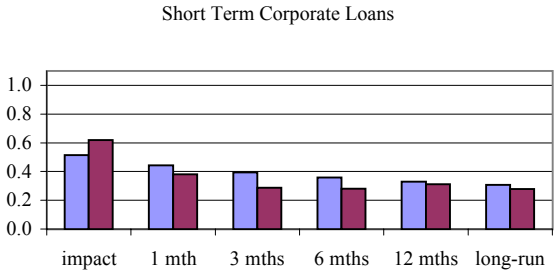


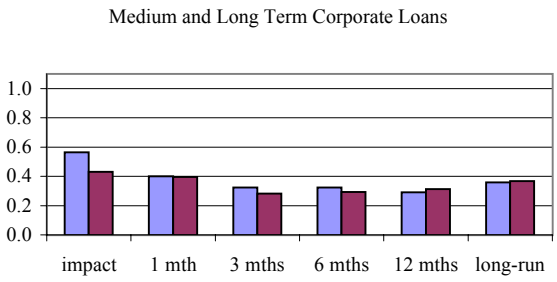


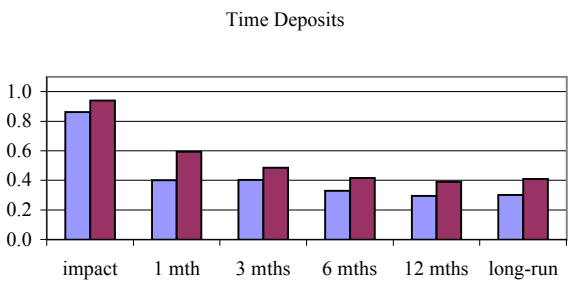
Panel B: Cost of Funds Approach











Note: The bars represent coefficients of variation for multipliers based on a +1% change in the proxy rate. Light blue bars refer to the pre-break period and dark red bars to the post-break period.

homogeneity is increasing even further in the post-break period. Although improvements in the latter sense are also visible for longer-term corporate loans, the heterogeneity with respect to monetary policy impulses is still higher than for short-term loans. However a more homogeneous picture is conveyed when using the cost of funds approach.

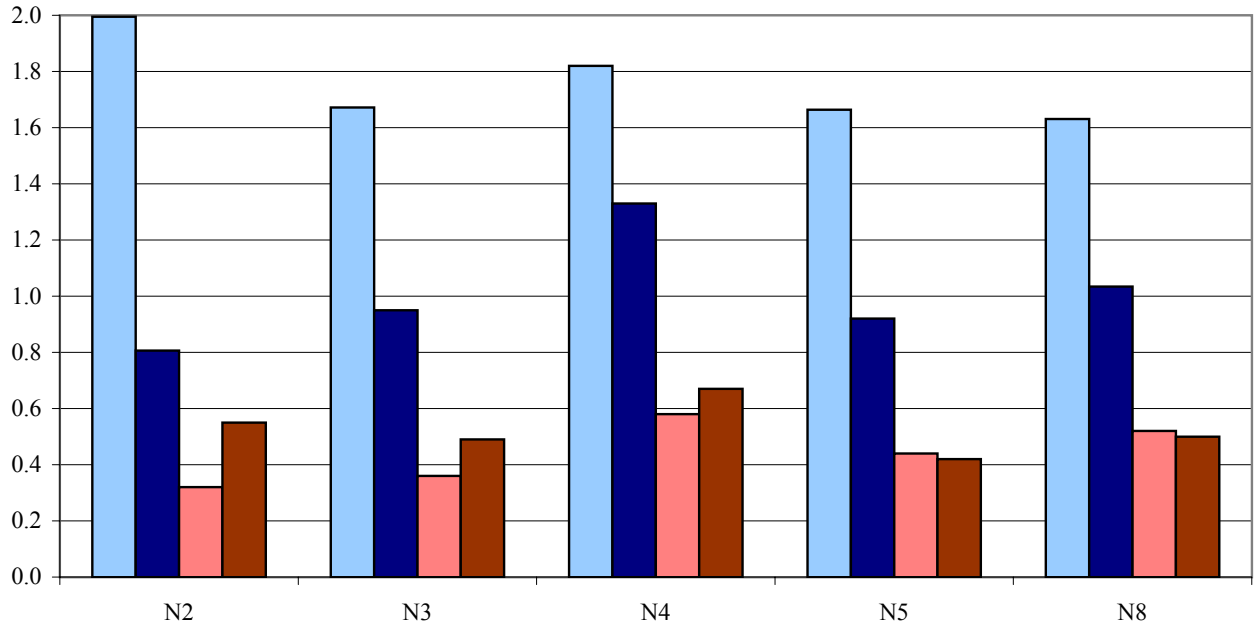
5. Analysis of the Pass-Through Determinants

According to the pioneering paper by Cottarelli and Kourelis (1994) five groups of determinants of lending rate stickiness can be identified: competition within the banking system, extent of money market development, openness of the economy, banking system ownership, and degree of development of the financial system. Additionally control variables including macro control variables such as inflation rates are also incorporated. Following up on this paper, Mojon (2000) advocates for a European context to focus on four determinants: (1) the monetary policy regime, the competitive environment of banks, as measured by (2) competition in banking and (3) competition from direct finance, and (4) rigidity of bank costs.

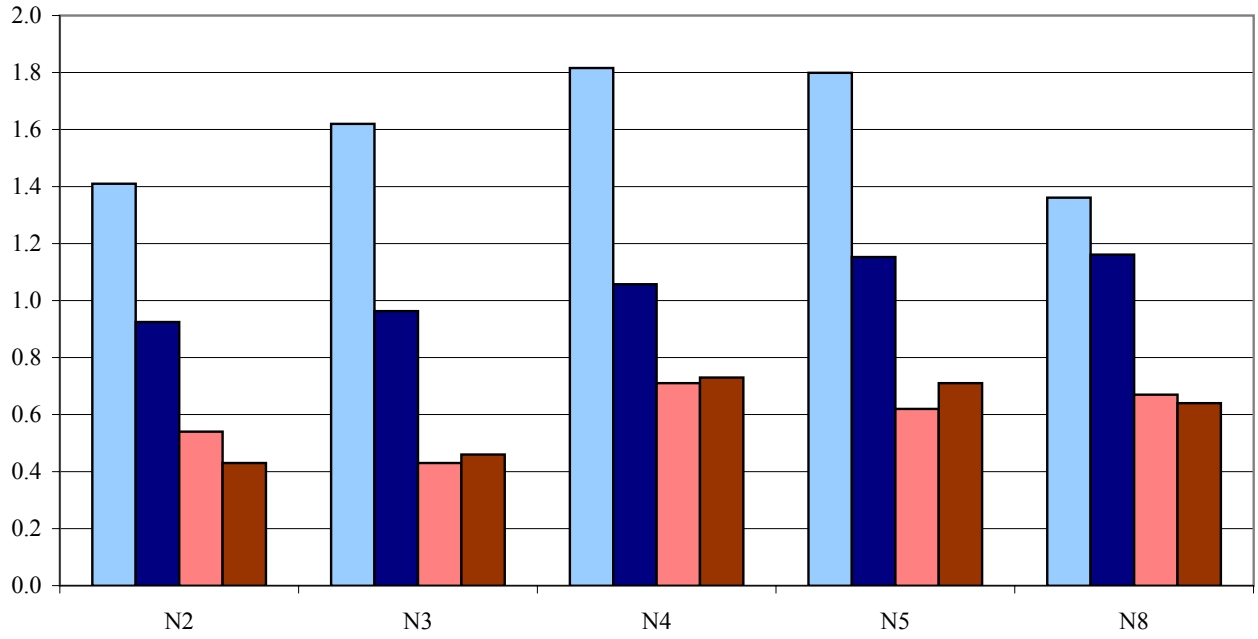
For our study, we therefore include both, macro-economic determinants and control variables, and variables describing the banking market. First, regarding macro-economic determinants, it has long been advocated that money market rate volatility is a key determinant for bank interest rate margins (Saunders and Schumacher, 2000) and the pass-through (Cottarelli and Kourelis 1994, Mojon 2000, de Bondt, Mojon and Valla 2002). As a first impression, Figure 3 compares the average pre- and post-break money market rate volatility and 3-months multiplier for all countries and selected retail interest rates. Whereas there appears to be a tendency of lower volatility to coincide with a faster pass-through with respect to the monetary policy approach, the evidence for the cost of funds approach is not clear as a number of multipliers have decreased in size over time. In particular for the monetary policy approach, this variable is thus considered to be important in "producing" convergence by means of a single monetary policy. Further macro-economic control variables used are structural inflation, economic growth, and financial development. Financial development is typically measured by a ratio of financial assets or liabilities to GDP with the view that the higher the ratio, the higher the degree of financial system development, and thus leading to a faster pass-through. The two, most common measures of financial development are broad money to GDP, which

Figure 3: The Impact of Money Market Volatility On Interest-Rate Passthrough

Panel A: Monetary Policy Approach



Panel B: Cost of Funds Approach



For each series the first and second (blue) bar represent average standard deviations of the money market rate whereas the third and fourth (red) bars indicate average 3-months multipliers. Note that the lighter first and third bar refer to the pre-break period whereas the darker second and fourth bar represent the post-break period.

is supposed to reflect financial deepening on the asset side, and private credit to GDP, which is the most comprehensive indicator of financial activities of intermediaries. The latter variable has also often be used in studies investigating the financial development-economic growth link (see e.g. Levine et. al. 2000).

Secondly, we have collected a large number of variables describing the financial structure of the Eurozone. A first subset of indicators is addressing the market structure and includes size and concentration variables for total bank assets and specifically for loans and deposits. A second subset provides data on bank profitability and bank health such as return on assets, net interest margin, loan provisions and operating cost. The third subset collects data that provides information about the availability of alternative finance, and a fourth subset focuses on indicators of foreign bank activities.

In preliminary investigations it has become clear that a variety of these variables are able to explain parts of the pass-through mechanism. This is, however, only true for the monetary policy approach on which we will therefore focus in the following[14]. Nevertheless also for this approach – as typical for cross-section studies - the overall fit of the regression is often lower than the correlation between some explanatory variables, thus leading to multicollinearity problems. Instead of using too highly correlated individual variables, we have therefore opted to develop a composite indicator, which captures the most important determinants. Based a number of exploratory regressions and following the theoretical and empirical work by Cecchetti (1999) and Kashyap and Stein (1997), we compose the indicator out of 4 dimensions: Internal competition, alternative finance, bank health, and importance of small banks. As Kashyap and Stein (1997) argue, small unhealthy banks are more heavily effected by monetary policy shocks. For example, after a monetary tightening large and healthy banks could react by turning to non-deposit financing in the capital market while the loan supply curve of small and less credit-worthy banks will shift leftwards. Whether this will lead to a fast increase in lending rates depends on both, the elasticity of the loan demand curve and the degree of lending rate stickiness or credit rationing in the credit market. For any given monetary shock, the less elastic the demand for loans, i.e. the less alternative finance is available,

[14] Two further arguments favour this focus on the monetary policy approach over the cost of funds approach: First, as argued earlier, the retail interest rates across Europe are very heterogeneous, i.e. with respect to the maturity structure of the loans or deposits. Thus selecting a common cost of funds rates

the larger will be the increase in lending rates. This contradicts the view that more alternative finance – such as high stock market capitalization - will lead to a more competitive banking market and thus faster pass-through. In fact, it appears that our indicators for the availability of alternative finance are negatively correlated with the pass-through multipliers thus supporting the loan demand-side view. Against this background, we hypothesise that monetary policy is most effective in an environment with high competition, small and unhealthy banks, and limited availability of alternative finance (at least for the categories of loans investigated here). To measure this effect, we define our composite index "effectiveness" as follows:

effectiveness = (internal competition + alternative finance + bank size and health) / 3

with

internal competition = ($CR5_{assets}$ + $Herfindahl_{loans}$) / 2

alternative finance = (publicly traded firms + stock market capitalization + intermediated liabilities) / 3

bank size and health = (loan provisions + operating cost + number of banks) / 3

For building the index each included variable was transformed into an index number ranging from 0 to 1 with 1 indicating the highest expected impact on the pass-through multipliers. To properly account for our hypothesis developed above, the index has to either proportionally or inversely reflect the size of the variable. For example, a high concentration ratio results in a low index number but a low market capitalization results in a high index number.

Furthermore, for external competition we have constructed an index, which is composed out of the number of foreign bank branches, and subsidiaries plus the share of non-resident intermediated liabilities (loans).

For investigating the Cecchetti hypothesis that the legal system is an important determinant of monetary policy effectiveness which may obstruct the convergence process in the Eurozone, we also use the legal family dummies provided by Cecchetti (1999), in particular a dummy for the German legal system (used for Austria and

common to countries will be rather arbitrary. Second, as the pass-through analysis has shown, the monetary policy rate appears to be more important for the transmission of monetary policy than the cost of funds rate.

Germany), for the Scandinavian legal system (used for Finland), and for the English legal system (used for Ireland). Finally, to investigate differential effect across lending markets, we also include dummies for individual lending rates, in paricular N2 (mortgage rates), N3 (rates on consumer loan) and N5 (rates on long-term loans to enterprises), thus using N4 (rates on short and medium term loans to enterprises) as a benchmark.

Table 4 summarizes the results of our analysis of structural determinants of the interest rate pass-through of monetary policy. We report the impact of the independent variables on a series of multipliers for different types of monetary policy shocks on lending rates. Overall, our composite index of effectiveness has the expected positive sign and is highly significant for all multipliers except the impact multiplier. It also appears that the role of our effectiveness index is becoming more important in the first months of the pass-through process. To get an idea about the workings of this index, note that its average value is 0.35 and that it ranges from 0.18 to 0.65. Thus, a gain of 0.10 in the index will typically lead to an increase in the interim multipliers of about 0.20. We tried this indicator in a variety of specifications and the reported result appears to be quite robust. As far as external competition is concerned, the parameter has the wrong sign but is also practically not statistically significant.

With respect to the macro-economic determinants and controls, we can confirm the positive role of reduced money market rate volatility on particularly the speed of the pass-through with this variable being especially relevant in the first six months of the pass-through process. A similar observation can be made for structural inflation: The higher the inflation, the slower the pass-through in the first six months. During this time, economic growth seems of no importance. However, in the longer term, higher growth is positively related to the pass-through. Financial development, when measured by the share of private credit in GDP, plays a positive role for the pass-through process, but on a statistically significant level on in the first few months.

While the overall results are generally supporting the view that nominal, real, and structural convergence could go some way towards a more uniform pass-through process, the inclusion of the legal system dummies confirms the Cecchetti-proposition that “unless legal structures are harmonized across Europe, financial structures will remain diverse, and so will monetary transmission mechanisms.” In particular, the dummy for the German legal system shows a highly significant negative effect on the pass-through for

Table 4: Structural Determinants of the Interest-Rate Pass-Through for Retail Lending Rates

dependent variable / independent variable	impact multiplier	1 month multipliers			3 months multipliers			6 months multipliers			12 months multipliers			long-run multiplier
		+1% shock	-1% shock	+0.25% shock	+1% shock	-1% shock	+0.25% shock	+1% shock	-1% shock	+0.25% shock	+1% shock	-1% shock	+0.25% shock	
Macroeconomic determinants and controls														
money market rate volatility	-0.082	-0.156	-0.156	-0.156	-0.180	-0.165	-0.180	-0.137	-0.134	-0.137	-0.084	-0.099	-0.084	-0.057
	-2.355	*-3.000*	*-3.000*	*-3.000*	*-3.030*	*-2.640*	*-3.030*	*-2.156*	*-2.080*	*-2.156*	*-1.205*	*-1.372*	*-1.205*	*-0.802*
structural inflation	-0.050	-0.061	-0.061	-0.061	-0.076	-0.093	-0.076	-0.066	-0.072	-0.066	-0.047	-0.048	-0.047	-0.070
	-2.192	*-1.792*	*-1.792*	*-1.792*	*-1.947*	*-2.272*	*-1.947*	*-1.592*	*-1.696*	*-1.592*	*-1.024*	*-1.024*	*-1.024*	*-1.498*
growth	-0.011	0.007	0.007	0.007	0.043	0.060	0.043	0.094	0.108	0.094	0.139	0.135	0.139	0.176
	-0.400	*0.162*	*0.162*	*0.162*	*0.925*	*1.211*	*0.925*	*1.876*	*2.125*	*1.876*	*2.526*	*2.388*	*2.526*	*3.137*
financial development	0.055	0.571	0.571	0.571	0.528	0.568	0.528	0.387	0.473	0.387	0.331	0.405	0.331	0.517
	0.397	*2.763*	*2.763*	*2.763*	*2.242*	*2.281*	*2.242*	*1.538*	*1.842*	*1.538*	*1.193*	*1.418*	*1.193*	*1.825*
Banking market structure indicators														
composite index of "effectiveness"	0.584	2.089	2.089	2.089	2.370	2.250	2.370	2.175	2.232	2.175	1.948	1.963	1.948	2.502
	1.313	*3.156*	*3.156*	*3.156*	*3.140*	*2.821*	*3.140*	*2.696*	*2.712*	*2.696*	*2.192*	*2.144*	*2.192*	*2.755*
external competition	-0.561	-0.315	-0.315	-0.315	-0.861	-0.997	-0.861	-0.924	-0.916	-0.924	-0.797	-0.841	-0.797	-0.846
	-1.782	*-0.673*	*-0.673*	*-0.673*	*-1.613*	*-1.767*	*-1.613*	*-1.619*	*-1.574*	*-1.619*	*-1.267*	*-1.298*	*-1.267*	*-1.318*
Dummies for legal systems														
German system	-0.334	-0.841	-0.841	-0.841	-1.008	-1.016	-1.008	-0.921	-0.951	-0.921	-0.810	-0.850	-0.810	-0.979
	-2.629	*-4.449*	*-4.449*	*-4.449*	*-4.677*	*-4.460*	*-4.677*	*-3.996*	*-4.045*	*-3.996*	*-3.192*	*-3.252*	*-3.192*	*-3.774*
Scandinavian system	-0.238	-0.207	-0.207	-0.207	-0.365	-0.443	-0.365	-0.451	-0.476	-0.451	-0.419	-0.422	-0.419	-0.210
	-1.955	*-1.141*	*-1.141*	*-1.141*	*-1.762*	*-2.027*	*-1.762*	*-2.042*	*-2.108*	*-2.042*	*-1.719*	*-1.681*	*-1.719*	*-0.844*
English system	0.587	0.536	0.536	0.536	0.662	0.599	0.662	0.338	0.239	0.338	-0.091	-0.045	-0.091	-0.206
	2.115	*1.299*	*1.299*	*1.299*	*1.407*	*1.205*	*1.407*	*0.672*	*0.465*	*0.672*	*-0.164*	*-0.079*	*-0.164*	*-0.364*
Dummies for retail interest rates														
N2 - mortgage rates	-0.073	-0.155	-0.155	-0.155	-0.241	-0.242	-0.241	-0.264	-0.248	-0.264	-0.268	-0.255	-0.268	-0.301
	-1.617	*-2.323*	*-2.323*	*-2.323*	*-3.172*	*-3.009*	*-3.172*	*-3.246*	*-2.987*	*-3.246*	*-2.997*	*-2.759*	*-2.997*	*-3.290*
N3 - consumer lending rates	-0.041	-0.068	-0.068	-0.068	-0.141	-0.162	-0.141	-0.168	-0.166	-0.168	-0.207	-0.192	-0.207	-0.177
	-0.774	*-0.856*	*-0.856*	*-0.856*	*-1.557*	*-1.694*	*-1.557*	*-1.739*	*-1.682*	*-1.739*	*-1.937*	*-1.750*	*-1.937*	*-1.628*
N5 - medium and long-term loans to enterprises	-0.016	-0.122	-0.122	-0.122	-0.199	-0.184	-0.199	-0.215	-0.192	-0.215	-0.223	-0.207	-0.223	-0.265
	-0.305	*-1.601*	*-1.601*	*-1.601*	*-2.276*	*-1.997*	*-2.276*	*-2.304*	*-2.023*	*-2.304*	*-2.173*	*-1.960*	*-2.173*	*-2.523*
constant	0.459	-0.164	-0.164	-0.164	0.123	0.178	0.123	0.214	0.109	0.214	0.125	0.106	0.125	-0.214
	1.391	*-0.334*	*-0.334*	*-0.334*	*0.219*	*0.301*	*0.219*	*0.358*	*0.179*	*0.358*	*0.191*	*0.156*	*0.191*	*-0.318*
adjusted R^2	0.172	0.359	0.359	0.359	0.436	0.417	0.436	0.419	0.422	0.419	0.363	0.347	0.363	0.406

Note: The table reports the results of an OLS regression on a sample of 65 observations. The reported numbers for each variable represent in the top row the estimated coefficients and in the second row, the corresponding t-statistic in italics.

all types of multipliers and shocks. Moreover, some lending rates show a significantly lower pass-through independent of all structural determinants, thus reflecting a certain immunity, particularly of mortgages and long-term corporate loan rates, against structural changes.

Regarding asymmetries, we find them present but not dramatic. For example, for the three months multiplier, the coefficient of the effectiveness index is lower for the negative and for the small shock, suggesting slower pass-through under these circumstances. It is also interesting to note that the German legal dummy is somewhat more negative in the case of interest rate reduction, also indicating a lower pass-through.

6. Conclusions and Outlook

The objective of is study is to contribute to a more uniform analysis of the Eurozone pass-through process. While we believe that our results go some way in unifying the Eurozone pass-through research, it is still necessary to realize that the database is still limited and very heterogeneous, both across countries and within the individual interest rate categories, often comprising fixed term loans of various maturities with flexible rate loans into one category. As the database expands and improves, results following the proposed approach should become more reliable and eventually converge. With these reservations in mind, our study makes a number of contributions to the literature.

First, we have argued that many differences in the result of pass-through studies could be reconciled if the timing of structural breaks would be endogenously determined rather than postulated. In particular, setting the breakpoint equal with the introduction no the single currency could be misleading. Rather, in quite some cases, structural breaks come much earlier. On the one hand this has the important consequence that the database is longer and that the results are thus becoming more reliable. On the other hand, the well-known fact that reduced money market rate volatility will lead to a more speedy pass-through may explain the structural changes – at least for some countries – better than some mysterious “EMU effect”. Second, we find it important to distinguish clearly between approaches that focus on the pass-through of monetary policy shocks as measured by the overnight money market rate and between industrial organization-inspired approaches that use a measure of cost of funds. Third, we have conducted both

types of analysis by always selecting an optimal pass-through model for all sub-periods and all national retail interest rates. Forth, while we are able to confirm the results of previous studies that report increases in size and speed of the pass-through, we show that these findings, however, do not hold unanimously when using the cost of funds approach. In other words, while there are some indications for an increase in monetary policy efficiency in the Eurozone, the conclusions of cost of funds-based studies that relate an increase in pass-through to an increase in competition are not generally supported here. Fifth, by identifying a number of banking markets with a less than perfect long-run pass-through, our results also indicate that credit rationing has remained an important feature in European retail banking. Sixth, when using pass-through measures as an indicator for Eurozone banking market integration, the view that the markets are still fragmented is supported, with the eventual exemption of lending to enterprises. Finally, our analysis of the structural determinants of the pass-through process reveals that on the one hand some convergence can be achieved by means of nominal, real, and structural convergence. Nevertheless, legal and cultural differences may preclude full convergence.

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Appendix A: Methodology[15]

Our analysis starts with an estimation of the degree of integration I(d) for each interest rate series. Note that if a structural break at an a priori unknown point in time is present in a time series, standard unit root tests proposed by Engle and Granger (1987) have very little power. Banerjee, Lumsdaine, and Stock (1992) propose better specified test statistics, which are consistent even in the presence of structural breaks. These will additional be employed here for the full sample period whereas the standard unit root tests are applied to the pre- and post-break period only.

Standard unit root tests can be conducted as F or t-tests based on regressions on levels as well as first differences of the underlying interest rate series. Both regressions include next to lagged observations of the interest rate y in question also a trend variable T:

$$(A1) \quad \Delta y_t = a + b\, y_{t-1} + c\, \Delta y_{t-1} + d\, T + \varepsilon_t$$

$$(A2) \quad \Delta^2 y_t = a + b\, \Delta y_{t-1} + c\, \Delta^2 y_{t-1} + d\, T + \varepsilon_t$$

The null hypothesis states that the series follow random walks. For the t-statistic, this corresponds to a null hypothesis of H_0: b=0 and for the F-statistic to a null hypothesis of H_0: b=d=0. We fail to reject the null hypothesis of a random walk if the calculated t or F values are smaller in absolute terms than the critical values.

Tests, which are well specified even in the presence of a structural break include recursive tests, sequential mean or sequential trend shift tests. Based on equations (A1) and (A2), recursive minimum τ-statistics can be calculated in order to test the null-hypothesis of b=0. This unit root test is based on a series of sub-samples which comprise data from t = 1 to k, t = 1 to k+1, until t = 1 to T with k equal to one quarter of the total sample. The recursive min-τ is found as the smallest t(k/T) over all sub-samples. To reject the null-hypothesis, the calculated min τ-value which has to be smaller than the critical value.

Furthermore, sequential unit root tests that distinguish between a shift in the mean or the trend of a series can be calculated based on the following regressions for levels and first differences:

[15] This section draws heavily on Sander and Kleimeier (2002).

$$(A3) \quad \Delta y_t = a + b\, y_{t-1} + c\, \Delta y_{t-1} + d\, T + f\, D + \varepsilon_t$$

$$(A4) \quad \Delta^2 y_t = a + b\, \Delta y_{t-1} + c\, \Delta^2 y_{t-1} + d\, T + f\, D + \varepsilon_t$$

where D indicates a dummy variable. For the mean-shift tests, D is coded as 1 if t > k and 0 otherwise. For the trend-shift tests, D is coded as t if t > k and 0 otherwise. Here, both minimum τ-tests regarding H_0: b=0 and maximum F-tests regarding H_0: b=d=0 can be calculated and compared to the critical values. In particular, a series of regressions is run on the full sample where k is chosen to move through the mid-80% of the total sample. Similar to the recursive test, a minimum τ-value is calculated as the smallest t(k/T) over all sub-samples.

Regarding the determination of the presence and timing of a structural break in the long-run relationship of equation (4), we estimate a supremum F (supF) test as first proposed by Quandt (1960) and recently investigated by Andrews (1993), Diebold and Chen (1996) and Hansen (1992). This test can be interpreted as a rolling test where standard Chow tests are conducted for a series of different break points b, which move through the mid-80% of the sample. SupF equals the largest Chow F-statistic and is compared to critical values as reported by Hansen (1992). The sequence of F-statistics can give an indication about the timing of the break. If a break is present, the cointegration and pass-through analysis is conducted for the pre- and post-break period separately.

For the symmetric pass-through model, cointegration is based on the Durbin-Watson (DW), Dickey-Fuller (DF) and augmented Dickey-Fuller (ADF) testing procedures. Note that in the presence of a structural break, these standard cointegration tests have low power, i.e. the rejection frequency of the ADF test is clearly reduced (e.g. Gregory et al., 1996). Thus, the endogenous estimation of the timing of the structural break is clearly of importance as an exogenously determined break can lead to incorrect conclusions regarding cointegration. In particular, the DF tests are based on the estimated residuals of the cointegration regression of equation (4). To do so, equation (A5) needs to be estimated

$$(A5) \qquad \Delta u_t = -\delta_0\, u_{t-1} + \varepsilon_t$$

where the t-statistic for the estimated coefficient δ_0 provides an indication regarding the cointegration of the two series. The ADF test is obtained from the regression

$$(A6) \quad \Delta u_t = -\delta_0 u_{t-1} + \sum_{i=1}^{c^*} \delta_i \Delta u_{t-i} + \varepsilon_t$$

where the optimal lag length c* is found based on the minimum Akaike information criterion (AIC) criteria with a maximum of four lags.

For the asymmetric models, cointegration tests are based on modifications of the ADF test. For the TAR^0 model, an appropriate test procedure is to set a Heaviside indicator I_t for different states of u_{t-1}.

$$(A7) \quad I_t = \begin{cases} 1 & if \quad u_{t-1} \geq 0 \\ 0 & if \quad u_{t-1} < 0 \end{cases}$$

Using this definition, we test for cointegration by estimating equation (A8), which represents a modification of the ADF test. The null of no cointegration is rejected if the estimated F-statistic for H_0: $\rho_1 = \rho_2 = 0$ is significant based on critical values provided by Enders and Siklos (2000).

$$(A8) \quad \Delta u_t = I_t \rho_1 u_{t-1} + (1 - I_t)\rho_2 u_{t-1} + \sum_{i=1}^{m^*} \rho_{2+i} \Delta u_{t-i} + \varepsilon_t$$

with the optimal lag length m* determined via the minimum AIC criteria for models with up to 4 lags. When cointegration is established, an F-test for equality of ρ_1 and ρ_2 indicates the presence of asymmetry.

For the TAR* model, the Heaviside indicator in conjunction with equation (A8)[16] is defined as

$$(A9) \quad I_t = \begin{cases} 1 & if \quad u_{t-1} \geq a_0^* \\ 0 & if \quad u_{t-1} < a_0^* \end{cases}$$

Following Chan's (1993), the optimal threshold a_0* is found by searching over the mid-80% of the distribution of u_t and selecting the model for which the residual sum of squares is minimized. Cointegration and asymmetry testing proceeds with the above described F-tests.

For the B-TAR* model, the Heaviside indicator is now defined as

[16] For both, the TAR* and the following B-TAR* model, the optimal lag length m* of the TAR^0 specification is used.

$$(A10)\quad I_1 = \begin{cases} I_1 = 1 & if \quad u_{t-1} \geq a_0^* \quad and \quad 0 \quad otherwise \\ I_2 = 1 & if \quad |u_{t-1}| < a_0^* \quad and \quad 0 \quad otherwise \\ I_3 = 1 & if \quad u_{t-1} < -a_0^* \quad and \quad 0 \quad otherwise \end{cases}$$

while equation (A8) has to be modified to

$$(A11)\quad \Delta u_t = \sum_{j=1}^{3} \rho_j I_j u_{t-1} + \sum_{i=1}^{m^*} \rho_{3+i} \Delta u_{t-i} + \varepsilon_t$$

Procedures for optimal lag length m* and optimal threshold a_0* are corresponding to those of the TAR* and the F-tests for cointegration and asymmetry are applied to all three coefficients ρ_j.

Finally, Enders and Granger (1998) propose an M-TAR model where the Heaviside indicator depends as follows on the change in error correction term, Δu_t. Similar to the TAR^0 and TAR* specifications, M-TAR model can either be estimated with a threshold $a_0 = 0$ leading to the M-TAR^0 specification or be optimised at $a_0 = a_0^* > 0$ leading to the M-TAR* specification.[17] The Heaviside indicator in conjunction with equation (A8) is now defined as

$$(A12)\quad I_t = \begin{cases} 1 & if \quad \Delta u_{t-1} \geq a_0 \\ 0 & if \quad \Delta u_{t-1} < a_0 \end{cases}$$

[17] When optimising the threshold in the M-TAR* model, the optimal lag length m* from the M-TAR^0 is used.

Appendix B: Results of the Monetary Policy Approach

Table B1: Variables used in the structural analysis of the pass-through process

variables	source	calculation
macro-economic variables		
money market rate volatility	Datastream's overnight money market rates and IMF's IFS line 60b for Germany, the Netherlands and Portugal	standard deviation of monthly rate for retail-rate- and country-specific period
structural inflation	IFS line 64 for CPI % change over corresponding period of previous year	average inflation rate as % p.a. for retail rate- and country-specific period
growth	Eurostat	average annual growth rate of real GDP for retail-rate- and country-specific period
GDP	IFS: line 99B for GDP, line 99Z for population	average annual GDP per capita for retail-rate- and country-specific period: 99b / 99z
broad money to GDP	IFS: line 34a for currency in circulation , line 34b for demand deposits, line 35 for other deposits; line 99b for GDP	broad money / GDP = (34a+34b+35) / 99b
bank loans to GDP	IFS: line 22d for bank loans to private sector, line 99b for GDP	credit / GDP = 22d / 99b
internal competition variables		
number of banks per 1m inhabitants	ECB (Dec 2000) table 3.1	
CR5 total asset share of 5 largest credit institutions	ECB (Dec 2000) table 2.1 and ECB (Nov 2002) table 6	for 1995-1996: ECB (Dec 2000), for 1997-1999: average ECB (Dec 2000) and (Nov 2002), and for 2000-2001: ECB (Nov 2002)
Herfindahl index total asset	ECB (Dec 2000) table 2.1 and ECB (Nov 2002) table 6	for 1995-1996: ECB (Dec 2000), for 1997-1999: average ECB (Dec 2000) and (Nov 2002), and for 2000-2001: ECB (Nov 2002)
Herfindahl index total loans	ECB (Dec 2000) table 2.4	
Herfindahl index total deposits	ECB (Dec 2000) table 2.6	
alternative finance variables		
number of publically traded firms per 1m inhabitants	ECB (Nov 2002) table 4.2, IFS line 99z for population	
market capitalization of listed shares per GDP (*1000)	ECB (Nov 2002) table 4.2, IFS line 99z for population	
intermediated assets (deposits) of households and firms as percent of total intermediated and nonintermediated assets (deposits)	ECB (Nov 2002) table 1	
intermediated liabilities (loans) of households and firms as percent of total intermediated and nonintermediated liabilities (loans\)	ECB (Nov 2002) table 1	
bank health and profitability variables		
return on assets (net income as % of total assets)	SourceOECD Bank Profitability Statistics	7 / (14+15+16+17+18)
loan provisions as % of total assets (year end total)	SourceOECD Bank Profitability Statistics, except for Finland where item 8 (net provisions) is used	8b / (14+15+16+17+18)
net interest margin (interest income minus interest expense) as % of total assets (year end total)	SourceOECD Bank Profitability Statistics	1-2 / (14+15+16+17+18)
operating cost as % of total assets (year end total)	SourceOECD Bank Profitability Statistics	6 / (14+15+16+17+18)
external competition		
number of branches and subsidiaries of foreign institutions as percent of total banks	ECB (Nov 2002) table 3.2	excluding money market funds
assets of EEA foreign branches as % of GDP	ECB (Nov 2002) table 16	
assets of EEA foreign subsidiaries as % of GDP	ECB (Nov 2002) table 19	
assets of EEA foreign branches and subsidiaries as % of GDP	ECB (Nov 2002) tables 16, 19	
assets of non-EEA foreign branches as % of GDP	ECB (Nov 2002) table 22	
assets of non-EEA foreign subsidiaries as % of GDP	ECB (Nov 2002) table 25	
assets of non-EEA foreign branches and subsidiaries as % of GDP	ECB (Nov 2002) tables 22, 25	
assets of EEA and non-EEA foreign branches and subsidiaries as % of GDP	ECB (Nov 2002) tables 16, 19, 22, 25	
non-resident intermediated liababilities to total intermediated liabilities	ECB (Nov 2002) table 1	
non-resident intermediated assets to total intermediated assets	ECB (Nov 2002) table 1	
legal systems		
germanic legal system	Cecchetti (1999)	dummy equal to 1 for Austria and Germany
scandinavian legal system	Cecchetti (1999)	dummy equal to 1 for Finland
british legal system	Cecchetti (1999)	dummy equal to 1 for Ireland

Table B2: Monetary Policy Approach - Unit Root Tests Allowing for the Presense of a Structural Break

		mean shift						trend shift						recursive		
country	bankrate	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)
Austria	2	-3.847	-3.267	2	11.780	10.457	2	-3.681	-2.906	2	0.010	10.457	2	-2.287	-3.274	1
	3	-3.550	-4.367	1	9.710	21.458	1	-3.640	-4.150	1	5.243	21.458	1	-2.161	-4.632	1
	4	-4.148	-3.571	2	12.731	13.122	2	-3.911	-3.236	2	0.010	13.122	2	-2.281	-3.622	1
	7	-2.430	-7.039	1	8.738	62.578	1	-2.607	-7.016	1	8.052	62.578	1	-2.548	-7.911	1
	8	-3.149	-4.197	1	9.095	18.165	1	-3.303	-3.865	1	0.010	18.165	1	-2.157	-4.262	1
	pr	-3.420	-6.226	1	12.128	28.798	1	-2.976	-6.185	1	8.346	28.384	1	-3.319	-6.152	0
Belgium	2	-2.418	-5.158	1	9.545	19.570	1	-2.407	-5.163	1	8.646	21.929	1	-1.461	-5.806	1
	3	-2.028	-6.448	0	22.716	28.484	0	-1.946	-6.448	1	9.434	32.617	1	-1.970	-7.251	1
	4.1	-2.255	-7.221	1	6.110	37.747	1	-2.129	-7.209	1	0.010	37.574	1	-2.177	-7.980	1
	4.2	-2.465	-6.406	1	7.275	26.998	1	-2.417	-6.396	1	0.010	27.008	1	-2.421	-7.098	1
	5	-2.339	-6.050	1	7.497	26.247	1	-2.473	-6.049	1	7.671	28.313	1	-2.260	-6.829	1
	8	-2.582	-6.618	1	8.571	29.804	1	-2.553	-6.611	1	0.010	29.868	1	-2.935	-7.385	0
	9	-1.443	-7.093	1	9.663	34.575	1	-1.441	-7.093	1	10.557	36.769	1	-1.616	-7.993	1
	pr	-2.191	-7.314	1	9.363	34.623	1	-2.129	-7.309	1	0.010	35.652	1	-2.301	-8.150	1
Finland	2	-2.978	-4.369	2	9.462	15.663	2	-2.817	-4.360	1	8.510	15.631	1	-2.727	-4.752	0
	3	-2.856	-6.803	1	9.793	32.817	1	-2.741	-6.790	1	9.607	32.965	1	-2.657	-7.501	0
	5	-3.375	-7.756	1	11.954	47.262	1	-3.307	-7.747	1	10.390	46.061	1	-3.192	-8.605	0
	7	-4.891	-6.979	0	20.915	51.950	0	-4.897	-6.972	0	19.012	38.212	0	-5.724	-7.684	0
	8	-3.994	-4.262	0	17.390	22.881	0	-3.998	-4.260	0	17.403	24.778	0	-4.619	-4.770	0
	pr	-3.106	-9.338	1	9.784	59.202	1	-2.994	-9.330	1	0.010	58.528	1	-3.425	-10.336	0
France	4	-3.083	-7.485	1	11.587	44.349	1	-3.041	-7.474	1	8.853	44.657	1	-2.998	-8.223	0
	5	-2.935	-8.087	1	10.667	45.326	1	-3.043	-8.084	1	7.304	50.552	1	-1.831	-8.796	1
	8	-4.263	-6.358	0	26.126	29.587	0	-4.120	-6.351	0	20.427	34.645	0	-4.689	-7.069	0
	9	-3.333	-6.760	1	11.856	33.172	1	-3.440	-6.760	1	11.990	32.587	1	-2.165	-7.631	1
	pr	-3.443	-6.270	1	15.724	27.733	1	-3.373	-6.259	0	15.385	30.650	0	-3.749	-6.899	0
Germany	2	-2.799	-4.926	1	10.704	18.062	1	-2.831	-4.929	1	7.374	19.783	1	-2.556	-5.570	1
	3	-2.089	-6.313	1	6.486	25.844	1	-2.134	-6.308	1	4.710	28.147	1	-1.329	-6.894	1
	4	-3.336	-5.644	1	11.535	24.490	1	-3.000	-5.565	1	4.482	23.959	1	-2.831	-5.131	0
	5	-2.071	-3.710	1	4.804	17.963	1	-2.055	-3.711	1	0.010	17.963	1	-2.192	-4.238	1
	8.1	-2.780	-5.472	1	8.224	22.376	1	-2.533	-5.409	1	4.632	22.066	1	-2.937	-5.222	0
	8.2	-2.742	-5.507	1	7.986	23.465	1	-2.370	-5.478	1	4.202	23.186	1	-2.698	-5.336	0
	9.1	-3.290	-5.767	1	10.306	29.210	1	-3.292	-5.746	1	9.779	24.877	1	-3.999	-6.020	0
	9.2	-2.705	-4.759	1	8.571	17.488	1	-2.495	-4.739	1	6.606	17.332	1	-2.666	-5.039	0
	pr	-3.267	-6.365	1	11.338	31.277	1	-2.764	-6.327	1	6.282	30.913	1	-3.232	-6.152	0
Ireland	1	-9.576	-6.228	0	75.824	28.460	0	-9.572	-6.216	0	61.791	26.299	0	-10.685	-6.957	0
	2	-7.041	-6.427	0	60.905	28.856	0	-7.039	-6.420	0	49.033	29.753	0	-7.864	-7.286	0
	4	-7.171	-6.436	0	47.408	29.206	0	-7.172	-6.427	0	35.329	28.433	0	-8.150	-7.240	0
	5	-7.228	-5.427	0	44.244	23.189	0	-7.228	-5.420	0	38.818	21.140	0	-8.228	-6.102	0
	6	-3.127	-9.408	1	15.843	60.210	1	-2.674	-9.411	1	7.754	61.728	1	-2.985	-10.701	0
	9.1	-20.201	-9.686	0	316.652	65.481	0	-20.195	-9.686	0	359.792	66.501	0	-22.340	-11.005	0
	9.2	-16.871	-8.902	0	193.988	58.383	0	-16.863	-8.896	0	186.860	54.533	0	-18.583	-10.137	0
	pr	-3.993	-6.462	0	25.142	30.055	0	-3.736	-6.458	0	14.301	29.236	0	-4.160	-7.342	0

Table B2: Monetary Policy Approach - Unit Root Tests Allowing for the Presense of a Structural Break

		mean shift						trend shift						recursive		
country	bankrate	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)
Italy	2	-2.316	-6.964	1	14.439	36.316	1	-3.476	-6.527	0	20.301	36.316	0	-2.437	-6.026	1
	4.1	-1.866	-3.229	2	5.137	10.757	2	-1.874	-3.227	1	5.630	15.392	1	-1.998	-3.683	1
	4.2	-1.964	-3.897	2	5.295	14.162	2	-1.974	-3.892	1	6.697	16.667	1	-2.036	-4.440	1
	5	-2.344	-6.494	1	11.643	36.953	1	-3.617	-6.221	1	13.163	36.953	1	-2.507	-6.079	1
	7	-1.616	-4.651	1	7.372	19.079	1	-1.629	-4.650	1	8.563	24.138	1	-1.400	-5.235	1
	8	-2.316	-4.657	1	7.740	22.113	1	-3.169	-4.272	1	7.790	22.113	1	-1.633	-4.702	1
	pr	-1.562	-6.434	1	5.268	31.543	1	-1.535	-6.431	1	5.452	36.386	1	-1.600	-7.246	1
Netherlands	2	-2.676	-5.184	1	9.884	20.064	1	-2.659	-5.188	1	6.725	20.714	1	-2.473	-5.845	1
	4	-3.369	-5.779	1	15.671	24.878	1	-3.234	-5.697	0	14.191	24.852	0	-3.798	-5.459	0
	7	-4.043	-7.507	0	25.482	37.614	0	-4.089	-7.509	0	25.715	36.986	0	-3.514	-8.315	0
	8.1	-2.434	-4.577	2	10.627	15.548	2	-2.288	-4.573	1	12.605	16.836	1	-2.493	-5.169	1
	8.2	-2.150	-4.541	2	6.558	15.848	2	-2.108	-4.544	1	7.295	19.212	1	-2.243	-5.161	1
	pr	-3.249	-5.394	1	12.524	22.506	1	-2.798	-5.351	1	11.711	22.126	1	-3.331	-5.177	0
Portugal	2	-2.578	-3.857	2	7.818	13.674	2	-2.608	-3.849	2	7.823	12.990	2	-1.504	-4.266	1
	3	-2.111	-9.034	1	6.843	62.296	1	-2.118	-9.035	1	5.149	65.541	1	-1.875	-10.191	1
	4.1	-2.134	-6.215	1	9.224	30.760	1	-2.631	-6.207	1	10.380	28.977	1	-2.069	-6.952	1
	4.2	-2.480	-9.935	1	6.682	72.033	1	-2.858	-9.932	1	6.709	69.327	1	-2.492	-11.172	1
	8.1	-2.637	-6.373	1	6.272	28.392	1	-2.732	-6.363	1	6.634	27.782	1	-2.252	-7.045	1
	8.2	-2.424	-4.497	1	10.925	16.981	1	-2.498	-4.496	1	10.890	17.149	1	-1.824	-5.062	1
	pr	-4.001	-10.834	1	14.674	79.978	1	-4.220	-10.832	0	15.550	80.656	0	-3.757	-12.155	0
Spain	2	-2.250	-3.853	2	8.235	14.108	2	-2.260	-3.851	1	8.141	14.130	1	-2.003	-4.201	1
	3	-2.040	-8.123	1	9.594	46.920	1	-2.144	-8.121	1	6.328	58.732	1	-1.754	-9.096	1
	4	-2.802	-5.783	1	10.325	33.499	1	-2.797	-5.774	1	11.309	30.040	1	-3.039	-6.356	0
	5	-2.386	-5.784	1	8.740	26.561	1	-2.512	-5.774	1	8.848	28.817	1	-2.122	-6.343	1
	7	-2.546	-4.940	1	7.480	20.993	1	-2.569	-4.917	1	7.575	22.140	1	-1.705	-5.276	1
	8	-2.019	-3.780	2	6.283	10.700	2	-2.052	-3.776	1	6.473	13.730	1	-1.821	-4.231	1
	pr	-2.761	-8.080	1	7.222	45.671	1	-2.756	-8.076	1	7.252	45.262	1	-2.738	-9.022	0

Note: Monetary policy rates are abreviated with "pr". I(?) indicates the degree of integration at the 10% significance level. "level" and "diff" indicate analysis for series in levels and first differences, respectively. The critical values for 100 observations are as follows: -4.62 (2.5%), -2.88 (5%), -2.57 (10%) for the recursive min τ test; -5.07 (2.5%), -4.80 (5%), -4.54 (10%) for the mean-shift min τ test; 20.83 (2.5%), 18.62 (5%), 16.20 (10%) for the mean-shift max F test; -4.76 (2.5%), -4.48 (5%), -4.20 (10%) for the trend-shift min τ test; and 16.30 (5%), 13.64 (10%) for the trend-shift max F test.

Table B3: Monetary Policy Approach - Unit Root Tests

				bank rate								short-term policy rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
Austria	2	Apr-95	Jul-97	-1.461	-2.769	1	2	3.158	3.947	2	2	-1.266	-3.972	1	1	1.669	7.937	1	1
	2	Aug-97	Oct-02	-1.437	-2.558	2	2	1.035	3.298	2	2	-0.812	-4.074	1	1	0.566	8.306	1	1
	3	Apr-95	Sep-98	-1.617	-4.406	1	1	3.095	9.742	1	1	-1.728	-4.924	1	1	2.993	12.129	1	1
	3	Oct-98	Oct-02	-1.843	-2.641	1	2	1.743	3.494	2	2	-0.633	-3.530	1	1	0.468	6.231	1	2
	4	Apr-95	Aug-97	-0.708	-3.297	1	1	3.430	5.655	1	2	-1.260	-4.071	1	1	1.750	8.309	1	1
	4	Sep-97	Oct-02	-1.550	-2.931	1	1	1.202	4.297	2	2	-0.802	-4.029	1	1	0.558	8.120	1	1
	7	Apr-95	Nov-99	-2.302	-6.199	1	1	2.797	19.223	1	1	-2.192	-5.272	1	1	2.813	13.957	1	1
	7	Dec-99	Oct-02	-1.703	-4.341	1	1	1.458	9.518	1	1	-2.162	-3.731	1	1	8.051	6.982	0	0
	8	Apr-95	Mar-97	-1.753	-3.892	1	1	1.743	7.857	1	1	-1.479	-3.484	1	1	1.455	6.069	1	2
	8	Apr-97	Oct-02	-1.626	-3.362	1	1	1.365	5.800	1	2	-0.832	-4.398	1	1	0.694	9.687	1	1
Belgium	2	Jan-93	May-98	-1.752	-4.435	1	1	1.708	9.840	1	1	-2.081	-6.150	1	1	2.497	18.932	1	1
	2	Jun-98	Oct-02	-0.387	-3.542	1	1	0.920	6.402	1	2	-1.076	-3.087	1	1	0.580	4.819	2	2
	3	Jan-93	Dec-95	-2.425	-2.700	1	2	3.299	3.682	2	2	-2.591	-4.362	0	1	3.358	9.527	1	1
	3	Jan-96	Oct-02	-6.749	-6.864	0	0	24.445	23.566	0	0	-1.574	-4.334	1	1	1.251	9.397	1	1
	4.1	Jan-93	Apr-95	-2.943	-4.349	0	0	4.410	9.469	1	1	-2.285	-3.673	1	1	2.612	6.758	1	1
	4.1	May-95	Oct-02	-2.858	-5.095	0	1	4.366	13.021	1	1	-2.604	-5.304	0	1	4.032	14.065	1	1
	4.2	Jan-93	Dec-94	-2.676	-3.066	0	1	3.591	4.701	2	2	-2.259	-3.335	1	1	2.597	5.596	1	2
	4.2	Feb-94	Oct-02	-3.008	-6.077	0	0	8.088	18.493	0	0	-4.254	-5.218	0	0	11.764	13.848	0	0
	5	Jan-93	Oct-95	-2.060	-3.758	1	1	2.130	7.324	1	1	-2.534	-4.210	1	1	3.217	8.867	1	1
	5	Nov-95	Oct-02	-2.679	-5.217	0	1	3.849	13.634	1	1	-1.644	-4.452	1	1	1.387	9.960	1	1
	8	Jan-94	Oct-02	-2.666	-6.274	0	1	4.516	20.020	1	1	-4.409	-5.072	0	0	12.702	13.095	0	0
	9	Jan-93	Dec-95	-2.128	-3.972	1	1	2.277	7.894	1	1	-2.591	-4.362	0	1	3.358	9.527	1	1
	9	Jan-96	Oct-02	-7.864	-7.655	0	0	35.220	29.304	0	0	-1.574	-4.334	1	1	1.251	9.397	1	1
Finland	2	Jan-93	Sep-96	-2.221	-2.889	1	1	2.516	4.707	2	2	-2.338	-5.660	1	1	3.106	16.024	1	1
	2	Oct-96	Oct-02	-1.746	-3.581	1	1	1.637	6.647	1	1	-2.651	-9.073	0	1	3.545	41.161	1	1
	3	Jan-93	Sep-96	-2.332	-4.979	1	1	3.020	12.518	1	1	-2.338	-5.660	1	1	3.106	16.024	1	1
	3	Oct-96	Oct-02	-1.639	-3.845	1	1	1.344	7.442	1	1	-2.651	-9.073	0	1	3.545	41.161	1	1
	5	Jan-93	Jan-96	-2.350	-4.477	1	1	3.409	10.071	1	1	-1.900	-3.191	1	1	1.821	5.588	1	2
	5	Feb-96	Oct-02	-2.073	-7.518	1	1	2.342	28.307	1	1	-2.729	-11.193	0	1	3.751	63.005	1	1
	7	Jan-93	Feb-97	-3.865	-5.305	0	0	9.905	14.076	0	0	-2.609	-6.314	0	1	3.777	20.030	1	1
	7	Mar-97	Oct-02	-2.496	-5.300	1	1	3.253	14.187	1	1	-2.490	-8.522	1	1	3.176	36.370	1	1
	8	Jan-93	Aug-97	-2.976	-2.905	0	0	5.295	4.498	2	2	-2.863	-7.511	0	1	4.702	28.211	1	1
	8	Sep-97	Oct-02	-2.366	-5.030	1	1	3.166	12.664	1	1	-2.149	-6.503	1	1	2.377	21.146	1	1
France	4	Jan-93	Jun-97	-2.795	-5.604	0	1	4.697	15.716	1	1	-3.306	-4.966	0	0	6.264	12.334	0	1
	4	Jul-97	Oct-02	-2.795	-5.604	0	1	4.697	15.716	1	1	-3.306	-4.966	0	0	6.264	12.334	0	1
	5	Jan-93	Mar-97	-2.115	-6.088	1	1	2.644	18.570	1	1	-3.205	-4.805	0	0	5.796	11.550	0	1
	5	Apr-97	Oct-02	-2.382	-5.885	1	1	3.597	17.321	1	1	-0.984	-3.335	1	1	0.699	5.566	1	2
	8	Jan-93	Oct-02	-4.689	-7.069	0	0	12.958	25.022	0	0	-3.749	-6.899	0	0	8.889	23.821	0	0
	9	Jan-93	May-98	-2.161	-5.703	1	1	2.346	16.267	1	1	-3.477	-5.506	0	0	7.362	15.166	0	0
	9	Jun-98	Oct-02	-2.589	-5.142	0	1	4.166	13.223	1	1	-0.833	-2.910	1	1	0.525	4.233	2	2
Germany	2	Jan-93	Oct-96	-1.822	-3.340	1	1	1.800	6.020	1	2	-2.572	-6.112	0	1	5.949	18.681	0	1
	2	Oct-96	Oct-02	-2.376	-4.249	1	1	2.824	9.091	1	1	-1.397	-4.303	1	1	1.324	9.317	1	1
	3	Jan-93	Feb-97	-2.355	-5.034	1	1	2.944	12.669	1	1	-2.287	-6.395	1	1	6.483	20.448	0	1
	3	Mar-97	Oct-02	-1.818	-4.382	1	1	2.848	9.614	1	1	-1.353	-4.070	1	1	1.201	8.285	1	1
	4	Jan-93	Jul-00	-0.094	-5.515	1	1	14.811	15.278	0	0	-1.288	-7.049	1	1	10.249	24.851	0	0
	4	Aug-00	Oct-02	-2.504	-2.546	2	2	3.142	3.853	2	2	-3.018	-2.448	0	0	4.567	3.080	2	2
	5	Nov-96	Oct-02	-2.192	-4.238	1	1	2.405	8.982	1	1	-1.395	-4.219	1	1	1.265	8.921	1	1
	8.1	Jan-93	Sep-99	-2.920	-5.495	0	0	8.654	15.121	0	0	-3.050	-6.744	0	0	10.389	22.751	0	0

Table B3: Monetary Policy Approach - Unit Root Tests

				bank rate								short-term policy rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
	8.1	Oct-99	Oct-02	-1.951	-3.057	1	1	3.586	4.677	2	2	-2.626	-3.628	0	1	6.021	6.587	0	1
	8.2	Jan-93	Sep-99	-2.611	-5.663	0	1	6.958	16.042	0	0	-3.050	-6.744	0	0	10.389	22.751	0	0
	8.2	Oct-99	Oct-02	-2.571	-3.399	0	1	4.849	5.783	1	2	-2.626	-3.628	0	1	6.021	6.587	0	1
	9.1	Jan-93	Sep-99	-3.082	-5.742	0	0	9.524	16.500	0	0	-3.050	-6.744	0	0	10.389	22.751	0	0
	9.1	Oct-99	Oct-02	-1.900	-2.182	2	2	3.169	2.389	2	2	-2.626	-3.628	0	1	6.021	6.587	0	1
	9.2	Jan-93	Oct-95	-2.218	-3.001	1	1	2.639	5.094	2	2	-1.967	-5.333	1	1	4.378	14.253	1	1
	9.2	Nov-95	Oct-02	-2.257	-3.740	1	1	2.575	7.155	1	1	-1.978	-4.741	1	1	1.962	11.274	1	1
Ireland	1	Jan-93	Dec-98	-11.041	-5.437	0	0	66.145	15.936	0	0	-4.767	-5.171	0	0	11.667	16.127	0	0
	1	Jan-99	Oct-02	-1.087	-3.471	1	1	1.028	6.054	1	2	-1.255	-4.751	1	1	0.790	12.930	1	1
	2	Jan-93	Aug-99	-8.653	-6.254	0	0	39.355	21.103	0	0	-3.282	-5.968	0	0	5.543	18.969	0	1
	2	Sep-99	Oct-02	-1.467	-3.835	1	1	1.108	7.355	1	1	-1.270	-3.175	1	1	4.766	5.048	2	2
	4	Jan-93	Nov-95	-8.927	-4.449	0	0	49.055	11.137	0	0	-4.244	-4.226	0	0	11.166	11.033	0	0
	4	Dec-95	Oct-02	-2.043	-4.691	1	1	2.134	11.003	1	1	-1.699	-4.750	1	1	1.449	11.287	1	1
	5	Jan-94	Oct-02	-2.558	-4.996	1	1	3.438	12.531	1	1	-1.984	-5.553	1	1	1.975	15.416	1	1
	6	Feb-94	Oct-02	-2.088	-5.647	1	1	2.209	15.981	1	1	-1.981	-5.508	1	1	1.969	15.171	1	1
	9.1	Jan-94	Oct-02	-5.965	-12.608	0	0	19.570	80.396	0	0	-1.984	-5.553	1	1	1.975	15.416	1	1
	9.2	Jan-94	Oct-02	-2.369	-6.358	1	1	2.808	20.295	1	1	-1.984	-5.553	1	1	1.975	15.416	1	1
Italy	2	Jan-95	Dec-97	-2.867	-5.218	0	1	10.246	13.763	0	1	-1.527	-5.351	1	1	1.178	14.705	1	1
	2	Jan-98	Oct-02	-2.432	-4.492	1	1	4.865	10.397	1	1	-1.542	-4.536	1	1	1.790	10.322	1	1
	4.1	Jan-93	Feb-95	-0.520	-3.869	1	1	5.113	7.580	1	1	-1.344	-7.624	1	1	4.795	29.429	1	1
	4.1	Mar-95	Oct-02	-1.475	-2.834	1	2	1.277	4.205	2	2	-1.302	-5.679	1	1	0.847	16.133	1	1
	4.2	Jan-93	Feb-95	-1.423	-4.795	1	1	6.545	12.166	0	0	-1.344	-7.624	1	1	4.795	29.429	1	1
	4.2	Mar-95	Oct-02	-1.9544	-3.3691	1	1	1.9894	5.7049	1	2	-1.3018	-5.6785	1	1	0.8473	16.1329	1	1
	5	Jan-95	Nov-97	-3.2655	-3.5478	0	0	8.9570	6.2974	0	0	-1.6978	-5.3785	1	1	1.5433	14.6298	1	1
	5	Dec-97	Oct-02	-2.669	-5.774	0	1	5.212	16.679	1	1	-1.799	-4.606	1	1	2.641	10.614	1	1
	7	Jan-93	Feb-95	-0.624	-3.781	1	1	1.971	7.219	1	1	-1.344	-7.624	1	1	4.795	29.429	1	1
	7	Mar-95	Oct-02	-0.879	-4.600	1	1	0.552	10.583	1	1	-1.302	-5.679	1	1	0.847	16.133	1	1
	8	Feb-95	Sep-97	-2.491	-3.001	1	1	3.518	4.929	2	2	-1.687	-5.278	1	1	1.506	14.079	1	1
	8	Oct-97	Oct-02	-2.614	-3.141	0	1	3.979	4.960	2	2	-1.572	-4.655	1	1	2.106	10.840	1	1
Netherlands	2	Jan-93	Sep-96	-1.510	-3.641	1	1	1.179	7.242	1	1	-2.843	-3.942	0	1	6.320	7.772	0	1
	2	Oct-96	Oct-02	-2.112	-4.469	1	1	2.403	10.438	1	1	-0.931	-4.371	1	1	1.071	9.577	1	1
	4	Jan-93	Aug-97	-1.086	-5.097	1	1	13.647	12.998	0	0	-1.319	-4.540	1	1	7.748	10.333	0	0
	4	Sep-97	Oct-02	-0.945	-4.111	1	1	0.829	8.487	1	1	-0.887	-3.864	1	1	0.744	7.465	1	1
	7	Jan-93	Dec-98	-5.760	-7.662	0	0	21.668	30.068	0	0	-2.675	-4.465	0	1	11.437	10.107	0	0
	7	Jan-99	Oct-02	-4.459	-5.052	0	0	10.275	12.774	0	0	-1.056	-3.865	1	1	2.064	7.699	1	1
	8.1	Jan-93	Nov-95	-2.016	-2.708	1	2	2.129	4.175	2	2	-2.454	-3.431	1	1	5.279	5.887	1	2
	8.1	Dec-95	Oct-02	-2.498	-4.108	1	1	3.174	8.548	1	1	-1.594	-4.433	1	1	1.271	9.850	1	1
	8.2	Jan-93	Dec-95	-2.498	-4.108	1	1	3.174	8.548	1	1	-1.594	-4.433	1	1	1.271	9.850	1	1
	8.2	Jan-96	Oct-02	-2.302	-4.303	1	1	2.706	9.564	1	1	-1.480	-4.447	1	1	1.100	9.927	1	1
Portugal	2	Jan-93	Sep-97	-2.892	-3.456	0	0	5.337	5.975	1	2	-4.691	-8.395	0	0	11.001	35.899	0	0
	2	Oct-97	Oct-02	-2.837	-2.633	0	2	4.931	3.493	2	2	-1.886	-3.589	1	1	1.892	6.451	1	2
	3	Jan-93	Apr-95	-3.200	-5.453	0	0	5.209	15.203	1	1	-3.719	-5.512	0	0	6.926	15.787	0	0
	3	May-95	Oct-02	-1.282	-8.446	1	1	1.543	35.670	1	1	-1.220	-5.200	1	1	1.635	13.587	1	1
	4.1	Jan-93	Jul-94	-2.368	-2.983	1	1	2.811	4.579	2	2	-2.860	-4.331	0	1	4.092	10.158	1	1
	4.1	Aug-94	Oct-02	0.012	-5.825	1	1	6.378	16.980	0	1	-2.668	-6.643	0	1	6.366	22.105	0	1
	4.2	Jan-93	Feb-95	-2.660	-4.409	0	1	4.034	9.844	1	1	-3.630	-5.249	0	0	6.630	14.510	0	0
	4.2	Mar-95	Oct-02	-1.254	-10.687	1	1	2.927	57.108	1	1	-1.066	-6.069	1	1	1.312	18.416	1	1
	8.1	Jan-93	Jan-96	-2.120	-4.233	1	1	2.522	8.960	1	1	-3.913	-6.568	0	0	7.655	22.151	0	0

Table B3: Monetary Policy Approach - Unit Root Tests

				bank rate								short-term policy rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
	8.1	Feb-96	Oct-02	-2.132	-4.363	1	1	4.759	9.596	1	1	-1.664	-4.790	1	1	2.204	11.565	1	1
	8.2	Jan-93	Feb-96	-1.993	-2.413	2	2	2.410	3.384	2	2	-3.946	-6.665	0	0	7.787	22.826	0	0
	8.2	Mar-96	Oct-02	-2.719	-4.762	0	1	9.909	11.549	0	0	-1.727	-4.723	1	1	2.324	11.197	1	1
Spain	2	Jan-93	Sep-96	-1.780	-2.833	1	2	2.277	4.016	2	2	-2.178	-5.262	1	1	2.426	13.849	1	1
	2	Oct-96	Oct-02	-2.723	-2.468	0	2	4.093	3.179	2	2	-1.203	-8.182	1	1	1.019	34.046	1	1
	3	Jan-93	Nov-96	-2.017	-5.294	1	1	2.365	14.045	1	1	-2.242	-5.582	1	1	2.731	15.764	1	1
	3	Dec-96	Oct-02	-3.186	-7.689	0	0	6.975	29.734	0	0	-1.853	-6.227	1	1	2.657	19.439	1	1
	4	Jan-93	Sep-96	-2.224	-4.203	1	1	4.206	8.999	1	1	-2.178	-5.262	1	1	2.426	13.849	1	1
	4	Oct-96	Oct-02	-2.524	-5.247	1	1	5.058	13.850	1	1	-1.203	-8.182	1	1	1.019	34.046	1	1
	5	Jan-93	Mar-96	-1.912	-4.225	1	1	3.593	8.966	1	1	-1.935	-5.057	1	1	2.222	12.901	1	1
	5	Apr-96	Oct-02	-2.897	-5.610	0	0	8.476	15.737	0	0	-1.876	-8.213	1	1	3.236	33.725	1	1
	7	Jan-93	Feb-95	-0.338	-3.534	1	1	0.979	7.981	1	1	-2.144	-4.000	1	1	2.429	8.484	1	1
	7	Mar-95	Oct-02	-0.550	-4.570	1	1	1.599	10.457	1	1	-1.158	-8.078	1	1	0.744	32.845	1	1
	8	Jan-93	Mar-96	-2.004	-1.506	2	2	2.173	1.275	2	2	-1.935	-5.057	1	1	2.222	12.901	1	1
	8	Apr-96	Oct-02	-2.758	-4.525	0	1	6.185	10.301	0	1	-1.876	-8.213	1	1	3.236	33.725	1	1

Notes: This table presents the results of standard unit root tests for the break-free periods identified in table 1. Critical values for 100 observations are -2.88 (5%), -2.57(10) for the t test and 6.49 (5%), 5.47 (10%) for the F test

Table B4: Monetary Policy Approach - Symmetric Cointegration

country	bankrate	sample start	sample end	intercept coeff	t statistic	slope coeff	t statistic	DW	DF	ADF	coint?
Austria	2	Apr-95	Jul-97	3.4329	9.1138	0.9698	9.5264	0.8958	-2.6468		yes
	2	Aug-97	Oct-02	3.9195	22.6600	0.5210	11.1060	0.1712	-2.0533		no
	3	Apr-95	Sep-98	3.3331	6.3717	1.4020	9.7019	0.4799	-2.2861		yes
	3	Oct-98	Oct-02	5.0164	41.4887	0.5477	16.9933	0.5887	-4.0388		yes
	4	Apr-95	Aug-97	3.6612	8.6979	1.0233	8.9698	0.7587	-2.3634		yes
	4	Sep-97	Oct-02	4.2836	24.6719	0.5244	11.1501	0.2026	-2.3229	-1.7361	no
	7	Apr-95	Nov-99	-0.0415	-0.8506	0.1457	10.3446	0.4863	-2.9513		yes
	7	Dec-99	Oct-02	0.1528	7.3677	0.0359	6.9826	0.4683	-2.8633		yes
	8	Apr-95	Mar-97	0.9447	3.7414	0.6490	9.6543	0.9255	-2.6175		yes
	8	Apr-97	Oct-02	1.2046	13.0267	0.3904	15.4853	0.4342	-2.9760		yes
Belgium	2	Jan-93	Aug-95	8.5510	28.4699	-0.0987	-2.2905	0.3506	-1.5894	-1.7388	no
	2	Sep-95	Oct-02	3.7398	11.6604	0.6242	7.0612	0.1694	-2.2117	-2.4299	no
	3	Jan-93	Dec-95	11.3927	25.7662	0.0556	0.8442	0.1972	-1.7993	-2.2856	no
	4.1	Jan-93	Apr-95	4.3221	14.5067	0.4261	10.3563	0.8698	-3.0320		yes
	4.1	May-95	Oct-02	1.6738	8.7652	0.8041	15.4898	0.4650	-3.3892	-3.5142	yes
	5	Jan-93	Oct-95	8.9038	22.9230	-0.0689	-1.2121	0.3883	-1.8200		yes
	5	Nov-95	Oct-02	5.7292	14.7740	0.1865	1.7372	0.1374	-2.1029	-2.4929	no
	8	Jan-94	Oct-02	0.1076	1.0691	0.8126	32.6113	0.7162	-5.6053	-3.3161	yes
	9	Jan-93	Dec-95	2.9741	15.2740	0.2842	9.7968	1.0290	-3.5501	-3.5821	yes
Finland	2	Jan-93	Sep-96	4.5864	14.0718	0.7122	12.6629	0.7381	-3.1155		yes
	2	Oct-96	Oct-02	3.9741	14.3837	0.3816	5.0029	0.2347	-1.6893		no
	3	Jan-93	Sep-96	5.7841	15.8507	0.7350	11.6716	1.0149	-3.8655	-2.1603	yes
	3	Oct-96	Oct-02	5.1413	17.9393	0.3840	4.8533	0.2520	-1.9023		no
	5	Jan-93	Jan-96	3.4855	9.2417	0.7366	11.9605	1.0452	-3.5500	-3.4727	yes
	5	Feb-96	Oct-02	2.8912	11.1607	0.5198	7.3315	0.7057	-4.2126	-2.4622	yes
	7	Mar-97	Oct-02	0.5163	7.1873	0.0967	4.8580	0.2584	-2.0032	-2.4071	no
	8	Jan-93	Aug-97	2.1083	9.4965	0.7043	17.2024	1.2556	-5.0769		yes
	8	Aug-97	Oct-02	4.6525	21.1005	-0.3099	-5.1076	0.3001	-2.6034		no
France	4	Jan-93	Jun-97	4.8721	18.6753	0.5620	13.3520	0.5563	-2.8726		yes
	4	Jul-97	Oct-02	2.4324	13.1789	0.7205	14.1534	0.6775	-4.4415		yes
	5	Jan-93	Mar-97	5.2010	30.3196	0.5135	18.9509	0.8772	-3.6690		yes
	5	Apr-97	Oct-02	2.6345	11.5793	0.6903	10.9448	0.3131	-3.3018	-2.8421	yes
	9	Jan-93	May-98	3.2416	38.7642	0.1428	9.9280	0.2602	-2.7794		no
	9	Jun-98	Oct-02	2.5924	14.3808	0.1004	2.0519	0.2300	-1.8193		no
Germany	2	Jan-93	Oct-96	6.3009	20.0849	0.1938	3.3855	0.1075	-0.9273	-1.7159	no
	2	Nov-96	Oct-02	4.0842	14.8633	0.4500	5.9747	0.1186	-1.7005	-2.6382	no
	3	Jan-93	Feb-97	9.6737	81.6547	0.6797	30.5762	0.1950	-0.8943		no
	3	Mar-97	Oct-02	10.2153	52.3050	0.1084	2.0414	0.0423	-1.9454	-1.6679	no
	4	Jan-93	Jul-00	5.1258	81.2941	0.8051	58.0826	0.4043	-3.0677		yes
	4	Aug-00	Oct-02	7.4679	66.8565	0.3037	11.1896	0.6201	-3.2412	-2.9678	yes
	5	Nov-96	Oct-02	4.6817	21.4872	0.4600	7.7034	0.1070	-1.7747	-2.2592	no
	8.1	Jan-93	Sep-99	-0.0269	-0.9147	0.7585	119.3886	1.1815	-6.2995	-5.0291	yes
	8.1	Oct-99	Oct-02	-0.3594	-2.5995	0.7947	23.2603	0.3646	-2.6625	-1.7668	no
	8.2	Jan-93	Sep-99	0.2018	7.2381	0.8076	134.0141	1.4471	-7.0839	-5.5747	yes
	8.2	Oct-99	Oct-02	-0.1506	-1.5800	0.8683	36.8674	0.4453	-2.6558	-1.5987	yes
	9.1	Jan-93	Sep-99	-0.0735	-1.8198	0.7653	87.6862	0.6591	-4.1794	-3.2647	yes
	9.1	Oct-99	Oct-02	0.7080	8.2656	0.3396	16.0434	0.2350	-1.4014	-2.9856	no
	9.2	Jan-93	Oct-95	1.9646	8.9299	0.5228	14.3445	0.2402	-1.8785	-2.2143	no
	9.2	Nov-95	Oct-02	0.9043	9.8282	0.6549	25.7705	0.3521	-2.3480		no
Ireland	1	Jan-99	Oct-02	8.0849	66.7260	0.8596	26.6923	1.1887	-5.2178		yes
	2	Sep-99	Oct-02	1.5789	12.2547	0.9000	27.4178	1.8466	-5.9289		yes
	4	Dec-95	Oct-02	6.9971	65.3543	0.5266	23.3889	0.4949	-3.3913		yes
	5	Jan-94	Oct-02	6.5784	47.8037	0.4044	14.5468	0.2736	-2.7536	-2.0374	no
	6	Feb-94	Oct-02	0.6569	4.2356	0.9923	31.5656	0.8820	-5.3936		yes
	9.2	Jan-94	Oct-02	-0.4970	-7.8602	0.2478	19.3969	0.5071	-3.8344		yes
Italy	2	Jan-93	Dec-97	4.5882	11.2741	0.8811	19.2323	0.9027	-2.9663		yes
	2	Jan-98	Oct-02	3.1701	20.0312	0.8174	21.6588	0.6504	-3.5071		yes
	4.1	Jan-93	Feb-95	2.4044	6.5507	1.0902	27.6963	1.4416	-4.0051		yes
	4.1	Mar-95	Oct-02	2.4235	25.7409	1.0090	68.1652	0.6104	-4.2739	-2.7522	yes
	4.2	Jan-93	Feb-95	0.7186	2.8249	0.9375	34.3650	1.8006	-4.5531		yes
	4.2	Mar-95	Oct-02	0.2780	4.3651	0.9249	92.3843	1.0614	-6.3682	-4.3752	yes
	5	Jan-95	Nov-97	1.7207	4.2274	0.9622	21.1500	1.3068	-5.0378		yes
	5	Dec-97	Oct-02	2.5343	23.8391	0.6809	27.1264	1.7274	-6.6292	-3.5689	yes

Table B4: Monetary Policy Approach - Symmetric Cointegration

country	bankrate	sample start	sample end	intercept coeff	t statistic	slope coeff	t statistic	DW	DF	ADF	coint?
	7	Jan-93	Feb-95	0.1751	0.6340	0.5980	20.1866	1.0422	-3.6391		yes
	7	Mar-95	Oct-02	-0.7479	-12.7042	0.6234	67.3513	0.6428	-4.3317	-3.0202	yes
	8	Feb-95	Sep-97	-1.6721	-4.0462	1.0232	22.4960	1.1131	-6.0773		yes
	8	Oct-97	Oct-02	1.3789	17.0369	0.4746	25.4721	0.8922	-4.2725		yes
Netherlands	2	Jan-93	Sep-96	6.2196	23.1664	0.2321	4.5089	0.1350	-1.0556	-1.4411	no
	2	Oct-96	Oct-02	4.5599	19.9455	0.3780	5.9286	0.1500	-1.6639	-2.1168	no
	4	Jan-93	Aug-97	0.0093	0.1281	1.0708	71.5862	1.0171	-4.2834		yes
	4	Sep-97	Oct-02	0.5961	4.6112	0.9881	28.1694	1.0428	-4.6260	-2.5367	yes
	7	Jan-93	Dec-98	0.5377	48.5542	0.0305	12.5227	0.3759	-3.9828	-3.0828	yes
	7	Jan-99	Oct-02	0.3693	10.3367	0.0157	1.6808	0.1325	0.0652		no
	8.1	Jan-93	Nov-95	3.6293	10.9606	0.2707	4.6567	0.1671	-1.2932	-2.3319	no
	8.1	Dec-95	Oct-02	1.5865	13.3327	0.5350	15.8228	0.3172	-3.1349	-2.7930	no
	8.2	Jan-93	Dec-95	5.5120	12.8454	0.0259	0.3409	0.1421	-1.2086	-1.7500	no
	8.2	Jan-96	Oct-02	3.0297	14.6195	0.2792	4.7405	0.0879	-1.4684	-1.9835	no
Portugal	2	Jan-93	Sep-97	6.4853	14.4580	0.6859	15.0393	0.7543	-4.3555		yes
	2	Oct-97	Oct-02	1.5413	5.5742	1.1049	16.0953	0.2082	-2.9090		no
	3	Jan-93	Apr-95	18.3564	21.6011	-0.1510	-2.1020	1.3463	-3.6266	-3.4786	yes
	3	May-95	Oct-02	4.0242	13.2433	1.5509	27.3453	0.6461	-4.0503		yes
	4.1	Jan-93	Jul-94	15.7443	12.3755	0.2624	2.6551	0.4346	-1.5620		yes
	4.1	Aug-94	Oct-02	2.1889	9.6213	1.5234	38.9777	0.2071	-2.3527		no
	4.2	Jan-93	Feb-95	12.0456	17.7959	0.3290	5.8270	1.0876	-4.0609		yes
	4.2	Mar-95	Oct-02	0.1597	0.7822	1.5125	40.6220	0.4222	-3.6215	-2.5245	yes
	8.1	Jan-93	Jan-96	3.7944	6.0544	0.5485	9.7648	0.7377	-4.0826		yes
	8.1	Feb-96	Oct-02	0.1189	1.1275	0.8624	39.5946	0.3106	-2.7013	-2.6887	no
	8.2	Jan-93	Feb-96	4.2499	5.8569	0.4544	6.9408	0.5051	-3.5582		yes
Spain	2	Jan-93	Sep-96	5.2241	11.1681	0.6691	14.0122	1.2017	-4.3334		yes
	2	Oct-96	Oct-02	2.1797	19.1736	0.8595	33.2411	0.8579	-4.6550		yes
	3	Jan-93	Nov-96	9.0951	21.0881	0.6060	13.6226	1.1198	-4.1452		yes
	4	Jan-93	Sep-96	2.3580	4.0527	0.8482	14.2798	1.1812	-4.2834		yes
	4	Oct-96	Oct-02	1.8525	14.9191	0.7783	27.5579	1.5559	-6.7590		yes
	5	Jan-93	Mar-96	6.1148	12.4497	0.6487	13.3447	1.2544	-4.2154		yes
	7	Jan-93	Feb-95	2.2691	5.5274	0.3436	8.8797	0.9107	-2.6280		yes
	7	Mar-95	Oct-02	0.1835	3.3766	0.5040	51.1873	1.5678	-7.9653	-4.4805	yes
	8	Jan-93	Mar-96	3.9964	8.7839	0.4173	9.2674	0.7273	-2.8645		yes
	8	Apr-96	Oct-02	0.0504	0.4024	0.7562	28.3786	1.2296	-5.9763	-3.3536	yes

Note: Results are only reported for bankrates that are found to be I(1) based on Table B2. Cointegration is considered to exist if (1) at least two test statitics are significant at the 10% level, or (2) if at least one test statistic is significant at the 5% level. Critical values to reject the null hypothesis of no cointegration for 100 observations are: 0.511 (1%), 0.386 (5%), 0.322 (10%) for the Durbin-Watson (DW) test; 4.07 (1%), 3.37 (5%), 3.03 (10%) for the Dickey-Fuller (DF) test; and 3.77 (1%), 3.17 (5%), 2.84 (10%) for the augmented Dickey-Fuller (ADF) test.

Table B5: Monetary Policy Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR: coint test	asymmetry tests				Engle -Granger	optimal pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
Austria	2	Apr-95	Jul-97	11.94	9.51	11.11	12.59	6.73	MTAR*	8.90	8.58			yes,asym	yes	MTAR*
	2	Aug-97	Oct-02	16.07	3.61	-25.02	20.58	19.56	BTAR*	30.12	0.21	69.64	67.36	yes,asym	no	BTAR*
	3	Apr-95	Sep-98	44.68	44.28	44.90	45.34	36.37	MTAR*	6.20	9.92			yes,asym	yes	MTAR*
	3	Oct-98	Oct-02	7.81	-3.29	-2.71	7.74	5.93	TAR*	29.56	17.85			yes,asym	yes	TAR*
	4	Apr-95	Aug-97	16.79	13.50	15.15	17.45	10.85	MTAR*	4.93	7.76			no	yes	SYM
	4	Sep-97	Oct-02	25.57	16.32	7.65	27.28	22.71	BTAR*	13.76	0.38	25.39	22.35	yes,asym	no	BTAR*
	7	Apr-95	Nov-99	-145.79	-146.08	-145.37	-152.75	-158.00	MTAR*	10.37	12.60			yes,asym	yes	MTAR*
	7	Dec-99	Oct-02	-162.72	-166.81	-165.27	-162.89	-165.86	TAR*	7.68	5.04			yes,asym	yes	TAR*
	8	Apr-95	Mar-97	-12.16	-16.26	-20.43	-11.29	-18.31	BTAR*	7.90	13.20	0.40	6.15	yes,asym	yes	BTAR*
	8	Apr-97	Oct-02	-39.10	-47.66	-47.37	-39.00	-48.94	MTAR*	12.98	11.75			yes,asym	yes	MTAR*
Belgium	2	Jan-93	Aug-95	24.37	23.92	22.04	24.33	23.18	BTAR*	3.77	3.48	0.04	3.47	no	no	STD
	2	Sep-95	Oct-02	144.76	143.68	143.06	144.81	142.00	MTAR*	4.89	2.89			no	no	STD
	3	Jan-93	Dec-95	40.67	39.72	34.29	39.84	34.21	MTAR*	5.02	5.84			no	no	STD
	3	Jan-96	Oct-02													STD_LL
	4.1	Jan-93	Apr-95	26.15	25.12	25.44	28.39	20.26	MTAR*	8.52	10.99			yes,asym	yes	MTAR*
	4.1	May-95	Oct-02	121.11	120.69	120.95	120.92	117.11	MTAR*	8.35	4.01			yes,asym	yes	MTAR*
	4.2	Feb-94	Oct-02													STD_LL
	5	Jan-93	Oct-95	45.99	43.88	36.45	45.97	39.39	BTAR*	4.40	10.64	0.10	10.72	no	yes	SYM
	5	Nov-95	Oct-02	160.43	153.72	161.06	160.31	157.63	TAR*	9.90	6.51			yes,asym	no	TAR*
	8	Jan-94	Oct-02	136.83	135.42	128.58	134.82	128.64	BTAR*	8.37	8.63	0.05	9.34	yes,asym	yes	BTAR*
	9	Jan-93	Dec-95	40.64	39.45	35.37	40.73	34.49	MTAR*	4.67	5.68			no	yes	SYM
	9	Jan-96	Oct-02													STD_LL
Finland	2	Jan-93	Sep-96	118.12	117.10	117.83	117.30	115.26	MTAR*	2.15	2.54			no	yes	SYM
	2	Oct-96	Oct-02	96.52	92.45	93.11	93.06	78.66	MTAR*	11.73	20.72			yes,asym	no	MTAR*
	3	Jan-93	Sep-96	116.71	112.68	113.07	103.84	103.84	MTAR0	9.12	14.61			yes,asym	yes	MTAR0
	3	Oct-96	Oct-02	129.38	122.33	120.86	129.42	112.89	MTAR*	11.50	17.85			yes,asym	no	MTAR*
	5	Jan-93	Jan-96	80.89	77.60	77.42	77.91	76.20	MTAR*	9.20	5.02			yes,asym	yes	MTAR*
	5	Feb-96	Oct-02	200.72	199.13	198.56	196.01	191.63	MTAR*	8.89	9.93			yes,asym	yes	MTAR*
	7	Jan-93	Feb-97													STD_LL
	7	Mar-97	Oct-02	-88.32	-88.48	-88.70	-88.86	-93.35	MTAR*	4.44	5.02			no	no	STD
	8	Jan-93	Aug-97	141.44	140.12	140.20	140.97	139.03	MTAR*	4.63	2.19			no	yes	SYM
	8	Aug-97	Oct-02	54.38	53.84	49.13	55.11	51.52	BTAR*	3.56	6.96	0.68	8.49	no	no	STD
France	4	Jan-93	Jun-97	118.79	116.61	107.97	118.70	114.99	BTAR*	6.31	6.17	1.67	10.60	yes,asym	yes	BTAR*
	4	Jul-97	Oct-02	85.99	80.96	82.02	78.81	78.81	MTAR0	20.33	11.16			yes,asym	yes	MTAR0
	5	Jan-93	Mar-97	77.56	77.29	76.39	77.77	66.11	MTAR*	9.38	11.66			yes,asym	yes	MTAR*
	5	Apr-97	Oct-02	116.61	111.91	99.52	118.60	115.85	BTAR*	11.00	0.41	24.34	19.17	yes,asym	yes	BTAR*
	8	Jan-93	Oct-02													STD_LL
	9	Jan-93	May-98	-0.14	-7.00	-6.57	-0.46	-6.72	TAR*	7.77	7.07			yes,asym	no	TAR*
	9	Jun-98	Oct-02	-1.21	-3.70	-1.78	-1.46	-5.07	MTAR*	3.92	3.86			no	no	STD
Germany	2	Jan-93	Oct-96	12.46	9.46	8.16	11.64	9.12	BTAR*	3.51	2.94	1.50	5.96	no	no	STD
	2	Nov-96	Oct-02	79.31	77.88	76.71	79.14	36.22	MTAR*	34.07	57.68			yes,asym	no	MTAR*
	3	Jan-93	Feb-97	-22.27	-23.96	-23.52	-23.03	-27.76	MTAR*	3.32	6.35			no	no	STD
	3	Mar-97	Oct-02	25.20	18.52	25.36	25.70	14.61	MTAR*	10.43	12.43			yes,asym	no	MTAR*
	4	Jan-93	Jul-00	27.46	25.71	16.03	26.65	23.65	BTAR*	6.52	12.05	0.43	13.93	yes,asym	yes	BTAR*
	4	Aug-00	Oct-02	-63.98	-65.46	-64.24	-64.21	-68.12	MTAR*	13.30	4.48			yes,asym	yes	MTAR*

Table B5: Monetary Policy Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR					Engle	optimal
										coint test	asymmetry tests				-Granger	pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
	5	Nov-96	Oct-02	-26.98	-33.51	-34.70	-30.75	-35.34	MTAR*	7.94	9.31			yes,asym	no	MTAR*
	8.1	Jan-93	Sep-99													STD_LL
	8.1	Oct-99	Oct-02	-49.01	-53.45	-55.24	-49.50	-52.02	BTAR*	5.04	3.70	2.37	9.12	no	no	STD
	8.2	Jan-93	Sep-99													STD_LL
	8.2	Oct-99	Oct-02	-74.36	-76.67	-78.36	-74.55	-79.43	MTAR*	5.57	5.35			no	yes	SYM
	9.1	Jan-93	Sep-99													STD_LL
	9.1	Oct-99	Oct-02	-89.85	-93.31	-93.94	-92.81	-95.90	MTAR*	5.22	6.34			no	no	STD
	9.2	Jan-93	Oct-95	-17.92	-19.12	-18.41	-19.75	-20.27	MTAR*	3.25	2.09			no	no	STD
	9.2	Nov-95	Oct-02	-23.46	-23.98	-24.52	-25.39	-30.13	MTAR*	8.41	7.34			yes,asym	no	MTAR*
Ireland	1	Jan-93	Dec-98													STD_LL
	1	Jan-99	Oct-02	7.46	0.57	2.18	6.78	-1.02	MTAR*	13.68	11.70			yes,asym	yes	MTAR*
	2	Jan-93	Aug-99													STD_LL
	2	Sep-99	Oct-02	-11.90	-14.75	-19.61	-12.29	-13.18	BTAR*	6.60	10.15	1.87	6.73	yes,asym	yes	BTAR*
	4	Jan-93	Nov-95													STD_LL
	4	Dec-95	Oct-02	70.00	69.61	67.72	69.56	67.98	BTAR*	5.49	4.20	0.38	3.91	no	yes	SYM
	5	Jan-94	Oct-02	118.70	118.19	117.35	118.67	116.62	MTAR*	3.33	2.05			no	no	STD
	6	Feb-94	Oct-02	251.59	250.15	248.45	251.15	246.47	MTAR*	11.70	5.31			yes,asym	yes	MTAR*
	9.1	Jan-94	Oct-02													STD_LL
	9.2	Jan-94	Oct-02	16.12	14.64	13.78	16.32	13.83	BTAR*	6.78	3.78	0.33	4.42	yes,asym	yes	BTAR*
Italy	2	Jan-93	Dec-97													STD_LL
	2	Jan-98	Oct-02	77.12	74.55	75.50	78.12	74.22	MTAR*	11.79	4.17			yes,asym	yes	MTAR*
	4.1	Jan-93	Feb-95	12.91	12.56	6.54	13.14	11.18	BTAR*	3.94	7.90	1.27	7.86	no	yes	SYM
	4.1	Mar-95	Oct-02	165.81	164.68	164.03	164.22	158.84	MTAR*	6.04	7.10			yes,asym	yes	MTAR*
	4.2	Jan-93	Feb-95	-0.26	-3.20	-2.93	0.29	-0.39	TAR*	4.88	4.64			no	yes	SYM
	4.2	Mar-95	Oct-02	140.38	139.59	139.33	140.34	139.30	MTAR*	8.41	1.14			yes,sym	yes	SYM
	5	Jan-95	Nov-97													STD_LL
	5	Dec-97	Oct-02	52.99	43.59	43.06	48.80	44.49	BTAR*	11.40	2.41	6.43	13.52	yes,asym	yes	BTAR*
	7	Jan-93	Feb-95													STD_LL
	7	Mar-95	Oct-02													STD_LL
	8	Feb-95	Sep-97	16.13	15.14	11.76	16.93	15.05	BTAR*	8.41	4.80	0.99	5.96	yes,asym	yes	BTAR*
	8	Oct-97	Oct-02	19.67	16.54	16.13	18.68	12.99	MTAR*	6.42	6.61			yes,asym	yes	MTAR*
Netherlands	2	Jan-93	Sep-96	15.31	12.20	9.06	15.07	9.40	BTAR*	4.75	0.28	6.59	7.92	no	no	STD
	2	Oct-96	Oct-02	62.27	59.12	60.56	62.36	29.08	MTAR*	24.64	41.24			yes,asym	no	MTAR*
	4	Jan-93	Aug-97	20.34	17.34	16.49	19.51	18.68	BTAR*	8.71	3.04	0.32	6.26	yes,asym	yes	BTAR*
	4	Sep-97	Oct-02	29.07	28.29	22.53	28.86	27.79	BTAR*	5.30	8.35	0.09	8.61	no	yes	SYM
	7	Jan-93	Dec-98	-277.03	-282.35	-282.13	-275.64	-286.19	MTAR*	8.38	10.77			yes,asym	yes	MTAR*
	7	Jan-99	Oct-02	-196.89	-197.21	-199.13	-196.59	-196.59	BTAR*	1.61	4.72	0.31	4.13	no	no	STD
	8.1	Jan-93	Nov-95	-5.39	-6.90	-6.40	-5.75	-7.92	MTAR*	4.79	2.22			no	no	STD
	8.1	Dec-95	Oct-02	39.32	35.23	34.02	39.59	22.42	MTAR*	14.25	18.63			yes,asym	no	MTAR*
	8.2	Jan-93	Dec-95	11.70	11.44	10.78	11.59	9.35	MTAR*	3.88	2.03			no	no	STD
	8.2	Jan-96	Oct-02	62.07	58.68	60.67	62.49	-3.54	MTAR*	57.36	100.89			yes,asym	no	MTAR*
Portugal	2	Jan-93	Sep-97	165.16	160.99	161.23	165.38	156.55	MTAR*	8.23	9.62			yes,asym	yes	MTAR*
	2	Oct-97	Oct-02	100.92	87.54	70.32	101.54	97.55	BTAR*	25.29	0.04	44.34	43.50	yes,asym	no	BTAR*
	3	Jan-93	Apr-95	68.84	62.61	63.19	62.17	57.65	MTAR*	11.30	12.58			yes,asym	yes	MTAR*
	3	May-95	Oct-02	349.24	346.11	347.86	349.31	345.98	MTAR*	10.30	3.34			yes,asym	yes	MTAR*

Table B5: Monetary Policy Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR: coint test	asymmetry tests				Engle -Granger	optimal pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
	4.1	Jan-93	Jul-94	34.14	33.66	33.65	34.71	33.00	MTAR*	0.53	1.06			no	yes	SYM
	4.1	Aug-94	Oct-02	262.09	260.89	261.40	261.83	258.41	MTAR*	5.72	3.67			yes,asym	no	MTAR*
	4.2	Jan-93	Feb-95	39.80	37.70	38.32	41.65	40.58	TAR*	3.14	3.17			no	yes	SYM
	4.2	Mar-95	Oct-02	247.69	245.59	245.71	247.80	230.12	MTAR*	11.96	18.46			yes,asym	yes	MTAR*
	8.1	Jan-93	Jan-96	78.11	77.90	59.87	77.90	77.71	BTAR*	9.50	14.74	0.06	21.85	yes,asym	yes	BTAR*
	8.1	Feb-96	Oct-02	72.91	72.36	67.46	72.98	70.59	BTAR*	6.64	7.51	0.69	7.48	yes,asym	no	BTAR*
	8.2	Jan-93	Feb-96	83.59	77.52	85.11	80.39	70.51	MTAR*	8.57	13.17			yes,asym	yes	MTAR*
	8.2	Mar-96	Oct-02													STD_LL
Spain	2	Jan-93	Sep-96	119.00	117.16	118.23	119.85	114.86	MTAR*	5.97	5.24			yes,asym	yes	MTAR*
	2	Oct-96	Oct-02	84.53	83.63	79.16	83.38	79.98	BTAR*	9.73	7.45	0.41	7.29	yes,asym	yes	BTAR*
	3	Jan-93	Nov-96	126.44	124.82	125.24	126.61	122.66	MTAR*	5.18	3.56			no	yes	SYM
	3	Dec-96	Oct-02													STD_LL
	4	Jan-93	Sep-96	134.36	133.65	127.85	134.37	132.80	BTAR*	4.67	7.69	0.00	7.84	no	yes	SYM
	4	Oct-96	Oct-02	116.16	113.62	109.10	115.97	112.14	BTAR*	10.31	3.75	2.52	9.86	yes,asym	yes	BTAR*
	5	Jan-93	Mar-96	94.72	92.59	92.07	95.32	94.02	BTAR*	2.82	3.89	1.08	3.28	no	yes	SYM
	5	Apr-96	Oct-02													STD_LL
	7	Jan-93	Feb-95	38.06	36.65	34.60	34.78	34.65	BTAR*	2.28	3.27	1.22	4.18	no	yes	SYM
	7	Mar-95	Oct-02	107.33	105.56	105.63	107.11	101.41	MTAR*	14.46	5.92			yes,asym	yes	MTAR*
	8	Jan-93	Mar-96	75.27	73.45	73.34	75.30	69.84	MTAR*	4.60	5.27			no	yes	SYM
	8	Apr-96	Oct-02	151.32	149.53	133.49	150.42	147.76	BTAR*	12.06	21.66	0.28	20.73	yes,asym	yes	BTAR*

Notes: The critical values for the cointegration and asymmetry tests of the best TAR model are listed in Enders and Siklos (2000). The critical values vary depending on the type of TAR model, the sample size, and the lag length of the model. As approximate benchmarks, one can consider test statistics of 6.0 or higher for the cointegration test and test statistics of 2.5 and higher for the asymmetry tests to allow the rejection of the null hypotheses. - In case of no cointegration of any form, a standard pass-through model is estimated in first differences (STD). In case of I(0) bankrates, a standard pass-through model is estimated in levels (STD_LL).

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +1% monetary policy shock				multiplier for a -1% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2[(1)]	Apr-95	Jul-97	MTAR*		0.0652	0.9698	0.2183	0.5580	0.8722	0.9819	0.2183	0.5580	0.8722	0.9819
	2	Aug-97	Oct-02	BTAR*	0.2350	0.1906	0.5210	0.3658	0.5641	0.6225	0.6164	0.3658	0.5641	0.6225	0.6164
	3[(3)]	Apr-95	Sep-98	$MTAR^0$	0.3906	0.3124	1.4020	0.6376	0.7829	0.9047	0.9584	0.6376	0.8833	1.0263	1.0809
	3	Oct-98	Oct-02	TAR*	-0.1707	0.2578	0.5477	0.4583	0.6670	0.7151	0.5662	0.4583	0.6160	0.6755	0.5667
	4	Apr-95	Aug-97	SYM		0.0267	1.0233	0.1217	0.3789	0.7101	0.9833	0.1217	0.3789	0.7101	0.9833
	4[(3)]	Sep-97	Oct-02	TAR*	-0.2244	0.2364	0.5244	0.4382	0.7034	0.6638	0.6068	0.4382	0.6770	0.6436	0.5948
	7	Apr-95	Sep-99	MTAR*	0.0385	0.0109	0.1437	0.0520	0.0806	0.0822	0.0910	0.0520	0.0787	0.0868	0.0947
	7	Oct-99	Oct-02	TAR*	-0.0141	0.0162	0.0251	0.0364	0.0439	0.0348	0.0376	0.0364	0.0439	0.0348	0.0376
	8[(3)]	Apr-95	Mar-97	SYM		0.1311	0.6490	0.2404	0.3987	0.5307	0.6228	0.2404	0.3987	0.5307	0.6228
	8	Apr-97	Oct-02	MTAR*	0.0883	0.1381	0.3904	0.2950	0.4980	0.4343	0.4070	0.2950	0.5232	0.4704	0.4207
Belgium	2	Jan-93	Aug-95	STD		0.0170	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173
	2	Sep-95	Oct-02	STD		0.1110	0.1373	0.1323	0.1371	0.1373	0.1373	0.1323	0.1371	0.1373	0.1373
	3	Jan-93	Dec-95	STD		0.0072	0.0085	0.0083	0.0084	0.0085	0.0085	0.0083	0.0084	0.0085	0.0085
	3	Jan-96	Oct-02	STD_LL		0.0911	0.2134	0.1433	0.1903	0.2090	0.2132	0.1433	0.1903	0.2090	0.2132
	4.1	Jan-93	Apr-95	MTAR*	0.2670	0.4111	0.4261	0.4189	0.3425	0.3921	0.4079	0.4189	0.3425	0.3921	0.4079
	4.1	May-95	Oct-02	MTAR*	0.2426	-0.0116	0.8041	-0.0146	0.2171	0.6675	1.1320	-0.0146	0.1437	0.5818	1.1278
	4.2[(2)]	Feb-94	Oct-02	STD_LL		0.2722	0.8420	0.4564	0.6654	0.7872	0.8367	0.4564	0.6654	0.7872	0.8367
	5	Jan-93	Oct-95	SYM		-0.0147	-0.0689	-0.0312	-0.0521	-0.0641	-0.0685	-0.0312	-0.0521	-0.0641	-0.0685
	5	Nov-95	Oct-02	TAR*	-0.9208	0.0841	0.1865	0.1003	0.1285	0.1556	0.1778	0.1003	0.1285	0.1556	0.1778
	8[(2)]	Jan-94	Oct-02	BTAR*	0.2020	0.2195	0.8126	0.2591	0.4859	0.4835	0.4657	0.2591	0.5775	0.7113	0.8054
	9	Jan-93	Dec-95	SYM		0.1002	0.2842	0.1388	0.2018	0.2486	0.2775	0.1388	0.2018	0.2486	0.2775
	9	Jan-96	Oct-02	STD_LL		-0.0116	-0.0448	-0.0202	-0.0313	-0.0393	-0.0438	-0.0202	-0.0313	-0.0393	-0.0438
Finland	2	Jan-93	Sep-96	SYM		0.0490	0.7122	0.0850	0.1334	0.1776	0.2350	0.0850	0.1334	0.1776	0.2350
	2	Oct-96	Oct-02	MTAR*	0.3942	0.0132	0.3816	0.0210	0.0472	0.0942	0.1772	0.0210	0.0472	0.0942	0.1772
	3[(3)]	Jan-93	Sep-96	SYM		0.0696	0.7350	0.0978	0.1553	0.2318	0.3559	0.0978	0.1553	0.2318	0.3559
	3	Oct-96	Oct-02	MTAR*	0.3664	0.0268	0.3840	0.0327	0.0575	0.0918	0.1506	0.0327	0.0575	0.0918	0.1506
	5	Jan-93	Jan-96	MTAR*	-0.1189	0.4494	0.7366	0.5053	0.8723	0.7920	0.7113	0.5053	0.8048	0.7011	0.7568
	5	Feb-96	Oct-02	MTAR*	-0.1289	0.0688	0.5198	0.0531	0.1889	0.3697	0.5214	0.0531	0.2277	0.3994	0.5256
	7	Jan-93	Feb-97	STD_LL		0.0147	0.0759	0.0266	0.0439	0.0591	0.0713	0.0266	0.0439	0.0591	0.0713
	7	Mar-97	Oct-02	STD		-0.0069	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085
	8	Jan-93	Aug-97	SYM		0.0355	0.7043	0.1217	0.3592	0.6672	0.7901	0.1217	0.3592	0.6672	0.7901
	8	Aug-97	Oct-02	STD		0.0019	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
France	4	Jan-93	Jun-97	BTAR*	0.7960	0.0648	0.5620	0.4575	0.3832	0.4446	0.4838	0.4575	0.3832	0.4446	0.4838
	4	Jul-97	Oct-02	$MTAR^0$		0.2095	0.7205	0.8013	0.7695	0.7374	0.7232	0.8013	0.9316	0.8657	0.7229
	5	Jan-93	Mar-97	MTAR*	0.2415	0.0398	0.5135	0.1272	0.2120	0.3476	0.4803	0.1272	0.4037	0.5351	0.5576
	5[(3)]	Apr-97	Oct-02	TAR*	0.2277	0.3369	0.6903	0.5711	0.5251	0.5699	0.6122	0.5711	0.5685	0.6100	0.6399
	8[(2)]	Jan-93	Oct-02	STD_LL		0.8201	0.9441	0.9278	0.9438	0.9441	0.9441	0.9278	0.9438	0.9441	0.9441
	9	Jan-93	May-98	TAR*	0.3204	0.0268	0.1428	0.0191	0.0246	0.0298	0.0394	0.0191	0.0246	0.0298	0.0394
	9	Jun-98	Oct-02	STD		0.0341	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349
Germany	2	Jan-93	Oct-96	STD		0.0613	0.1361	0.0950	0.1237	0.1340	0.1360	0.0950	0.1237	0.1340	0.1360
	2	Nov-96	Oct-02	MTAR*	0.1515	0.5405	0.4500	0.7230	0.6863	0.5256	0.4521	0.7230	0.7565	0.6069	0.4641
	3	Jan-93	Feb-97	STD		0.2528	0.3998	0.3458	0.3925	0.3995	0.3998	0.3458	0.3925	0.3995	0.3998
	3	Mar-97	Oct-02	MTAR*	0.0580	0.0912	0.1084	0.1181	0.1287	0.1276	0.1232	0.1181	0.1287	0.1276	0.1232
	4[(3)]	Jan-93	Jul-00	MTAR*	0.1669	0.1642	0.8051	0.3932	0.6427	0.7280	0.7652	0.3932	0.6535	0.7350	0.7688
	4	Aug-00	Oct-02	MTAR*	0.0486	-0.0100	0.3037	0.4384	0.3344	0.2926	0.2746	0.4384	0.2764	0.2401	0.2433
	5[(2)]	Nov-96	Oct-02	MTAR*	0.1334	0.3467	0.4600	0.5186	0.5620	0.5795	0.4955	0.5186	0.5777	0.6010	0.5030
	8.1	Jan-93	Sep-99	STD_LL		0.3719	0.7202	0.5517	0.6808	0.7157	0.7202	0.5517	0.6808	0.7157	0.7202
	8.1	Oct-99	Oct-02	STD		0.3726	0.6127	0.5186	0.5982	0.6118	0.6127	0.5186	0.5982	0.6118	0.6127
	8.2	Jan-93	Sep-99	STD_LL		0.4624	0.7786	0.6502	0.7574	0.7772	0.7786	0.6502	0.7574	0.7772	0.7786
	8.2	Oct-99	Oct-02	SYM		0.4963	0.8683	0.7594	0.8773	0.8697	0.8683	0.7594	0.8773	0.8697	0.8683
	9.1	Jan-93	Sep-99	STD_LL		0.2324	0.6904	0.3865	0.5567	0.6514	0.6871	0.3865	0.5567	0.6514	0.6871
	9.1	Oct-99	Oct-02	STD		0.0875	0.2059	0.1379	0.1834	0.2016	0.2058	0.1379	0.1834	0.2016	0.2058
	9.2	Jan-93	Oct-95	STD		0.2721	0.5425	0.4077	0.5090	0.5383	0.5424	0.4077	0.5090	0.5383	0.5424
	9.2(3)	Nov-95	Oct-02	TAR*	-0.1134	0.3552	0.6549	0.6541	0.7550	0.7455	0.7248	0.6541	0.7068	0.7019	0.6911
Ireland	1	Jan-93	Dec-98	STD_LL		0.3035	0.7020	0.4757	0.6291	0.6887	0.7016	0.4757	0.6291	0.6887	0.7016
	1	Jan-99	Oct-02	MTAR*	-0.1720	0.3068	0.8596	0.8125	0.9263	0.9263	0.8650	0.8125	0.7855	0.8585	0.8589
	2	Jan-93	Aug-99	STD_LL		0.2722	0.6279	0.4264	0.5633	0.6161	0.6275	0.4264	0.5633	0.6161	0.6275
	2	Sep-99	Oct-02	BTAR*	0.0830	0.3673	0.9000	0.9112	0.9375	0.9484	0.8980	0.9112	0.8456	0.9330	0.9005
	4	Jan-93	Sep-95	STD_LL		0.3965	0.6500	0.5512	0.6350	0.6491	0.6500	0.5512	0.6350	0.6491	0.6500
	4	Oct-95	Oct-02	SYM		0.2603	0.5334	0.3833	0.4801	0.5196	0.5323	0.3833	0.4801	0.5196	0.5323
	5[(2)]	Jan-94	Oct-02	STD		0.2047	0.2131	0.2128	0.2131	0.2131	0.2131	0.2128	0.2131	0.2131	0.2131
	6[(1)]	Feb-94	Oct-02	MTAR*		0.2488	0.9923	0.3599	0.4970	0.6418	0.8164	0.3599	0.4970	0.6418	0.8164
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0578	0.0925	0.0795	0.0907	0.0924	0.0925	0.0795	0.0907	0.0924	0.0925
	9.2[(2)]	Jan-94	Oct-02	BTAR*	0.0680	0.1420	0.2478	0.1643	0.2617	0.2545	0.2507	0.1643	0.2617	0.2545	0.2507
Italy	2	Jan-95	Dec-97	STD_LL		0.3099	1.0614	0.5293	0.7947	0.9667	1.0495	0.5293	0.7947	0.9667	1.0495
	2	Jan-98	Oct-02	MTAR*	-0.3327	0.3654	0.8174	0.5209	0.7212	0.7987	0.8167	0.5209	0.7139	0.7971	0.8167
	4.1	Jan-93	Feb-95	SYM		0.3114	1.0902	0.6485	1.1102	1.2133	1.0742	0.6485	1.1102	1.2133	1.0742
	4.1	Mar-97	Oct-02	MTAR*	0.3882	0.1585	0.9579	0.3690	0.6091	0.7625	0.8647	0.3690	0.3925	0.4921	0.6802
	4.2	Jan-93	Feb-95	SYM		0.4334	0.9375	0.7942	1.0419	0.9494	0.9381	0.7942	1.0419	0.9494	0.9381
	4.2	Mar-95	Oct-02	SYM		0.2123	0.9249	0.4527	0.8458	1.0525	0.9252	0.4527	0.8458	1.0525	0.9252
	5	Jan-95	Nov-97	STD_LL		0.4264	1.0570	0.6808	0.9231	1.0285	1.0557	0.6808	0.9231	1.0285	1.0557
	5	Dec-97	Oct-02	BTAR*	0.1860	0.4624	0.6809	0.8157	0.7530	0.6914	0.6795	0.8157	0.7530	0.6914	0.6795
	7	Jan-93	Feb-95	STD_LL		0.2043	0.5609	0.3341	0.4692	0.5373	0.5593	0.3341	0.4692	0.5373	0.5593
	7	Mar-95	Oct-02	STD_LL		0.1633	0.6244	0.2839	0.4387	0.5496	0.6123	0.2839	0.4387	0.5496	0.6123
	8[(3)]	Feb-95	Sep-97	STD		0.3027	0.6929	0.4732	0.6233	0.6805	0.6925	0.4732	0.6233	0.6805	0.6925
	8[(3)]	Oct-97	Oct-02	STD		0.0552	0.1249	0.0859	0.1127	0.1227	0.1248	0.0859	0.1127	0.1227	0.1248
Netherlands	2	Jan-93	Sep-96	STD		0.2648	0.3767	0.3435	0.3738	0.3766	0.3767	0.3435	0.3738	0.3766	0.3767
	2	Oct-96	Oct-02	MTAR*	0.0643	0.1157	0.3780	0.4249	0.6238	0.5389	0.4022	0.4249	0.6567	0.5899	0.4134
	4	Jan-93	Aug-97	BTAR*	0.1830	0.4379	1.0708	0.6216	0.8372	1.0674	1.0637	0.6216	1.1589	1.1404	1.0687
	4	Sep-97	Oct-02	SYM		0.3979	0.9881	0.7151	0.9181	0.9793	0.9880	0.7151	0.9181	0.9793	0.9880
	7	Jan-93	Dec-98	MTAR*	0.0089	0.0114	0.0305	0.0086	0.0134	0.0182	0.0241	0.0086	0.0253	0.0270	0.0287
	7	Jan-99	Oct-02	STD		-0.0459	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464
	8.1	Jan-93	Nov-95	STD		0.3842	0.5036	0.4753	0.5020	0.5036	0.5036	0.4753	0.5020	0.5036	0.5036
	8.1	Dec-95	Oct-02	MTAR*	0.0574	0.3250	0.5350	0.3501	0.5462	0.6246	0.5462	0.3501	0.5031	0.6110	0.5529

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +1% monetary policy shock				multiplier for a -1% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	8.2	Jan-93	Dec-95	STD		0.3716	0.5135	0.4743	0.5105	0.5134	0.5135	0.4743	0.5105	0.5134	0.5135
	8.2	Jan-96	Oct-02	MTAR*	0.1834	0.2208	0.2792	0.2647	0.3428	0.3522	0.3066	0.2647	0.3428	0.3522	0.3066
Portugal	2	Jan-93	Sep-97	MTAR*	-0.6829	0.0219	0.6859	0.0864	0.2158	0.4351	0.7554	0.0864	0.2158	0.4351	0.7554
	2(3)	Oct-97	Oct-02	TAR*	0.2878	0.0540	1.1049	0.6158	0.7190	0.7301	0.7472	0.6158	0.9812	1.0031	1.0079
	3(1)	Jan-93	Apr-95	MTAR*	0.1516	-0.1472	-0.1510	0.0306	0.1087	-0.0856	-0.1290	0.0306	0.0585	-0.1299	-0.1226
	3	May-95	Oct-02	MTAR*	0.9915	0.1921	1.5509	0.9128	1.1626	1.3891	1.5230	0.9128	1.0654	1.3471	1.5158
	4.1	Jan-93	Jul-94	SYM		0.0035	0.2624	0.0316	0.0775	0.1298	0.1943	0.0316	0.0775	0.1298	0.1943
	4.1	Aug-94	Oct-02	MTAR*	-1.3197	0.2212	1.5234	0.2754	0.7281	0.9152	1.0704	0.2754	0.7281	0.9152	1.0704
	4.2	Jan-93	Feb-95	SYM		0.1459	0.3290	0.2794	0.3258	0.3289	0.3290	0.2794	0.3258	0.3289	0.3290
	4.2	Mar-95	Oct-02	MTAR*	-0.6212	0.4992	1.5125	0.5330	0.7883	0.9787	1.2155	0.5330	0.9832	1.1415	1.2999
	8.1(3)	Jan-93	Jan-96	SYM		0.1951	0.5485	0.3375	0.4857	0.5423	0.5487	0.3375	0.4857	0.5423	0.5487
	8.1	Feb-96	Oct-02	BTAR*	0.0070	0.1655	0.8624	0.7257	0.7217	0.7217	0.7217	0.7257	0.8690	0.8646	0.8646
	8.2	Jan-93	Feb-96	MTAR*	-1.0878	0.0654	0.4544	0.1675	0.3046	0.4448	0.5512	0.1675	0.3046	0.4448	0.5512
	8.2	Mar-96	Oct-02	STD_LL		0.1668	0.6965	0.2936	0.4634	0.5940	0.6766	0.2936	0.4634	0.5940	0.6766
Spain	2	Jan-93	Sep-96	MTAR*	-0.2269	0.1144	0.6691	0.1945	0.3654	0.6821	0.9705	0.1945	0.3165	0.6136	0.9516
	2(3)	Oct-96	Oct-02	MTAR*	-0.2479	0.1393	0.8595	0.2912	0.5245	0.7419	0.8807	0.2912	0.5307	0.7500	0.8845
	3	Jan-93	Nov-96	SYM		0.1560	0.6060	0.2839	0.4470	0.5520	0.5999	0.2839	0.4470	0.5520	0.5999
	3	Dec-96	Oct-02	STD_LL		0.3340	0.8028	0.5291	0.7095	0.7843	0.8021	0.5291	0.7095	0.7843	0.8021
	4	Jan-93	Sep-96	SYM		0.2378	0.8482	0.3823	0.5691	0.7180	0.8198	0.3823	0.5691	0.7180	0.8198
	4	Oct-96	Oct-02	BTAR*	0.2060	0.3899	0.7783	0.6929	0.9918	0.8488	0.9054	0.6929	0.9946	0.8643	0.9177
	5	Jan-93	Mar-96	SYM		0.1095	0.6487	0.2096	0.3669	0.5088	0.6152	0.2096	0.3669	0.5088	0.6152
	5	Apr-96	Oct-02	STD_LL		0.2061	0.7475	0.3554	0.5419	0.6694	0.7362	0.3554	0.5419	0.6694	0.7362
	7	Jan-93	Feb-95	SYM		0.0383	0.3436	0.0807	0.1603	0.2460	0.3197	0.0807	0.1603	0.2460	0.3197
	7	Mar-95	Oct-02	MTAR*	-0.1543	0.0937	0.5040	0.1937	0.3556	0.5032	0.5312	0.1937	0.3555	0.5031	0.5312
	8	Jan-93	Mar-96	SYM		0.0151	0.4173	0.0558	0.1782	0.3639	0.4906	0.0558	0.1782	0.3639	0.4906
	8(3)	Apr-96	Oct-02	MTAR*	0.2257	0.1039	0.7562	0.3236	0.4628	0.5480	0.6463	0.3236	0.5570	0.6250	0.6872

Note: Multipliers are standardized by dividing the calculated multiplier by the interest rate shock.

Regarding averages reported in Figure 1 and 2 and Tables 1 or 3 note:

(1) Multipliers are excluded due to short sample period.

(2) Multipliers are included in the pre- as well as in the post-break averages.

(3) The optimal pass-through model does not converge. The next best, converging model has been chosen instead.

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.5% monetary policy shock				multiplier for a -0.5% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2[(1)]	Apr-95	Jul-97	MTAR*		0.0652	0.9698	0.2183	0.5580	0.8722	0.9819	0.2183	0.5580	0.8722	0.9819
	2	Aug-97	Oct-02	BTAR*	0.2350	0.1906	0.5210	0.3658	0.5641	0.6225	0.6164	0.3658	0.5641	0.6225	0.6164
	3[(3)]	Apr-95	Sep-98	$MTAR^0$	0.3906	0.3124	1.4020	0.6376	0.7829	0.9047	0.9584	0.6376	0.8457	0.9807	1.0350
	3	Oct-98	Oct-02	TAR*	-0.1707	0.2578	0.5477	0.4583	0.6160	0.6755	0.5667	0.4583	0.6160	0.6755	0.5667
	4	Apr-95	Aug-97	SYM		0.0267	1.0233	0.1217	0.3789	0.7101	0.9833	0.1217	0.3789	0.7101	0.9833
	4[(3)]	Sep-97	Oct-02	TAR*	-0.2244	0.2364	0.5244	0.4382	0.6770	0.6436	0.5948	0.4382	0.6770	0.6436	0.5948
	7	Apr-95	Sep-99	MTAR*	0.0385	0.0109	0.1437	0.0520	0.0645	0.0715	0.0815	0.0520	0.0787	0.0867	0.0946
	7	Oct-99	Oct-02	TAR*	-0.0141	0.0162	0.0251	0.0364	0.0439	0.0348	0.0376	0.0364	0.0439	0.0348	0.0376
	8[(3)]	Apr-95	Mar-97	SYM		0.1311	0.6490	0.2404	0.3987	0.5307	0.6228	0.2404	0.3987	0.5307	0.6228
	8	Apr-97	Oct-02	MTAR*	0.0883	0.1381	0.3904	0.2950	0.4765	0.4416	0.4098	0.2950	0.5232	0.4704	0.4207
Belgium	2	Jan-93	Aug-95	STD		0.0170	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173
	2	Sep-95	Oct-02	STD		0.1110	0.1373	0.1323	0.1371	0.1373	0.1373	0.1323	0.1371	0.1373	0.1373
	3	Jan-93	Dec-95	STD		0.0072	0.0085	0.0083	0.0084	0.0085	0.0085	0.0083	0.0084	0.0085	0.0085
	3	Jan-96	Oct-02	STD_LL		0.0911	0.2134	0.1433	0.1903	0.2090	0.2132	0.1433	0.1903	0.2090	0.2132
	4.1	Jan-93	Apr-95	MTAR*	0.2670	0.4111	0.4261	0.4189	0.3425	0.3921	0.4079	0.4189	0.3425	0.3921	0.4079
	4.1	May-95	Oct-02	MTAR*	0.2426	-0.0116	0.8041	-0.0146	0.2171	0.6675	1.1320	-0.0146	0.1437	0.5818	1.1278
	4.2[(2)]	Feb-94	Oct-02	STD_LL		0.2722	0.8420	0.4564	0.6654	0.7872	0.8367	0.4564	0.6654	0.7872	0.8367
	5	Jan-93	Oct-95	SYM		-0.0147	-0.0689	-0.0312	-0.0521	-0.0641	-0.0685	-0.0312	-0.0521	-0.0641	-0.0685
	5	Nov-95	Oct-02	TAR*	-0.9208	0.0841	0.1865	0.1003	0.1285	0.1556	0.1778	0.1003	0.1285	0.1556	0.1778
	8[(2)]	Jan-94	Oct-02	BTAR*	0.2020	0.2195	0.8126	0.2591	0.7467	0.8433	0.8157	0.2591	0.7467	0.8433	0.8157
	9	Jan-93	Dec-95	SYM		0.1002	0.2842	0.1388	0.2018	0.2486	0.2775	0.1388	0.2018	0.2486	0.2775
	9	Jan-96	Oct-02	STD_LL		-0.0116	-0.0448	-0.0202	-0.0313	-0.0393	-0.0438	-0.0202	-0.0313	-0.0393	-0.0438
Finland	2	Jan-93	Sep-96	SYM		0.0490	0.7122	0.0850	0.1334	0.1776	0.2350	0.0850	0.1334	0.1776	0.2350
	2	Oct-96	Oct-02	MTAR*	0.3942	0.0132	0.3816	0.0210	0.0472	0.0942	0.1772	0.0210	0.0472	0.0942	0.1772
	3[(3)]	Jan-93	Sep-96	SYM		0.0696	0.7350	0.0978	0.1553	0.2318	0.3559	0.0978	0.1553	0.2318	0.3559
	3	Oct-96	Oct-02	MTAR*	0.3664	0.0268	0.3840	0.0327	0.0575	0.0918	0.1506	0.0327	0.0575	0.0918	0.1506
	5	Jan-93	Jan-96	MTAR*	-0.1189	0.4494	0.7366	0.5053	0.8724	0.7514	0.7140	0.5053	0.8048	0.6986	0.7585
	5	Feb-96	Oct-02	MTAR*	-0.1289	0.0688	0.5198	0.0531	0.1889	0.3697	0.5214	0.0531	0.2277	0.3994	0.5256
	7	Jan-93	Feb-97	STD_LL		0.0147	0.0759	0.0266	0.0439	0.0591	0.0713	0.0266	0.0439	0.0591	0.0713
	7	Mar-97	Oct-02	STD		-0.0069	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085
	8	Jan-93	Aug-97	SYM		0.0355	0.7043	0.1217	0.3592	0.6672	0.7901	0.1217	0.3592	0.6672	0.7901
	8	Aug-97	Oct-02	STD		0.0019	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
France	4	Jan-93	Jun-97	BTAR*	0.7960	0.0648	0.5620	0.4575	0.3832	0.4446	0.4838	0.4575	0.3832	0.4446	0.4838
	4	Jul-97	Oct-02	$MTAR^0$		0.2095	0.7205	0.8013	0.7695	0.7374	0.7232	0.8013	0.9316	0.8657	0.7229
	5	Jan-93	Mar-97	MTAR*	0.2415	0.0398	0.5135	0.1272	0.2120	0.3476	0.4803	0.1272	0.2120	0.3476	0.4803
	5[(3)]	Apr-97	Oct-02	TAR*	0.2277	0.3369	0.6903	0.5711	0.5251	0.5699	0.6122	0.5711	0.5251	0.5699	0.6122
	8[(2)]	Jan-93	Oct-02	STD_LL		0.8201	0.9441	0.9278	0.9438	0.9441	0.9441	0.9278	0.9438	0.9441	0.9441
	9	Jan-93	May-98	TAR*	0.3204	0.0268	0.1428	0.0191	0.0246	0.0298	0.0394	0.0191	0.0246	0.0298	0.0394
	9	Jun-98	Oct-02	STD		0.0341	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349
Germany	2	Jan-93	Oct-96	STD		0.0613	0.1361	0.0950	0.1237	0.1340	0.1360	0.0950	0.1237	0.1340	0.1360
	2	Nov-96	Oct-02	MTAR*	0.1515	0.5405	0.4500	0.7230	0.7565	0.6069	0.4641	0.7230	0.7565	0.6069	0.4641
	3	Jan-93	Feb-97	STD		0.2528	0.3998	0.3458	0.3925	0.3995	0.3998	0.3458	0.3925	0.3995	0.3998
	3	Mar-97	Oct-02	MTAR*	0.0580	0.0912	0.1084	0.1181	0.1287	0.1276	0.1232	0.1181	0.1287	0.1276	0.1232
	4[(3)]	Jan-93	Jul-00	MTAR*	0.1669	0.1642	0.8051	0.3932	0.6193	0.7104	0.7561	0.3932	0.6535	0.7350	0.7688
	4	Aug-00	Oct-02	MTAR*	0.0486	-0.0100	0.3037	0.4384	0.3344	0.2926	0.2664	0.4384	0.2764	0.2432	0.2541
	5[(2)]	Nov-96	Oct-02	MTAR*	0.1334	0.3467	0.4600	0.5186	0.5777	0.6010	0.5030	0.5186	0.5777	0.6010	0.5030
	8.1	Jan-93	Sep-99	STD_LL		0.3719	0.7202	0.5517	0.6808	0.7157	0.7202	0.5517	0.6808	0.7157	0.7202
	8.1	Oct-99	Oct-02	STD		0.3726	0.6127	0.5186	0.5982	0.6118	0.6127	0.5186	0.5982	0.6118	0.6127
	8.2	Jan-93	Sep-99	STD_LL		0.4624	0.7786	0.6502	0.7574	0.7772	0.7786	0.6502	0.7574	0.7772	0.7786
	8.2	Oct-99	Oct-02	SYM		0.4963	0.8683	0.7594	0.8773	0.8697	0.8683	0.7594	0.8773	0.8697	0.8683
	9.1	Jan-93	Sep-99	STD_LL		0.2324	0.6904	0.3865	0.5567	0.6514	0.6871	0.3865	0.5567	0.6514	0.6871
	9.1	Oct-99	Oct-02	STD		0.0875	0.2059	0.1379	0.1834	0.2016	0.2058	0.1379	0.1834	0.2016	0.2058
	9.2	Jan-93	Oct-95	STD		0.2721	0.5425	0.4077	0.5090	0.5383	0.5424	0.4077	0.5090	0.5383	0.5424
	9.2(3)	Nov-95	Oct-02	TAR*	-0.1134	0.3552	0.6549	0.6541	0.7550	0.7455	0.7248	0.6541	0.7068	0.7019	0.6911
Ireland	1	Jan-93	Dec-98	STD_LL		0.3035	0.7020	0.4757	0.6291	0.6887	0.7016	0.4757	0.6291	0.6887	0.7016
	1	Jan-99	Oct-02	MTAR*	-0.1720	0.3068	0.8596	0.8125	0.9263	0.9263	0.8650	0.8125	0.7855	0.8585	0.8589
	2	Jan-93	Aug-99	STD_LL		0.2722	0.6279	0.4264	0.5633	0.6161	0.6275	0.4264	0.5633	0.6161	0.6275
	2	Sep-99	Oct-02	BTAR*	0.0830	0.3673	0.9000	0.9112	0.9375	0.9500	0.8963	0.9112	0.8456	0.9330	0.9005
	4	Jan-93	Sep-95	STD_LL		0.3965	0.6500	0.5512	0.6350	0.6491	0.6500	0.5512	0.6350	0.6491	0.6500
	4	Oct-95	Oct-02	SYM		0.2603	0.5334	0.3833	0.4801	0.5196	0.5323	0.3833	0.4801	0.5196	0.5323
	5[(2)]	Jan-94	Oct-02	STD		0.2047	0.2131	0.2128	0.2131	0.2131	0.2131	0.2128	0.2131	0.2131	0.2131
	6[(1)]	Feb-94	Oct-02	MTAR*		0.2488	0.9923	0.3599	0.4970	0.6418	0.8164	0.3599	0.4970	0.6418	0.8164
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0578	0.0925	0.0795	0.0907	0.0924	0.0925	0.0795	0.0907	0.0924	0.0925
	9.2[(2)]	Jan-94	Oct-02	BTAR*	0.0680	0.1420	0.2478	0.1643	0.2617	0.2545	0.2507	0.1643	0.2617	0.2545	0.2507
Italy	2	Jan-95	Dec-97	STD_LL		0.3099	1.0614	0.5293	0.7947	0.9667	1.0495	0.5293	0.7947	0.9667	1.0495
	2	Jan-98	Oct-02	MTAR*	-0.3327	0.3654	0.8174	0.5209	0.7139	0.7971	0.8167	0.5209	0.7139	0.7971	0.8167
	4.1	Jan-93	Feb-95	SYM		0.3114	1.0902	0.6485	1.1102	1.2133	1.0742	0.6485	1.1102	1.2133	1.0742
	4.1	Mar-97	Oct-02	MTAR*	0.3882	0.1585	0.9579	0.3690	0.6091	0.7625	0.8647	0.3690	0.3925	0.4921	0.6802
	4.2	Jan-93	Feb-95	SYM		0.4334	0.9375	0.7942	1.0419	0.9494	0.9381	0.7942	1.0419	0.9494	0.9381
	4.2	Mar-95	Oct-02	SYM		0.2123	0.9249	0.4527	0.8458	1.0525	0.9252	0.4527	0.8458	1.0525	0.9252
	5	Jan-95	Nov-97	STD_LL		0.4264	1.0570	0.6808	0.9231	1.0285	1.0557	0.6808	0.9231	1.0285	1.0557
	5	Dec-97	Oct-02	BTAR*	0.1860	0.4624	0.6809	0.8157	0.7530	0.6914	0.6795	0.8157	0.7530	0.6914	0.6795
	7	Jan-93	Feb-95	STD_LL		0.2043	0.5609	0.3341	0.4692	0.5373	0.5593	0.3341	0.4692	0.5373	0.5593
	7	Mar-95	Oct-02	STD_LL		0.1633	0.6244	0.2839	0.4387	0.5496	0.6123	0.2839	0.4387	0.5496	0.6123
	8[(3)]	Feb-95	Sep-97	STD		0.3027	0.6929	0.4732	0.6233	0.6805	0.6925	0.4732	0.6233	0.6805	0.6925
	8[(3)]	Oct-97	Oct-02	STD		0.0552	0.1249	0.0859	0.1127	0.1227	0.1248	0.0859	0.1127	0.1227	0.1248
Netherlands	2	Jan-93	Sep-96	STD		0.2648	0.3767	0.3435	0.3738	0.3766	0.3767	0.3435	0.3738	0.3766	0.3767
	2	Oct-96	Oct-02	MTAR*	0.0643	0.1157	0.3780	0.4249	0.6238	0.5389	0.4022	0.4249	0.6567	0.5899	0.4134
	4	Jan-93	Aug-97	BTAR*	0.1830	0.4379	1.0708	0.6216	0.8372	1.1672	1.0586	0.6216	1.1589	1.1404	1.0687
	4	Sep-97	Oct-02	SYM		0.3979	0.9881	0.7151	0.9181	0.9793	0.9880	0.7151	0.9181	0.9793	0.9880
	7	Jan-93	Dec-98	MTAR*	0.0089	0.0114	0.0305	0.0086	0.0134	0.0182	0.0241	0.0086	0.0253	0.0270	0.0287
	7	Jan-99	Oct-02	STD		-0.0459	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464
	8.1	Jan-93	Nov-95	STD		0.3842	0.5036	0.4753	0.5020	0.5036	0.5036	0.4753	0.5020	0.5036	0.5036
	8.1	Dec-95	Oct-02	MTAR*	0.0574	0.3250	0.5350	0.3501	0.5462	0.6446	0.5460	0.3501	0.5031	0.6110	0.5529

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.5% monetary policy shock				multiplier for a -0.5% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	8.2	Jan-93	Dec-95	STD		0.3716	0.5135	0.4743	0.5105	0.5134	0.5135	0.4743	0.5105	0.5134	0.5135
	8.2	Jan-96	Oct-02	MTAR*	0.1834	0.2208	0.2792	0.2647	0.3428	0.3522	0.3066	0.2647	0.3428	0.3522	0.3066
Portugal	2	Jan-93	Sep-97	MTAR*	-0.6829	0.0219	0.6859	0.0864	0.2158	0.4351	0.7554	0.0864	0.2158	0.4351	0.7554
	2[3]	Oct-97	Oct-02	TAR*	0.2878	0.0540	1.1049	0.6158	0.7190	0.7301	0.7472	0.6158	0.8960	0.9072	0.9162
	3[1]	Jan-93	Apr-95	MTAR*	0.1516	-0.1472	-0.1510	0.0306	0.0585	-0.1299	-0.1172	0.0306	0.0585	-0.1299	-0.1172
	3	May-95	Oct-02	MTAR*	0.9915	0.1921	1.5509	0.9128	1.1626	1.3891	1.5230	0.9128	1.1626	1.3891	1.5230
	4.1	Jan-93	Jul-94	SYM		0.0035	0.2624	0.0316	0.0775	0.1298	0.1943	0.0316	0.0775	0.1298	0.1943
	4.1	Aug-94	Oct-02	MTAR*	-1.3197	0.2212	1.5234	0.2754	0.7281	0.9152	1.0704	0.2754	0.7281	0.9152	1.0704
	4.2	Jan-93	Feb-95	SYM		0.1459	0.3290	0.2794	0.3258	0.3289	0.3290	0.2794	0.3258	0.3289	0.3290
	4.2	Mar-95	Oct-02	MTAR*	-0.6212	0.4992	1.5125	0.5330	0.9832	1.1415	1.2999	0.5330	0.9832	1.1415	1.2999
	8.1[3]	Jan-93	Jan-96	SYM		0.1951	0.5485	0.3375	0.4857	0.5423	0.5487	0.3375	0.4857	0.5423	0.5487
	8.1	Feb-96	Oct-02	BTAR*	0.0070	0.1655	0.8624	0.7257	0.6718	0.6712	0.6712	0.7257	0.8408	0.8421	0.8421
	8.2	Jan-93	Feb-96	MTAR*	-1.0878	0.0654	0.4544	0.1675	0.3046	0.4448	0.5512	0.1675	0.3046	0.4448	0.5512
	8.2	Mar-96	Oct-02	STD_LL		0.1668	0.6965	0.2936	0.4634	0.5940	0.6766	0.2936	0.4634	0.5940	0.6766
Spain	2	Jan-93	Sep-96	MTAR*	-0.2269	0.1144	0.6691	0.1945	0.3654	0.6822	0.9705	0.1945	0.3165	0.6136	0.9516
	2[3]	Oct-96	Oct-02	MTAR*	-0.2479	0.1393	0.8595	0.2912	0.5245	0.7419	0.8807	0.2912	0.5307	0.7500	0.8845
	3	Jan-93	Nov-96	SYM		0.1560	0.6060	0.2839	0.4470	0.5520	0.5999	0.2839	0.4470	0.5520	0.5999
	3	Dec-96	Oct-02	STD_LL		0.3340	0.8028	0.5291	0.7095	0.7843	0.8021	0.5291	0.7095	0.7843	0.8021
	4	Jan-93	Sep-96	SYM		0.2378	0.8482	0.3823	0.5691	0.7180	0.8198	0.3823	0.5691	0.7180	0.8198
	4	Oct-96	Oct-02	BTAR*	0.2060	0.3899	0.7783	0.6929	0.9400	0.8843	0.9016	0.6929	0.9400	0.8843	0.9016
	5	Jan-93	Mar-96	SYM		0.1095	0.6487	0.2096	0.3669	0.5088	0.6152	0.2096	0.3669	0.5088	0.6152
	5	Apr-96	Oct-02	STD_LL		0.2061	0.7475	0.3554	0.5419	0.6694	0.7362	0.3554	0.5419	0.6694	0.7362
	7	Jan-93	Feb-95	SYM		0.0383	0.3436	0.0807	0.1603	0.2460	0.3197	0.0807	0.1603	0.2460	0.3197
	7	Mar-95	Oct-02	MTAR*	-0.1543	0.0937	0.5040	0.1937	0.3556	0.5032	0.5312	0.1937	0.3555	0.5031	0.5312
	8	Jan-93	Mar-96	SYM		0.0151	0.4173	0.0558	0.1782	0.3639	0.4906	0.0558	0.1782	0.3639	0.4906
	8[3]	Apr-96	Oct-02	MTAR*	0.2257	0.1039	0.7562	0.3236	0.4628	0.5480	0.6463	0.3236	0.5570	0.6250	0.6872

Note: Multipliers are standardized by dividing the calculated multiplier by the interest rate shock.

Regarding averages reported in Figure 1 and 2 and Tables 1 or 3 note:

(1) Multipliers are excluded due to short sample period.

(2) Multipliers are included in the pre- as well as in the post-break averages.

(3) The optimal pass-through model does not converge. The next best, converging model has been chosen instead.

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.25% monetary policy shock				multiplier for a -0.25% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2[(1)]	Apr-95	Jul-97	MTAR*		0.0652	0.9698	0.2183	0.5580	0.8722	0.9819	0.2183	0.5580	0.8722	0.9819
	2	Aug-97	Oct-02	BTAR*	0.2350	0.1906	0.5210	0.3658	0.5641	0.6225	0.6164	0.3658	0.5641	0.6225	0.6164
	3[(3)]	Apr-95	Sep-98	MTAR[0]	0.3906	0.3124	1.4020	0.6376	0.7829	0.9047	0.9584	0.6376	0.7829	0.9047	0.9584
	3	Oct-98	Oct-02	TAR*	-0.1707	0.2578	0.5477	0.4583	0.6160	0.6755	0.5667	0.4583	0.6160	0.6755	0.5667
	4	Apr-95	Aug-97	SYM		0.0267	1.0233	0.1217	0.3789	0.7101	0.9833	0.1217	0.3789	0.7101	0.9833
	4[(3)]	Sep-97	Oct-02	TAR*	-0.2244	0.2364	0.5244	0.4382	0.6770	0.6436	0.5948	0.4382	0.6770	0.6436	0.5948
	7	Apr-95	Sep-99	MTAR*	0.0385	0.0109	0.1437	0.0520	0.0645	0.0715	0.0815	0.0520	0.0645	0.0715	0.0815
	7	Oct-99	Oct-02	TAR*	-0.0141	0.0162	0.0251	0.0364	0.0439	0.0348	0.0376	0.0364	0.0439	0.0348	0.0376
	8[(3)]	Apr-95	Mar-97	SYM		0.1311	0.6490	0.2404	0.3987	0.5307	0.6228	0.2404	0.3987	0.5307	0.6228
	8	Apr-97	Oct-02	MTAR*	0.0883	0.1381	0.3904	0.2950	0.4765	0.4416	0.4098	0.2950	0.4765	0.4416	0.4098
Belgium	2	Jan-93	Aug-95	STD		0.0170	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173	0.0173
	2	Sep-95	Oct-02	STD		0.1110	0.1373	0.1323	0.1371	0.1373	0.1373	0.1323	0.1371	0.1373	0.1373
	3	Jan-93	Dec-95	STD		0.0072	0.0085	0.0083	0.0084	0.0085	0.0085	0.0083	0.0084	0.0085	0.0085
	3	Jan-96	Oct-02	STD_LL		0.0911	0.2134	0.1433	0.1903	0.2090	0.2132	0.1433	0.1903	0.2090	0.2132
	4.1	Jan-93	Apr-95	MTAR*	0.2670	0.4111	0.4261	0.4189	0.3425	0.3921	0.4079	0.4189	0.3425	0.3921	0.4079
	4.1	May-95	Oct-02	MTAR*	0.2426	-0.0116	0.8041	-0.0146	0.2171	0.6675	1.1320	-0.0146	0.2171	0.6675	1.1320
	4.2[(2)]	Feb-94	Oct-02	STD_LL		0.2722	0.8420	0.4564	0.6654	0.7872	0.8367	0.4564	0.6654	0.7872	0.8367
	5	Jan-93	Oct-95	SYM		-0.0147	-0.0689	-0.0312	-0.0521	-0.0641	-0.0685	-0.0312	-0.0521	-0.0641	-0.0685
	5	Nov-95	Oct-02	TAR*	-0.9208	0.0841	0.1865	0.1003	0.1285	0.1556	0.1778	0.1003	0.1285	0.1556	0.1778
	8[(2)]	Jan-94	Oct-02	BTAR*	0.2020	0.2195	0.8126	0.2591	0.7467	0.8433	0.8157	0.2591	0.7467	0.8433	0.8157
	9	Jan-93	Dec-95	SYM		0.1002	0.2842	0.1388	0.2018	0.2486	0.2775	0.1388	0.2018	0.2486	0.2775
	9	Jan-96	Oct-02	STD_LL		-0.0116	-0.0448	-0.0202	-0.0313	-0.0393	-0.0438	-0.0202	-0.0313	-0.0393	-0.0438
Finland	2	Jan-93	Sep-96	SYM		0.0490	0.7122	0.0850	0.1334	0.1776	0.2350	0.0850	0.1334	0.1776	0.2350
	2	Oct-96	Oct-02	MTAR*	0.3942	0.0132	0.3816	0.0210	0.0472	0.0942	0.1772	0.0210	0.0472	0.0942	0.1772
	3[(3)]	Jan-93	Sep-96	SYM		0.0696	0.7350	0.0978	0.1553	0.2318	0.3559	0.0978	0.1553	0.2318	0.3559
	3	Oct-96	Oct-02	MTAR*	0.3664	0.0268	0.3840	0.0327	0.0575	0.0918	0.1506	0.0327	0.0575	0.0918	0.1506
	5	Jan-93	Jan-96	MTAR*	-0.1189	0.4494	0.7366	0.5053	0.8048	0.6986	0.7585	0.5053	0.8048	0.6986	0.7585
	5	Feb-96	Oct-02	MTAR*	-0.1289	0.0688	0.5198	0.0531	0.2277	0.3994	0.5256	0.0531	0.2277	0.3994	0.5256
	7	Jan-93	Feb-97	STD_LL		0.0147	0.0759	0.0266	0.0439	0.0591	0.0713	0.0266	0.0439	0.0591	0.0713
	7	Mar-97	Oct-02	STD		-0.0069	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085	-0.0082	-0.0085	-0.0085	-0.0085
	8	Jan-93	Aug-97	SYM		0.0355	0.7043	0.1217	0.3592	0.6672	0.7901	0.1217	0.3592	0.6672	0.7901
	8	Aug-97	Oct-02	STD		0.0019	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017
France	4	Jan-93	Jun-97	BTAR*	0.7960	0.0648	0.5620	0.4575	0.3832	0.4446	0.4838	0.4575	0.3832	0.4446	0.4838
	4	Jul-97	Oct-02	MTAR[0]		0.2095	0.7205	0.8013	0.7695	0.7374	0.7232	0.8013	0.9316	0.8657	0.7229
	5	Jan-93	Mar-97	MTAR*	0.2415	0.0398	0.5135	0.1272	0.2120	0.3476	0.4803	0.1272	0.2120	0.3476	0.4803
	5[(3)]	Apr-97	Oct-02	TAR*	0.2277	0.3369	0.6903	0.5711	0.5251	0.5699	0.6122	0.5711	0.5251	0.5699	0.6122
	8[(2)]	Jan-93	Oct-02	STD_LL		0.8201	0.9441	0.9278	0.9438	0.9441	0.9441	0.9278	0.9438	0.9441	0.9441
	9	Jan-93	May-98	TAR*	0.3204	0.0268	0.1428	0.0191	0.0246	0.0298	0.0394	0.0191	0.0246	0.0298	0.0394
	9	Jun-98	Oct-02	STD		0.0341	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349	0.0349
Germany	2	Jan-93	Oct-96	STD		0.0613	0.1361	0.0950	0.1237	0.1340	0.1360	0.0950	0.1237	0.1340	0.1360
	2	Nov-96	Oct-02	MTAR*	0.1515	0.5405	0.4500	0.7230	0.7565	0.6069	0.4641	0.7230	0.7565	0.6069	0.4641
	3	Jan-93	Feb-97	STD		0.2528	0.3998	0.3458	0.3925	0.3995	0.3998	0.3458	0.3925	0.3995	0.3998
	3	Mar-97	Oct-02	MTAR*	0.0580	0.0912	0.1084	0.1181	0.1287	0.1276	0.1232	0.1181	0.1287	0.1276	0.1232
	4[(3)]	Jan-93	Jul-00	MTAR*	0.1669	0.1642	0.8051	0.3932	0.6193	0.7104	0.7561	0.3932	0.6193	0.7104	0.7561
	4	Aug-00	Oct-02	MTAR*	0.0486	-0.0100	0.3037	0.4384	0.3344	0.2513	0.2636	0.4384	0.2764	0.2432	0.2580
	5[(2)]	Nov-96	Oct-02	MTAR*	0.1334	0.3467	0.4600	0.5186	0.5777	0.6010	0.5030	0.5186	0.5777	0.6010	0.5030
	8.1	Jan-93	Sep-99	STD_LL		0.3719	0.7202	0.5517	0.6808	0.7157	0.7202	0.5517	0.6808	0.7157	0.7202
	8.1	Oct-99	Oct-02	STD		0.3726	0.6127	0.5186	0.5982	0.6118	0.6127	0.5186	0.5982	0.6118	0.6127
	8.2	Jan-93	Sep-99	STD_LL		0.4624	0.7786	0.6502	0.7574	0.7772	0.7786	0.6502	0.7574	0.7772	0.7786
	8.2	Oct-99	Oct-02	SYM		0.4963	0.8683	0.7594	0.8773	0.8697	0.8683	0.7594	0.8773	0.8697	0.8683
	9.1	Jan-93	Sep-99	STD_LL		0.2324	0.6904	0.3865	0.5567	0.6514	0.6871	0.3865	0.5567	0.6514	0.6871
	9.1	Oct-99	Oct-02	STD		0.0875	0.2059	0.1379	0.1834	0.2016	0.2058	0.1379	0.1834	0.2016	0.2058
	9.2	Jan-93	Oct-95	STD		0.2721	0.5425	0.4077	0.5090	0.5383	0.5424	0.4077	0.5090	0.5383	0.5424
	9.2(3)	Nov-95	Oct-02	TAR*	-0.1134	0.3552	0.6549	0.6541	0.7068	0.7019	0.6911	0.6541	0.7068	0.7019	0.6911
Ireland	1	Jan-93	Dec-98	STD_LL		0.3035	0.7020	0.4757	0.6291	0.6887	0.7016	0.4757	0.6291	0.6887	0.7016
	1	Jan-99	Oct-02	MTAR*	-0.1720	0.3068	0.8596	0.8125	0.7653	0.8492	0.8585	0.8125	0.7653	0.8492	0.8585
	2	Jan-93	Aug-99	STD_LL		0.2722	0.6279	0.4264	0.5633	0.6161	0.6275	0.4264	0.5633	0.6161	0.6275
	2	Sep-99	Oct-02	BTAR*	0.0830	0.3673	0.9000	0.9112	0.9375	0.9500	0.8963	0.9112	0.8456	0.9330	0.9005
	4	Jan-93	Sep-95	STD_LL		0.3965	0.6500	0.5512	0.6350	0.6491	0.6500	0.5512	0.6350	0.6491	0.6500
	4	Oct-95	Oct-02	SYM		0.2603	0.5334	0.3833	0.4801	0.5196	0.5323	0.3833	0.4801	0.5196	0.5323
	5[(2)]	Jan-94	Oct-02	STD		0.2047	0.2131	0.2128	0.2131	0.2131	0.2131	0.2128	0.2131	0.2131	0.2131
	6[(1)]	Feb-94	Oct-02	MTAR*		0.2488	0.9923	0.3599	0.4970	0.6418	0.8164	0.3599	0.4970	0.6418	0.8164
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0578	0.0925	0.0795	0.0907	0.0924	0.0925	0.0795	0.0907	0.0924	0.0925
	9.2[(2)]	Jan-94	Oct-02	BTAR*	0.0680	0.1420	0.2478	0.1643	0.2617	0.2545	0.2507	0.1643	0.2617	0.2545	0.2507
Italy	2	Jan-95	Dec-97	STD_LL		0.3099	1.0614	0.5293	0.7947	0.9667	1.0495	0.5293	0.7947	0.9667	1.0495
	2	Jan-98	Oct-02	MTAR*	-0.3327	0.3654	0.8174	0.5209	0.7139	0.7971	0.8167	0.5209	0.7139	0.7971	0.8167
	4.1	Jan-93	Feb-95	SYM		0.3114	1.0902	0.6485	1.1102	1.2133	1.0742	0.6485	1.1102	1.2133	1.0742
	4.1	Mar-97	Oct-02	MTAR*	0.3882	0.1585	0.9579	0.3690	0.6091	0.7625	0.8647	0.3690	0.6091	0.7625	0.8647
	4.2	Jan-93	Feb-95	SYM		0.4334	0.9375	0.7942	1.0419	0.9494	0.9381	0.7942	1.0419	0.9494	0.9381
	4.2	Mar-95	Oct-02	SYM		0.2123	0.9249	0.4527	0.8458	1.0525	0.9252	0.4527	0.8458	1.0525	0.9252
	5	Jan-95	Nov-97	STD_LL		0.4264	1.0570	0.6808	0.9231	1.0285	1.0557	0.6808	0.9231	1.0285	1.0557
	5	Dec-97	Oct-02	BTAR*	0.1860	0.4624	0.6809	0.8157	0.7530	0.6914	0.6795	0.8157	0.7530	0.6914	0.6795
	7	Jan-93	Feb-95	STD_LL		0.2043	0.5609	0.3341	0.4692	0.5373	0.5593	0.3341	0.4692	0.5373	0.5593
	7	Mar-95	Oct-02	STD_LL		0.1633	0.6244	0.2839	0.4387	0.5496	0.6123	0.2839	0.4387	0.5496	0.6123
	8[(3)]	Feb-95	Sep-97	STD		0.3027	0.6929	0.4732	0.6233	0.6805	0.6925	0.4732	0.6233	0.6805	0.6925
	8[(3)]	Oct-97	Oct-02	STD		0.0552	0.1249	0.0859	0.1127	0.1227	0.1248	0.0859	0.1127	0.1227	0.1248
Netherlands	2	Jan-93	Sep-96	STD		0.2648	0.3767	0.3435	0.3738	0.3766	0.3767	0.3435	0.3738	0.3766	0.3767
	2	Oct-96	Oct-02	MTAR*	0.0643	0.1157	0.3780	0.4249	0.6238	0.5615	0.4083	0.4249	0.6567	0.5899	0.4134
	4	Jan-93	Aug-97	BTAR*	0.1830	0.4379	1.0708	0.6216	1.2193	1.1354	1.0706	0.6216	1.2193	1.1354	1.0706
	4	Sep-97	Oct-02	SYM		0.3979	0.9881	0.7151	0.9181	0.9793	0.9880	0.7151	0.9181	0.9793	0.9880
	7	Jan-93	Dec-98	MTAR*	0.0089	0.0114	0.0305	0.0086	0.0134	0.0182	0.0241	0.0086	0.0134	0.0182	0.0241
	7	Jan-99	Oct-02	STD		-0.0459	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464	-0.0464
	8.1	Jan-93	Nov-95	STD		0.3842	0.5036	0.4753	0.5020	0.5036	0.5036	0.4753	0.5020	0.5036	0.5036
	8.1	Dec-95	Oct-02	MTAR*	0.0574	0.3250	0.5350	0.3501	0.5462	0.6423	0.5457	0.3501	0.5462	0.6423	0.5457

Table B6: Monetary Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.25% monetary policy shock				multiplier for a -0.25% monetary policy shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	8.2	Jan-93	Dec-95	STD		0.3716	0.5135	0.4743	0.5105	0.5134	0.5135	0.4743	0.5105	0.5134	0.5135
	8.2	Jan-96	Oct-02	MTAR*	0.1834	0.2208	0.2792	0.2647	0.3428	0.3522	0.3066	0.2647	0.3428	0.3522	0.3066
Portugal	2	Jan-93	Sep-97	MTAR*	-0.6829	0.0219	0.6859	0.0864	0.2158	0.4351	0.7554	0.0864	0.2158	0.4351	0.7554
	2(3)	Oct-97	Oct-02	TAR*	0.2878	0.0540	1.1049	0.6158	0.7190	0.7301	0.7472	0.6158	0.7190	0.7301	0.7472
	3(1)	Jan-93	Apr-95	MTAR*	0.1516	-0.1472	-0.1510	0.0306	0.0585	-0.1299	-0.1172	0.0306	0.0585	-0.1299	-0.1172
	3	May-95	Oct-02	MTAR*	0.9915	0.1921	1.5509	0.9128	1.1626	1.3891	1.5230	0.9128	1.1626	1.3891	1.5230
	4.1	Jan-93	Jul-94	SYM		0.0035	0.2624	0.0316	0.0775	0.1298	0.1943	0.0316	0.0775	0.1298	0.1943
	4.1	Aug-94	Oct-02	MTAR*	-1.3197	0.2212	1.5234	0.2754	0.7281	0.9152	1.0704	0.2754	0.7281	0.9152	1.0704
	4.2	Jan-93	Feb-95	SYM		0.1459	0.3290	0.2794	0.3258	0.3289	0.3290	0.2794	0.3258	0.3289	0.3290
	4.2	Mar-95	Oct-02	MTAR*	-0.6212	0.4992	1.5125	0.5330	0.9832	1.1415	1.2999	0.5330	0.9832	1.1415	1.2999
	8.1(3)	Jan-93	Jan-96	SYM		0.1951	0.5485	0.3375	0.4857	0.5423	0.5487	0.3375	0.4857	0.5423	0.5487
	8.1	Feb-96	Oct-02	BTAR*	0.0070	0.1655	0.8624	0.7257	0.6718	0.6712	0.6712	0.7257	0.8965	0.8985	0.8985
	8.2	Jan-93	Feb-96	MTAR*	-1.0878	0.0654	0.4544	0.1675	0.3046	0.4448	0.5512	0.1675	0.3046	0.4448	0.5512
	8.2	Mar-96	Oct-02	STD_LL		0.1668	0.6965	0.2936	0.4634	0.5940	0.6766	0.2936	0.4634	0.5940	0.6766
Spain	2	Jan-93	Sep-96	MTAR*	-0.2269	0.1144	0.6691	0.1945	0.3165	0.6136	0.9516	0.1945	0.3165	0.6136	0.9516
	2(3)	Oct-96	Oct-02	MTAR*	-0.2479	0.1393	0.8595	0.2912	0.5307	0.7500	0.8845	0.2912	0.5307	0.7500	0.8845
	3	Jan-93	Nov-96	SYM		0.1560	0.6060	0.2839	0.4470	0.5520	0.5999	0.2839	0.4470	0.5520	0.5999
	3	Dec-96	Oct-02	STD_LL		0.3340	0.8028	0.5291	0.7095	0.7843	0.8021	0.5291	0.7095	0.7843	0.8021
	4	Jan-93	Sep-96	SYM		0.2378	0.8482	0.3823	0.5691	0.7180	0.8198	0.3823	0.5691	0.7180	0.8198
	4	Oct-96	Oct-02	BTAR*	0.2060	0.3899	0.7783	0.6929	0.9400	0.8843	0.9016	0.6929	0.9400	0.8843	0.9016
	5	Jan-93	Mar-96	SYM		0.1095	0.6487	0.2096	0.3669	0.5088	0.6152	0.2096	0.3669	0.5088	0.6152
	5	Apr-96	Oct-02	STD_LL		0.2061	0.7475	0.3554	0.5419	0.6694	0.7362	0.3554	0.5419	0.6694	0.7362
	7	Jan-93	Feb-95	SYM		0.0383	0.3436	0.0807	0.1603	0.2460	0.3197	0.0807	0.1603	0.2460	0.3197
	7	Mar-95	Oct-02	MTAR*	-0.1543	0.0937	0.5040	0.1937	0.3555	0.5031	0.5312	0.1937	0.3555	0.5031	0.5312
	8	Jan-93	Mar-96	SYM		0.0151	0.4173	0.0558	0.1782	0.3639	0.4906	0.0558	0.1782	0.3639	0.4906
	8(3)	Apr-96	Oct-02	MTAR*	0.2257	0.1039	0.7562	0.3236	0.4628	0.5480	0.6463	0.3236	0.4628	0.5480	0.6463

Note: Multipliers are standardized by dividing the calculated multiplier by the interest rate shock.

Regarding averages reported in Figure 1 and 2 and Tables 1 or 3 note:

(1) Multipliers are excluded due to short sample period.

(2) Multipliers are included in the pre- as well as in the post-break averages.

(3) The optimal pass-through model does not converge. The next best, converging model has been chosen instead.

Appendix C: Results for the Costs of Funds Approach

Table C1: Choice of Market Interest Rate for Cost of Funds Approach

	interest rate details				correlation coefficients										max correlation maturity (mth)
					interbank rate								govt bond yield		
country	code	loan / deposit type	maturity	interest fixing	1 mth	lag	3 mth	lag	6 mth	lag	12 mth	lag	120 mth	lag	
Ireland	1	cash overdraft			0.87	0	0.86	0	0.81	0	0.33	0	0.38	0	1
Austria	2	housing loans		floating	0.52	0	0.56	0	0.56	0	0.46	0	0.82	0	120
Belgium	2	mortgage loans with amortisation		5 yrs	0.68	0	0.73	0	0.79	0	0.86	0	0.89	0	120
Finland	2	housing loans to households			0.92	0	0.94	0	0.95	0	0.95	0	0.90	0	6
Germany	2	mortgage loans			0.69	0	0.71	0	0.74	0	0.81	0	0.95	0	120
Ireland	2	mortgage lending to households		variable	0.94	0	0.96	0	0.95	0	0.82	0	0.69	0	3
Italy	2	loans to households (80% housing loans)	above 1.5 yrs	fixed and floating	0.98	0	0.98	0	0.97	0	0.95	0	0.91	0	1
Netherlands	2	mortgage loans from credit institutions		5 yrs	0.71	0	0.74	0	0.77	0	0.83	0	0.94	0	120
Portugal	2	loans for house purchase	above 5 yrs	fixed and floating	0.98	0	0.96	0	0.95	0	0.93	0	0.91	0	1
Spain	2	mortgage loan for house purchase	3 yrs	fixed and floating	0.98	0	0.99	0	0.99	0	0.98	0	0.92	0	6
Austria	3	consumer credit	long-term		0.43	0	0.49	0	0.50	0	0.41	0	0.83	0	120
Belgium	3	consumer credit / car loans		fixed	0.75	0	0.79	0	0.84	0	0.88	0	0.91	0	120
Finland	3	consumer credits to households		floating	0.92	0	0.93	0	0.94	0	0.94	0	0.90	0	6
Germany	3	instalment credits	3-5 yrs	fixed	0.86	0	0.85	0	0.84	0	0.82	0	0.80	0	1
Portugal	3	consumer credit to household / loans advances	2-5 yrs	fixed and floating	0.95	0	0.94	0	0.93	0	0.92	0	0.93	0	1
Spain	3	personal loans	above 1 yr	mostly fixed	0.97	0	0.98	0	0.98	0	0.97	0	0.92	0	6
Austria	4	loan to enterprises	short term	floating	0.51	0	0.56	0	0.56	0	0.46	0	0.84	0	120
Belgium	4.1	term loans	6 months		0.95	0	0.97	0	0.98	0	0.97	0	0.68	0	6
Belgium	4.2	current account advances			0.97	0	0.97	0	0.96	0	0.91	0	0.61	-8	3
France	4	discount, overdrafts, etc			0.89	0	0.89	0	0.89	0	0.87	0	0.81	0	6
Germany	4	current account loans		floating	0.97	0	0.97	0	0.96	0	0.92	0	0.55	0	1
Ireland	4	overdrafts, term loans	up to 1 yr	floating	0.96	0	0.97	0	0.96	0	0.85	0	0.65	0	3
Italy	4.1	loans to all customers (50% enterprises)	up to 1.5 yrs		0.99	0	0.99	0	0.98	0	0.95	0	0.92	0	1
Italy	4.2	loans to firms	up to 1.5 yrs	minimum rate	1.00	0	0.99	0	0.98	0	0.96	0	0.93	0	1
Netherlands	4	bank base rate, enterprises		floating (bank base rate)	0.98	0	0.98	0	0.96	0	0.92	0	0.40	0	1
Portugal	4.1	commercial bills	91-180 days		0.97	0	0.96	0	0.96	0	0.94	0	0.90	0	1
Portugal	4.2	loans to enterprises	91-180 days		0.98	0	0.98	0	0.97	0	0.95	0	0.92	0	1
Spain	4	corporate short term loans		floating	0.99	0	0.99	0	0.99	0	0.97	0	0.89	0	3
Belgium	5	investment credit	5 yrs	floating (mostly quarterly)	0.63	-1	0.67	-1	0.74	0	0.81	0	0.93	0	120
Finland	5	lending to enterprises		floating	0.96	0	0.97	0	0.97	0	0.95	0	0.84	0	6
France	5	medium and long-term loans			0.89	0	0.89	0	0.90	0	0.89	0	0.84	0	6
Germany	5	long-term loans to enterprises and self employed	above 4 years	fixed	0.80	-5	0.78	-4	0.77	-2	0.80	-1	0.74	0	12
Ireland	5	term loans to AA firms	1-3 yrs	floating	0.94	0	0.94	0	0.92	0	0.76	0	0.58	0	3
Italy	5	loans	above 1.5 yrs		0.99	0	0.99	0	0.99	0	0.97	0	0.94	0	3
Spain	5	credit accounts	1-3 yrs		0.98	0	0.99	0	0.99	0	0.98	0	0.92	0	6
Ireland	6	banks' prime lending to firms			0.97	0	0.94	0	0.90	0	0.85	0	0.58	0	1

Table C1: Choice of Market Interest Rate for Cost of Funds Approach

		interest rate details			correlation coefficients										max correlation maturity (mth)
					interbank rate								govt bond yield		
country	code	loan / deposit type	maturity	interest fixing	1 mth	lag	3 mth	lag	6 mth	lag	12 mth	lag	120 mth	lag	
Austria	7	current account deposits	sight		0.09	0	0.16	0	0.18	0	0.09	0	0.71	0	120
Finland	7	accounts subject to withholding tax			0.88	0	0.89	0	0.88	0	0.86	0	0.80	0	3
Italy	7	current account interest rate			0.99	0	0.98	0	0.97	0	0.95	0	0.93	0	1
Netherlands	7	ordinary demand deposits			0.51	0	0.50	0	0.49	0	0.48	0	0.61	0	120
Spain	7	overnight deposits	sight		0.98	0	0.98	0	0.97	0	0.95	0	0.88	0	1
Austria	8	savings deposits	up to 1 yr		0.61	0	0.65	0	0.63	0	0.51	0	0.76	0	120
Belgium	8	deposits with agreed maturity / notice period	3 mths		0.97	0	0.98	0	0.97	0	0.94	0	0.62	0	3
Finland	8	time deposits subject to witholding tax			0.83	0	0.83	0	0.82	0	0.81	0	0.81	0	3
France	8	EURIBOR / PIBOR deposits	3 mths		0.99	0	0.99	0	0.99	0	0.97	0	0.73	0	3
Germany	8.1	time deposits	1 mths		1.00	0	0.99	0	0.99	0	0.95	0	0.56	0	1
Germany	8.2	time deposits	3 mths		1.00	0	1.00	0	0.99	0	0.96	0	0.55	0	3
Italy	8	CD	1.5 - 2 yrs	fixed	0.98	0	0.99	0	0.99	0	0.98	0	0.96	0	6
Netherlands	8.1	time savings deposits	2 yrs		0.88	0	0.90	0	0.92	0	0.95	0	0.76	0	12
Netherlands	8.2	time savings deposits	4 yrs		0.70	0	0.72	0	0.76	0	0.82	0	0.92	0	120
Portugal	8.1	time deposits	31-90 days		0.99	0	0.99	0	0.99	0	0.98	0	0.93	0	1
Portugal	8.2	time deposits	181 days to 1 yr		0.99	0	0.99	0	0.99	0	0.98	0	0.95	0	3
Spain	8	deposits	1-2 yrs		0.97	0	0.98	0	0.99	0	0.99	0	0.94	0	6
Belgium	9	savings deposits			0.86	0	0.87	0	0.88	0	0.88	0	0.80	0	6
France	9	7 different taxable savings instruments	up to 3 mths	weighted average	0.72	0	0.71	0	0.73	0	0.73	0	0.78	0	120
Germany	9.1	savings accounts with 3 mths notice, higher interest	none		0.93	0	0.92	0	0.91	0	0.88	0	0.67	0	1
Germany	9.2	savings accounts with 3 mths notice, higher interest	up to 1 yr		0.97	0	0.98	0	0.98	0	0.98	0	0.68	0	6
Ireland	9.1	clearing banks demand deposits - households	sight		0.89	0	0.86	0	0.81	0	0.46	0	0.40	0	1
Ireland	9.2	clearing banks demand deposits - enterprises	sight		0.94	0	0.92	0	0.88	0	0.71	0	0.48	0	1

Table C2: Cost of Funds Approach - Unit Root Tests Allowing for the Presense of a Structural Break

	CoF rate	mean shift						trend shift						recursive		
country	(maturity in mth)	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)	max F(level)	max F(diff)	I(?)	min τ(level)	min τ(diff)	I(?)
Austria	1	-3.354	-5.962	1	11.667	26.032	1	-2.937	-5.909	1	6.629	25.755	1	-3.183	-6.050	0
	3	-3.162	-5.543	1	10.643	23.263	1	-2.780	-5.493	1	4.984	22.937	1	-2.982	-5.627	0
	6	-2.744	-5.108	1	9.064	19.976	1	-2.503	-5.077	1	5.453	19.711	1	-2.742	-5.288	0
	12	-2.768	-4.934	1	9.175	18.582	1	-2.475	-4.923	1	5.178	18.563	1	-2.841	-5.323	0
	120	-2.094	-5.998	1	7.632	28.483	1	-2.124	-6.001	1	4.810	26.902	1	-1.968	-6.815	1
Belgium	1	-2.400	-7.652	1	8.492	37.909	1	-2.364	-7.647	1	0.010	38.329	1	-2.514	-8.534	1
	3	-2.404	-6.974	1	6.167	32.228	1	-2.337	-6.968	1	0.010	32.175	1	-2.430	-7.753	1
	6	-2.468	-6.941	1	7.414	33.077	1	-2.369	-6.937	1	0.010	32.975	1	-2.472	-7.696	1
	12	-2.446	-6.581	1	8.238	30.593	1	-2.365	-6.583	1	0.010	30.492	1	-2.349	-7.351	1
	120	-2.181	-5.757	1	7.955	25.487	1	-2.257	-5.760	1	5.239	26.313	1	-1.879	-6.491	1
Finland	1	-3.558	-5.938	0	17.063	27.203	0	-3.295	-5.918	0	17.140	29.889	0	-3.843	-6.460	0
	3	-3.572	-5.347	0	17.437	22.761	0	-3.322	-5.333	0	16.291	24.667	0	-3.879	-5.892	0
	6	-3.455	-5.298	0	18.269	21.703	0	-3.359	-5.292	0	17.701	22.546	0	-3.997	-5.882	0
	12	-3.155	-4.799	1	15.653	17.283	1	-3.102	-4.804	0	19.103	17.792	0	-3.670	-5.389	0
	120	-2.113	-4.912	1	8.725	18.802	1	-2.125	-4.915	1	12.289	22.281	1	-2.415	-5.539	1
France	1	-5.116	-5.768	0	34.080	23.262	0	-4.983	-5.763	0	28.794	27.062	0	-5.811	-6.400	0
	3	-5.429	-5.979	0	37.992	25.571	0	-5.284	-5.975	0	30.270	29.808	0	-6.074	-6.638	0
	6	-4.708	-5.807	0	30.782	25.128	0	-4.551	-5.805	0	25.852	27.631	0	-5.315	-6.425	0
	12	-3.618	-5.182	0	18.096	21.220	0	-3.519	-5.183	0	19.463	21.840	0	-4.126	-5.753	0
	120	-1.825	-5.946	1	7.087	25.720	1	-1.843	-5.949	1	7.555	30.533	1	-2.032	-6.706	1
Germany	1	-3.002	-6.881	1	9.334	34.673	1	-2.589	-6.818	1	5.189	34.411	1	-2.914	-6.782	0
	3	-2.977	-6.126	1	9.418	28.780	1	-2.578	-6.069	1	4.161	28.436	1	-2.855	-6.100	0
	6	-2.690	-5.352	1	8.661	22.156	1	-2.411	-5.317	1	4.176	21.854	1	-2.669	-5.428	0
	12	-2.618	-4.922	1	8.288	18.234	1	-2.353	-4.912	1	7.021	18.212	1	-2.531	-5.373	1
	120	-1.970	-5.899	1	6.554	27.202	1	-1.991	-5.901	1	4.653	26.604	1	-2.065	-6.656	1
Ireland	1	-5.880	-4.615	0	46.877	14.295	0	-5.877	-4.614	0	35.273	15.037	0	-6.557	-5.249	0
	3	-5.914	-4.501	0	37.809	15.428	0	-5.912	-4.499	0	27.774	14.373	0	-6.646	-5.054	0
	6	-5.413	-4.675	0	28.233	19.121	0	-5.411	-4.674	0	22.574	15.613	0	-6.119	-5.222	0
	12	-2.813	-5.055	1	8.872	31.595	1	-2.694	-5.046	1	6.228	31.595	1	-2.370	-5.621	1
	120	-1.775	-5.577	1	8.026	23.300	1	-1.780	-5.579	1	0.010	25.334	1	-2.000	-6.295	1
Italy	1	-1.673	-6.393	1	5.016	30.141	1	-1.658	-6.389	1	5.152	36.222	1	-1.710	-7.200	1
	3	-1.682	-6.688	1	5.303	32.468	1	-1.661	-6.685	1	8.349	41.308	1	-1.743	-7.529	1
	6	-1.644	-6.786	1	5.509	34.151	1	-1.608	-6.785	1	8.298	44.017	1	-1.705	-7.644	1
	12	-1.599	-6.346	1	5.534	30.285	1	-1.583	-6.347	1	7.478	38.752	1	-1.713	-7.160	1
	120	-1.374	-5.505	1	6.194	23.866	1	-1.459	-5.506	1	6.198	32.751	1	-1.531	-6.210	1
Netherlands	1	-3.147	-5.825	1	10.252	25.388	1	-2.712	-5.766	1	7.290	25.092	1	-3.155	-5.719	0
	3	-3.044	-5.752	1	9.835	25.204	1	-2.659	-5.702	1	7.132	24.886	1	-3.052	-5.813	0
	6	-2.716	-5.510	1	8.742	23.256	1	-2.473	-5.479	1	7.792	22.988	1	-2.881	-5.726	0
	12	-2.580	-5.063	1	8.060	19.071	1	-2.351	-5.053	1	8.110	18.979	1	-2.663	-5.567	0
	120	-1.953	-5.971	1	6.261	27.442	1	-1.964	-5.974	1	5.780	27.756	1	-2.051	-6.742	1
Portugal	1	-3.103	-7.670	1	9.589	68.394	1	-3.800	-7.308	1	10.306	68.394	1	-2.881	-8.270	0
	3	-2.950	-6.198	1	10.050	48.084	1	-3.579	-6.103	1	10.230	48.084	1	-1.780	-6.934	1
	6	-2.575	-5.533	1	11.458	39.553	1	-3.097	-5.545	1	12.605	39.553	1	-1.340	-6.289	1
	12	-2.509	-4.658	1	12.471	27.988	1	-3.009	-4.712	1	5.124	27.988	1	-1.262	-5.317	1
	120	-1.781	-4.533	1	11.019	20.178	1	-2.147	-4.531	1	11.638	23.431	1	-1.288	-5.095	1
Spain	1	-2.395	-6.984	1	6.156	42.788	1	-2.333	-6.975	1	6.547	39.844	1	-2.364	-7.668	1
	3	-2.486	-5.900	1	7.770	29.439	1	-2.467	-5.894	1	8.089	28.556	1	-2.569	-6.520	1
	6	-2.357	-5.701	1	7.600	27.742	1	-2.298	-5.698	1	7.652	27.629	1	-2.460	-6.332	1
	12	-2.229	-4.909	1	7.129	20.768	1	-2.150	-4.911	1	8.772	22.042	1	-2.307	-5.487	1
	120	-1.352	-4.732	1	6.387	18.038	1	-1.431	-4.735	1	8.537	23.859	1	-1.361	-5.338	1

Note: This table presents the unit root test statistics for the cost of funds (CoF) proxy rates only as the results for the retail bank rates are already included in table B2. For critical values see notes to table B2.

Table C3: Cost of Funds Approach - Unit Root Tests

				bank rate								cost of funds rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
Austria	2	Apr-95	Feb-99	-2.264	-2.387	2	2	2.865	3.298	2	2	-2.020	-5.163	1	1	2.165	13.351	1	1
	2	Mar-99	Oct-02	-0.777	-2.916	1	1	1.710	5.671	1	2	-2.273	-4.683	1	1	6.341	11.505	0	1
	3	Apr-95	Aug-97	-1.674	-6.036	1	1	4.314	18.290	1	1	-1.260	-4.071	1	1	1.750	8.309	1	1
	3	Sep-97	Oct-02	-1.618	-3.074	1	1	1.392	4.764	2	2	-1.285	-3.362	1	1	1.319	5.709	1	2
	4	Apr-95	Aug-97	-0.708	-3.297	1	1	3.430	5.655	1	2	-1.347	-5.014	1	1	2.778	12.578	1	1
	4	Sep-97	Oct-02	-1.550	-2.931	1	1	1.202	4.297	2	2	-1.221	-4.263	1	1	0.910	9.085	1	1
	7	Apr-95	Nov-99	-2.302	-6.199	1	1	2.797	19.223	1	1	-2.449	-5.698	1	1	3.619	16.313	1	1
	7	Dec-99	Oct-02	-1.703	-4.341	1	1	1.458	9.518	1	1	-2.214	-3.478	1	1	5.135	6.088	1	2
	8	Apr-95	Mar-97	-1.753	-3.892	1	1	1.743	7.857	1	1	-1.243	-3.865	1	1	1.839	7.495	1	1
	8	Apr-97	Oct-02	-1.626	-3.362	1	1	1.365	5.800	1	2	-1.475	-4.272	1	1	1.350	9.130	1	1
Belgium	2	Jan-93	Aug-95	-0.940	-2.783	1	2	0.711	3.931	2	2	-1.505	-3.251	1	1	1.215	5.365	2	2
	2	Sep-95	Oct-02	-2.351	-4.919	1	1	2.995	12.244	1	1	-1.957	-5.486	1	1	2.188	15.128	1	1
	3	Jan-93	Dec-95	-2.425	-2.700	1	2	3.299	3.682	2	2	-3.330	-4.915	0	0	5.734	12.079	0	1
	3	Jan-96	Oct-02	-6.749	-6.864	0	0	24.445	23.566	0	0	-1.663	-4.514	1	1	1.552	10.491	1	1
	4.1	Jan-93	Mar-95	-2.882	-4.249	0	0	4.301	9.088	1	1	-2.686	-3.719	0	1	3.615	6.976	1	1
	4.1	Apr-95	Oct-02	-3.085	-5.199	0	0	5.236	13.516	1	1	-3.193	-6.043	0	0	6.229	18.376	0	1
	4.2	Jan-94	Oct-02	-2.890	-8.126	0	0	7.769	33.570	0	0	-3.207	-6.182	0	0	6.469	19.746	0	1
	5	Jan-93	Aug-96	-1.705	-4.472	1	1	1.455	10.240	1	1	-4.367	-4.968	0	0	9.537	12.395	0	0
	5	Sep-96	Oct-02	-2.564	-4.563	1	1	3.344	10.466	1	1	-1.319	-4.360	1	1	1.144	9.514	1	1
	8	Jan-94	Oct-02	-2.666	-6.274	0	1	4.516	20.020	1	1	-2.413	-7.111	1	1	3.667	26.382	1	1
	9	Jan-93	Dec-95	-2.128	-3.972	1	1	2.277	7.894	1	1	-3.142	-4.175	0	0	4.942	8.736	1	1
	9	Jan-96	Oct-02	-7.864	-7.655	0	0	35.220	29.304	0	0	-1.796	-4.914	1	1	1.620	12.142	1	1
Finland	2	Apr-94	Oct-02	-1.723	-4.488	1	1	1.498	10.141	1	1	-2.121	-5.371	1	1	2.324	14.437	1	1
	3	Jan-93	Sep-97	-2.501	-5.644	1	1	3.814	16.013	1	1	-2.742	-3.829	0	1	5.256	7.568	1	1
	3	Oct-97	Oct-02	-1.271	-3.744	1	1	0.887	7.014	1	1	-1.347	-3.500	1	1	1.258	6.135	1	2
	5	Jan-93	Apr-98	-2.857	-6.580	0	1	5.727	21.663	0	1	-3.256	-4.536	0	0	8.231	10.664	0	0
	5	May-98	Oct-02	-1.284	-5.090	1	1	0.825	12.959	1	1	-1.072	-3.320	1	1	0.827	5.515	1	2
	7	Jan-93	Feb-98	-4.314	-5.783	0	0	11.739	16.725	0	0	-3.099	-4.924	0	0	7.705	12.484	0	0
	7	Mar-98	Oct-02	-1.564	-4.597	1	1	1.223	10.573	1	1	-1.098	-3.906	1	1	0.880	7.632	1	1
	8	Jan-93	Nov-99	-3.778	-3.620	0	0	8.227	6.788	0	0	-3.442	-4.975	0	0	9.671	12.471	0	0
	8	Dec-99	Oct-02	-2.152	-3.830	1	1	2.570	7.334	1	1	-1.489	-3.403	1	1	2.162	6.115	1	2
France	4	Jan-93	Jun-97	-2.795	-5.604	0	1	4.697	15.716	1	1	-4.837	-4.341	0	0	14.407	9.458	0	0
	4	Jul-97	Oct-02	-2.795	-5.604	0	1	4.697	15.716	1	1	-4.837	-4.341	0	0	14.407	9.458	0	0
	5	Jan-93	Apr-97	-1.918	-6.087	1	1	1.988	18.538	1	1	-4.512	-4.463	0	0	11.856	9.973	0	0
	5	May-97	Oct-02	-1.832	-5.913	1	1	1.953	17.589	1	1	-1.204	-3.830	1	1	1.135	7.358	1	1
	8	Jan-93	Oct-02	-4.689	-7.069	0	0	12.958	25.022	0	0	-6.074	-6.638	0	0	21.654	22.123	0	0
	9	Jan-93	May-98	-2.161	-5.703	1	1	2.346	16.267	1	1	-5.734	-5.056	0	0	19.734	12.840	0	0
	9	Jun-98	Oct-02	-2.589	-5.142	0	1	4.166	13.223	1	1	-1.257	-3.648	1	1	0.900	6.655	1	1
Germany	2	Jan-93	Jun-95	-1.913	-2.043	2	2	1.900	2.950	2	2	-1.720	-2.938	1	1	1.481	5.013	2	2
	2	Jul-95	Oct-02	-2.384	-5.216	1	1	2.895	13.703	1	1	-1.789	-5.743	1	1	1.666	16.706	1	1
	3	Jan-93	Mar-97	-2.378	-5.131	1	1	2.956	13.179	1	1	-2.271	-4.238	1	1	3.241	8.985	1	1
	3	Apr-97	Oct-02	-1.627	-4.351	1	1	2.199	9.544	1	1	-1.271	-3.636	1	1	1.431	6.666	1	1
	4	Jan-93	Feb-01	-1.019	-5.158	1	1	12.215	13.531	0	0	-1.477	-7.527	1	1	9.345	28.347	0	0
	4	Mar-01	Oct-02	-0.944	-3.823	1	1	1.580	7.407	1	1	-1.031	-2.383	2	2	0.848	2.845	2	2
	5	Nov-96	Oct-02	-2.192	-4.238	1	1	2.405	8.982	1	1	-1.304	-4.147	1	1	1.367	8.692	1	1
	8.1	Jan-93	Sep-99	-2.920	-5.495	0	0	8.654	15.121	0	0	-2.636	-6.218	0	1	6.485	19.332	0	1
	8.1	Oct-99	Oct-02	-1.951	-3.057	1	1	3.586	4.677	2	2	-2.381	-3.617	1	1	5.664	6.554	0	1

Table C3: Cost of Funds Approach - Unit Root Tests

				bank rate								cost of funds rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
	8.2	Jan-93	Oct-02	-2.698	-5.336	0	1	5.237	14.258	1	1	-2.855	-6.100	0	1	6.252	18.627	0	1
	9.1	Jan-93	Sep-99	-3.082	-5.742	0	0	9.524	16.500	0	0	-2.636	-6.218	0	1	6.485	19.332	0	1
	9.1	Oct-99	Oct-02	-1.900	-2.182	2	2	3.169	2.389	2	2	-2.381	-3.617	1	1	5.664	6.554	0	1
	9.2	Jan-93	Nov-95	-2.244	-3.136	1	1	2.704	5.350	2	2	-1.944	-4.446	1	1	3.265	9.883	1	1
	9.2	Dec-95	Oct-02	-2.250	-3.688	1	1	2.565	6.908	1	1	-2.086	-4.892	1	1	2.183	11.975	1	1
Ireland	1	Jan-93	Dec-98	-11.041	-5.437	0	0	66.145	15.936	0	0	-7.378	-3.588	0	0	28.603	8.433	0	0
	1	Jan-99	Oct-02	-1.087	-3.471	1	1	1.028	6.054	1	2	-1.201	-4.402	1	1	0.847	10.629	1	1
	2	Apr-94	Oct-02	-2.273	-6.124	1	1	2.607	18.756	1	1	-2.148	-6.584	1	1	2.461	21.682	1	1
	4	Jan-94	Oct-02	-2.245	-5.328	1	1	2.578	14.214	1	1	-1.996	-5.850	1	1	2.001	17.135	1	1
	5	Jan-94	Oct-02	-2.558	-4.996	1	1	3.438	12.531	1	1	-2.334	-5.820	1	1	2.852	17.016	1	1
	6	Jan-93	Oct-02	-2.985	-10.701	0	0	4.707	58.388	1	1	-6.557	-5.249	0	0	23.039	14.756	0	0
	9.1	Jan-94	Oct-02	-5.965	-12.608	0	0	19.570	80.396	0	0	-2.266	-6.342	1	1	2.583	20.125	1	1
	9.2	Jan-94	Oct-02	-2.369	-6.358	1	1	2.808	20.295	1	1	-2.266	-6.342	1	1	2.583	20.125	1	1
Italy	2	Jan-95	May-98	-3.136	-5.819	0	0	12.740	17.248	0	0	-4.240	-4.854	0	0	9.383	11.831	0	0
	2	Jun-98	Oct-02	-2.746	-4.246	0	1	4.599	9.266	1	1	-1.554	-3.848	1	1	1.265	7.435	1	1
	4.1	Jan-93	Jul-99	-1.596	-3.285	1	1	1.431	5.742	1	2	-1.159	-6.415	1	1	0.776	20.704	1	1
	4.1	Aug-99	Oct-02	-1.655	-2.621	1	2	2.499	3.473	2	2	-1.285	-3.560	1	1	3.148	6.338	1	2
	4.2	Jul-94	Oct-02	-2.368	-3.717	1	1	2.868	6.961	1	1	-1.804	-5.956	1	1	1.781	17.764	1	1
	5	Jan-95	Dec-96	-0.738	-6.801	1	1	13.854	23.761	0	0	-2.097	-5.856	1	1	6.519	17.225	0	0
	5	Jan-97	Oct-02	-1.630	-6.624	1	1	3.054	22.070	1	1	-1.315	-4.657	1	1	1.062	11.126	1	1
	7	Jan-93	Feb-95	-0.624	-3.781	1	1	1.971	7.219	1	1	-1.395	-6.114	1	1	3.935	19.228	1	1
	7	Mar-95	Oct-02	-0.879	-4.600	1	1	0.552	10.583	1	1	-1.353	-5.396	1	1	0.922	14.559	1	1
	8	Feb-95	Jan-97	-1.297	-5.018	1	1	4.372	12.777	1	1	-2.372	-5.013	1	1	6.165	12.614	0	1
	8	Feb-97	Oct-02	-1.995	-3.647	1	1	2.675	6.899	1	1	-1.493	-4.764	1	1	1.518	11.352	1	1
Netherlands	2	Jan-93	Jun-95	-2.076	-2.598	1	2	2.201	4.311	2	2	-1.956	-3.076	1	1	1.943	5.621	1	2
	2	Jul-95	Oct-02	-2.540	-4.907	1	1	3.296	12.249	1	1	-1.876	-5.779	1	1	1.917	16.879	1	1
	4	Jan-93	Aug-98	-2.068	-5.284	1	1	18.973	14.040	0	0	-1.843	-5.385	1	1	8.275	14.499	0	0
	4	Sep-98	Oct-02	-0.821	-3.696	1	1	0.714	6.829	1	1	-0.987	-3.658	1	1	0.658	6.690	1	1
	7	Jan-93	Dec-98	-5.760	-7.662	0	0	21.668	30.068	0	0	-2.060	-5.414	1	1	8.999	14.692	0	0
	7	Jan-99	Oct-02	-4.459	-5.052	0	0	10.275	12.774	0	0	-0.913	-3.507	1	1	0.615	6.164	1	2
	8.1	Jan-93	Nov-95	-2.016	-2.708	1	2	2.129	4.175	2	2	-2.773	-3.081	0	1	5.009	4.750	2	2
	8.1	Dec-95	Oct-02	-2.498	-4.108	1	1	3.174	8.548	1	1	-1.987	-5.181	1	1	1.979	13.422	1	1
	8.2	Jan-93	Dec-95	-2.498	-4.108	1	1	3.174	8.548	1	1	-1.987	-5.181	1	1	1.979	13.422	1	1
	8.2	Jan-96	Oct-02	-2.302	-4.303	1	1	2.706	9.564	1	1	-1.804	-5.206	1	1	1.636	13.585	1	1
Portugal	2	Aug-93	Dec-95	-2.309	-2.999	1	1	6.908	4.723	0	0	-0.443	-2.115	2	2	0.842	3.058	2	2
	2	Jan-96	Oct-02	-1.355	-3.688	1	1	2.511	6.805	1	1	-2.649	-5.700	0	1	6.727	16.473	0	0
	3	Oct-94	Apr-98	-2.351	-7.148	1	1	3.690	25.550	1	1	-2.469	-4.224	1	1	3.145	8.984	1	1
	3	May-98	Oct-02	-5.318	-5.995	0	0	14.645	17.977	0	0	-1.176	-3.038	1	1	0.886	4.793	2	2
	4.1	Oct-94	Oct-99	-2.572	-6.438	0	1	3.450	20.885	1	1	-4.569	-8.756	0	0	10.467	38.386	0	0
	4.1	Nov-99	Oct-02	-1.468	-3.135	1	1	2.076	4.922	2	2	-2.236	-3.677	1	1	5.968	6.764	0	1
	4.2	Oct-94	Nov-99	-4.279	-10.052	0	0	9.221	50.588	0	0	-4.181	-8.527	0	0	8.746	36.467	0	0
	4.2	Dec-99	Oct-02	-1.894	-5.575	1	1	3.866	15.564	1	1	-2.210	-3.444	1	1	5.187	5.969	1	2
	8.1	Oct-94	Nov-00	2.043	-4.809	1	1	6.096	11.570	0	1	0.755	-6.627	1	1	3.087	22.025	1	1
	8.1	Feb-96	Oct-02	-2.132	-4.363	1	1	4.759	9.596	1	1	-2.333	-4.956	1	1	4.770	12.286	1	1
	8.2	Jan-93	Feb-96	-1.993	-2.413	2	2	2.410	3.384	2	2	-2.036	-4.205	1	1	3.309	8.916	1	1
	8.2	Oct-94	Jul-96	-0.489	-2.505	2	2	3.939	3.156	2	2	-2.612	-4.919	0	1	4.276	12.318	1	1
	8.2	Aug-96	Oct-02	-2.120	-4.646	1	1	6.521	10.799	0	0	-1.741	-4.484	1	1	2.359	10.070	1	1

Table C3: Cost of Funds Approach - Unit Root Tests

				bank rate								cost of funds rate							
		sample				I(?)				I(?)				I(?)				I(?)	
country	bankrate	start	end	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%	t(level)	t(diff)	10%	5%	F(level)	F(diff)	10%	5%
Spain	2	Jan-93	Sep-96	-1.780	-2.833	1	2	2.277	4.016	2	2	-1.279	-3.086	1	1	0.820	4.772	2	2
	2	Oct-96	Oct-02	-2.723	-2.468	0	2	4.093	3.179	2	2	-3.756	-4.559	0	0	9.342	10.409	0	0
	3	Apr-94	Oct-02	-1.236	-8.891	1	1	0.936	39.633	1	1	-1.250	-4.835	1	1	0.782	11.688	1	1
	4	Jan-93	Nov-96	-2.276	-4.316	1	1	4.300	9.623	1	1	-1.680	-5.297	1	1	2.376	14.240	1	1
	4	Dec-96	Oct-02	-2.671	-4.873	0	1	5.356	11.883	1	1	-2.100	-4.254	1	1	3.202	9.056	1	1
	5	Jan-93	Sep-94	-1.085	-4.070	1	1	1.575	9.256	1	1	-0.894	-3.744	1	1	1.112	7.198	1	1
	5	Oct-94	Oct-02	-0.725	-5.594	1	1	0.909	15.692	1	1	-1.110	-4.612	1	1	0.634	10.634	1	1
	7	Jan-93	Jan-95	0.314	-2.616	1	2	1.359	8.012	1	1	-0.643	-5.045	1	1	0.983	13.694	1	1
	7	Feb-95	Oct-02	-0.599	-5.123	1	1	2.171	13.345	1	1	-1.038	-4.478	1	1	0.745	10.161	1	1
	8	Jan-94	Oct-02	-1.332	-4.313	1	1	1.047	9.406	1	1	-1.193	-4.980	1	1	0.918	12.466	1	1

See notes to Table B3.

Table C4: Cost of Funds Approach - Symmetric Cointegration

country	bankrate	sample start	sample end	intercept coeff	t statistic	slope coeff	t statistic	DW	DF	ADF	coint?
Austria	2	Apr-95	Feb-99	1.9157	2.8400	1.3078	6.9691	0.1956	-1.2235		no
	2	Mar-99	Oct-02	3.4990	57.5435	0.5944	37.2785	1.3615	-4.6566		yes
	3	Apr-95	Aug-97	3.2415	5.5966	1.4217	9.3862	0.3792	-1.4218		no
	3	Sep-97	Oct-02	5.0189	18.0417	0.5535	7.8910	0.1113	-2.1501	-1.8570	no
	4	Apr-95	Aug-97	3.0895	6.3539	1.1908	8.9302	0.4462	-1.5136		yes
	4	Sep-97	Oct-02	4.1250	25.1289	0.5618	12.7597	0.2160	-2.5670	-2.1707	no
	7	Apr-95	Nov-99	-0.0814	-1.4138	0.1566	9.4412	0.2929	-2.1359		no
	7	Dec-99	Oct-02	0.1352	7.3166	0.0402	8.7949	0.5332	-2.7219		yes
	8	Apr-95	Mar-97	0.8117	4.3749	0.6726	13.8620	0.5353	-1.3017		yes
	8	Apr-97	Oct-02	1.1356	10.3880	0.3982	13.7092	0.2589	-2.4140		no
Belgium	2	Jan-93	Aug-95	3.8251	13.8678	0.6103	11.6811	0.1739	-1.4247		no
	2	Sep-95	Oct-02	0.2257	0.4742	1.1353	12.1164	0.2295	-2.3506		no
	3	Jan-93	Dec-95	9.1264	12.0940	0.4212	3.5164	0.2732	-2.0283		no
	3	Jan-96	Oct-02	5.7003	20.4220	0.4108	5.7068	0.1963	-2.1598		no
	4.1	Jan-93	Mar-95	4.1972	14.0263	0.4435	10.8344	1.1017	-3.5079	-3.5149	yes
	4.1	Apr-95	Oct-02	1.4843	9.2230	0.8379	19.7118	0.5617	-3.7804	-3.9798	yes
	5	Jan-93	Aug-96	6.7515	16.6441	0.2442	3.5898	0.3033	-1.8089	-2.1169	no
	5	Sep-96	Oct-02	4.7380	13.1523	0.4148	4.3761	0.1516	-1.9451	-2.3700	no
	8	Jan-94	Oct-02	-0.1800	-2.7786	0.8572	55.0502	1.3584	-7.2897	-3.8986	yes
	9	Jan-93	Dec-95	2.5424	11.3434	0.3544	10.3715	1.2060	-3.9250	-4.1495	yes
Finland	2	Apr-94	Oct-02	2.4392	3.9361	0.5541	4.6206	0.0793	-0.9985	-3.5242	yes
	3	Jan-93	Sep-97	3.7892	16.8202	0.9580	25.3111	0.6946	-3.4316	-1.7270	yes
	3	Oct-97	Oct-02	3.1827	13.1746	0.8170	13.5562	0.2933	-2.5837		no
	5	Jan-93	Apr-98	1.5327	10.3116	0.9722	36.2251	1.3525	-5.6222	-3.3645	yes
	5	May-98	Oct-02	0.9660	5.2876	0.9508	20.2998	1.2913	-5.1341	-1.9356	yes
	7	Mar-98	Oct-02	0.1624	2.9391	0.1791	12.2649	0.4254	-2.6289		yes
France	4	Jan-93	Jun-97	4.8572	20.9688	0.5436	15.1470	0.5024	-2.7181		yes
	4	Jul-97	Oct-02	2.2018	11.0393	0.7657	14.2350	0.6844	-4.4241		yes
	5	Jan-93	Apr-97	4.6738	22.3749	0.5930	17.7759	0.4739	-2.2276	-2.3969	yes
	5	May-97	Oct-02	2.3101	8.3135	0.7342	10.0638	0.2596	-2.7753		no
	8	Jan-93	Oct-02	0.1739	2.6376	0.9560	74.3301	1.7477	-9.7729	-8.0578	yes
	9	Jan-93	May-98	3.2295	36.2328	0.1401	9.4138	0.2624	-2.6081		no
	9	Jun-98	Oct-02	2.7035	13.1409	0.0671	1.2408	0.2184	-1.7603		no
Germany	2	Jan-93	Jun-95	0.7782	2.1993	1.0147	19.4760	0.9384	-3.1904		yes
	2	Jul-95	Oct-02	2.0796	9.9676	0.7261	18.4099	0.1873	-2.1801	-2.2996	no
	3	Jan-93	Mar-97	8.8120	57.0857	0.8608	28.8249	0.3110	-1.9372	-2.0765	no
	3	Apr-97	Oct-02	10.2096	47.6881	0.1036	1.8843	0.0428	-1.8960	-1.4917	no
	4	Jan-93	Feb-01	5.1929	92.5332	0.7828	64.3855	0.5086	-3.7530		yes
	4	Mar-01	Oct-02	7.6632	87.4703	0.2462	10.8775	0.7080	-1.6211		yes
	5	Nov-96	Oct-02	4.5146	19.9183	0.4926	8.1378	0.1087	-1.8290		no
	8.1	Oct-99	Oct-02	-0.3650	-3.6186	0.7968	31.9517	1.0870	-3.7107		yes
	8.2	Jan-93	Oct-02	0.0236	1.1075	0.8325	175.0683	1.0571	-6.4404	-4.4040	yes
	9.1	Oct-99	Oct-02	0.7363	8.2172	0.3328	15.0202	0.2778	-1.9633	-2.6739	no
	9.2	Jan-93	Nov-95	1.6643	9.3696	0.5689	19.2660	0.1907	-1.4689	-1.4801	no
	9.2	Dec-95	Oct-02	0.8137	8.7884	0.6705	26.5055	0.3798	-2.3339		no
Ireland	1	Jan-99	Oct-02	8.0550	64.4695	0.8613	26.1178	0.6867	-3.5040	-2.3720	yes
	2	Apr-94	Oct-02	3.2024	8.4085	0.5005	8.2115	0.0838	-1.4044	-2.2022	no
	4	Jan-94	Oct-02	6.8318	68.5830	0.5719	29.0425	0.3956	-3.3478	-1.9251	yes
	5	Jan-94	Oct-02	6.5651	49.8268	0.3929	15.3057	0.2357	-2.5421		no
	6	Jan-93	Oct-02	0.2172	1.4561	1.0572	41.5190	1.3890	-13.3485	-9.2073	yes
	9.1	Jan-94	Oct-02	-0.1446	-3.1009	0.0971	10.6443	0.2246	-2.4876	-3.2038	yes
	9.2	Jan-94	Oct-02	-0.4944	-7.9904	0.2396	19.7857	0.4127	-3.4117	-3.7193	yes
Italy	2	Jan-95	May-98	6.4910	15.4093	0.5922	13.3261	0.2287	-2.1118	-1.4596	no
	2	Jun-98	Oct-02	5.6484	6.5266	0.1192	0.7047	0.1143	-2.2716	-2.5638	no
	4.1	Jan-93	Jul-99	2.6914	17.8194	1.0168	55.6649	0.5233	-3.4068	-3.2840	yes
	4.1	Aug-99	Oct-02	3.4692	40.2400	0.6836	31.1311	1.0076	-3.5081		yes
	4.2	Jul-94	Oct-02	0.1948	3.1977	0.9467	101.3713	0.7223	-5.1440		yes
	5	Jan-95	Dec-96	5.9053	9.2449	0.5322	8.1397	0.5004	-1.8994		yes
	5	Jan-97	Oct-02	1.2608	10.8701	1.0109	40.7310	1.0103	-5.1766	-3.2156	yes
	7	Jan-93	Feb-95	0.1411	0.5083	0.5928	20.2040	0.9199	-3.4305		yes
	7	Mar-95	Oct-02	-0.7889	-13.1452	0.6334	66.6923	0.3297	-3.1926		yes
	8	Feb-95	Jan-97	1.1285	2.3670	0.7417	14.9663	0.9651	-2.9164		yes
	8	Feb-97	Oct-02	0.7356	11.6171	0.6375	47.2703	0.5705	-3.5133		yes

Table C4: Cost of Funds Approach - Symmetric Cointegration

		sample		intercept	t	slope	t				
country	bankrate	start	end	coeff	statistic	coeff	statistic	DW	DF	ADF	coint?
Netherlands	2	Jan-93	Jun-95	2.5756	6.5959	0.7570	13.1473	0.6496	-2.7524		yes
	2	Jul-95	Oct-02	2.3154	11.5781	0.7026	18.7639	0.2472	-2.4891	-2.6437	no
	4	Jan-93	Aug-98	-0.0459	-0.6085	1.0631	66.5705	0.9958	-4.6675		yes
	4	Sep-98	Oct-02	0.5823	5.4902	1.0036	35.5439	2.1795	-7.9103		yes
	8.1	Jan-93	Nov-95	3.3039	9.6124	0.3266	5.4303	0.1967	-1.3259		no
	8.1	Dec-95	Oct-02	1.4518	10.5731	0.5586	14.6674	0.4145	-3.3993	-3.3815	yes
	8.2	Jan-93	Dec-95	5.3056	11.2374	0.0629	0.7555	0.1418	-1.1664		no
	8.2	Jan-96	Oct-02	2.9408	13.0008	0.2968	4.7289	0.1076	-1.5751	-2.4643	no
Portugal	2	Aug-93	Dec-95	19.6740	14.3915	-0.5843	-4.6170	0.2041	-2.8311	-1.8666	no
	2	Jan-96	Oct-02	-1.5971	-3.0430	1.5010	17.1523	0.1110	-1.5749		no
	3	Oct-94	Apr-98	9.3184	21.3466	0.7839	14.5587	0.6084	-2.5810		yes
	4.1	Oct-94	Oct-99	4.1055	30.2305	1.2363	61.8130	1.4244	-5.8851	-5.8007	yes
	4.1	Nov-99	Oct-02	4.9251	32.3270	0.6504	17.1418	1.6200	-5.9287		yes
	4.2	Dec-99	Oct-02	2.6193	11.4851	0.7654	13.5679	1.3194	-4.0268		yes
	8.1	Oct-94	Nov-00	0.0294	0.3903	0.8585	74.2016	0.5560	-3.4224	-3.8802	yes
	8.1	Feb-96	Oct-02	0.6771	5.8005	0.7696	26.3144	1.8099	-4.2212		yes
	8.2	Oct-94	Jul-96	2.0481	4.2209	0.6230	12.0590	0.6398	-1.7272		yes
	8.2	Aug-96	Oct-02	0.1626	1.6166	0.7449	33.8465	0.3138	-2.5225	-1.7475	no
Spain	2	Jan-93	Sep-96	6.1500	3.0342	0.5263	2.6997	0.0346	-1.4279	-2.3212	no
	2	Oct-96	Oct-02	0.3213	0.7602	1.0195	13.1892	0.1766	-1.9513	-2.5511	no
	3	Apr-94	Oct-02	4.0743	23.1971	1.0986	38.0417	0.4116	-3.6482		yes
	4	Jan-93	Nov-96	1.2472	3.9888	0.9678	29.7978	2.3918	-8.1934	-9.6532	yes
	4	Dec-96	Oct-02	1.7926	16.2425	0.7892	30.6875	1.3988	-6.1301	-3.7677	yes
	5	Jan-93	Sep-94	4.7286	10.7309	0.8466	19.8191	0.8867	-2.6050		yes
	5	Oct-94	Oct-02	2.3888	32.2050	0.9964	77.6270	0.9466	-5.4870	-3.2349	yes
	7	Jan-93	Jan-95	2.0640	7.2568	0.3723	13.7333	1.1138	-2.9814		yes
	7	Feb-95	Oct-02	0.1574	4.0730	0.5062	73.2773	0.6550	-4.5553		yes
	8	Jan-94	Oct-02	-0.6695	-9.9503	0.9249	82.0820	0.3981	-3.3308	-2.4720	yes

See notes to Table B4.

Table C5: Cost of Funds Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR					Engle	optimal
										coint test	asymmetry tests				-Granger	pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
Austria	2	Apr-95	Feb-99	-5.75	-17.24	-19.95	-6.95	-10.70	BTAR*	7.11	17.06	8.55	4.16	yes,asym	no	BTAR*
	2	Mar-99	Oct-02	-24.24	-24.87	-25.55	-24.45	-28.87	MTAR*	5.42	4.78			no	yes	SYM
	3	Apr-95	Aug-97	12.79	12.46	13.01	12.96	11.14	MTAR*	1.84	1.74			no	no	STD
	3	Sep-97	Oct-02	50.12	43.11	16.89	50.77	49.49	BTAR*	19.85	0.00	43.29	46.13	yes,asym	no	BTAR*
	4	Apr-95	Aug-97	6.18	0.09	0.62	7.37	4.07	TAR*	6.07	9.16			yes,asym	yes	TAR*
	4	Sep-97	Oct-02	21.14	11.01	-2.69	24.51	21.01	BTAR*	19.79	0.64	30.75	37.25	yes,asym	no	BTAR*
	7	Apr-95	Nov-99	-162.37	-162.96	-165.80	-164.53	-167.56	MTAR*	3.55	3.21			no	no	STD
	7	Dec-99	Oct-02	-173.43	-181.75	-181.51	-174.23	-180.51	TAR*	15.00	13.64			yes,asym	yes	TAR*
	8	Apr-95	Mar-97	-34.66	-35.49	-35.03	-31.61	-32.95	TAR*	2.10	2.40			no	yes	SYM
	8	Apr-97	Oct-02	-37.83	-41.43	-37.74	-38.38	-41.31	TAR*	6.80	3.61			yes,asym	no	TAR*
Belgium	2	Jan-93	Aug-95	7.30	5.56	3.37	6.66	5.91	BTAR*	6.25	5.97	0.88	5.88	yes,asym	no	BTAR*
	2	Sep-95	Oct-02	61.86	61.21	60.09	62.24	59.51	MTAR*	2.49	2.72			no	no	STD
	3	Jan-93	Dec-95	45.44	42.29	41.66	44.35	40.31	MTAR*	3.85	4.50			no	no	STD
	3	Jan-96	Oct-02													STD_LL
	4.1	Jan-93	Mar-95	18.78	15.34	14.92	18.89	13.64	MTAR*	8.61	11.31			yes,asym	yes	MTAR*
	4.1	Apr-95	Oct-02	110.84	110.34	109.09	110.95	109.53	BTAR*	6.36	3.67	0.11	3.75	yes,asym	yes	BTAR*
	4.2	Jan-94	Oct-02													STD_LL
	5	Jan-93	Aug-96	68.47	65.97	65.82	68.72	45.12	MTAR*	15.87	27.51			yes,asym	no	MTAR*
	5	Sep-96	Oct-02	105.99	103.85	104.51	105.42	104.28	TAR*	3.59	2.12			no	no	STD
	8	Jan-94	Oct-02	89.92	87.45	82.76	89.44	87.09	BTAR*	41.48	8.36	0.57	7.23	yes,asym	yes	BTAR*
	9	Jan-93	Dec-95	38.88	35.86	31.40	38.56	34.45	BTAR*	4.76	9.32	0.25	5.56	no	yes	SYM
	9	Jan-96	Oct-02													STD_LL
Finland	2	Apr-94	Oct-02	139.80	139.21	134.08	139.14	136.03	BTAR*	7.62	7.44	0.32	7.48	yes,asym	yes	BTAR*
	3	Jan-93	Sep-97	88.26	87.02	88.93	88.34	74.44	MTAR*	9.57	14.10			yes,asym	yes	MTAR*
	3	Oct-97	Oct-02	55.23	53.35	53.10	48.89	45.51	MTAR*	9.25	13.26			yes,asym	no	MTAR*
	5	Jan-93	Apr-98	112.28	110.20	109.40	112.69	110.91	BTAR*	3.72	4.43	0.36	4.65	no	yes	SYM
	5	May-98	Oct-02	51.91	50.78	51.06	51.76	50.17	MTAR*	2.86	1.64			no	yes	SYM
	7	Jan-93	Feb-98													STD_LL
	7	Mar-98	Oct-02	-100.27	-101.63	-103.17	-102.07	-104.83	MTAR*	7.46	4.81			yes,asym	yes	MTAR*
	8	Jan-93	Nov-99													STD_LL
	8	Dec-99	Oct-02													STD_LL
France	4	Jan-93	Jun-97	92.64	91.15	88.08	91.82	88.77	BTAR*	3.88	4.58	0.45	4.71	no	yes	SYM
	4	Jul-97	Oct-02	85.56	81.20	82.00	89.52	82.08	TAR*	20.08	9.12			yes,asym	yes	TAR*
	5	Jan-93	Apr-97	51.40	50.98	49.07	52.03	45.45	MTAR*	5.02	6.29			no	yes	SYM
	5	May-97	Oct-02	97.55	84.06	79.38	94.47	50.31	MTAR*	49.41	76.60			yes,asym	no	MTAR*
	8	Jan-93	Oct-02	223.65	220.93	213.67	223.17	221.14	BTAR*	18.36	12.26	0.49	9.46	yes,asym	yes	BTAR*
	9	Jan-93	May-98	1.21	-8.65	-6.73	0.44	-21.20	MTAR*	19.84	26.20			yes,asym	no	MTAR*
	9	Jun-98	Oct-02	-0.91	-1.86	-0.48	-2.32	-3.99	MTAR*	3.42	3.06			no	no	STD
Germany	2	Jan-93	Jun-95	-17.78	-19.32	-18.07	-20.52	-24.94	MTAR*	10.84	8.64			yes,asym	yes	MTAR*
	2	Jul-95	Oct-02	30.50	28.92	27.22	30.74	26.55	MTAR*	4.82	4.31			no	no	STD
	3	Jan-93	Mar-97	0.92	-2.23	-0.94	-0.23	-3.94	MTAR*	4.87	4.52			no	no	STD
	3	Apr-97	Oct-02	6.14	3.32	7.32	5.88	3.08	MTAR*	3.66	3.11			no	no	STD
	4	Jan-93	Feb-01	37.20	35.17	26.90	36.48	30.68	BTAR*	9.71	12.52	0.71	12.78	yes,asym	yes	BTAR*
	4	Mar-01	Oct-02	-60.48	-61.67	-60.88	-60.83	-61.94	MTAR*	2.12	1.40			no	yes	SYM

Table C5: Cost of Funds Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR					Engle	optimal
										coint test	asymmetry tests				-Granger	pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
	5	Nov-96	Oct-02	-17.08	-26.80	-30.93	-17.73	-24.55	BTAR*	8.15	17.14	5.78	7.99	yes,asym	no	BTAR*
	8.1	Jan-93	Sep-99													STD_LL
	8.1	Oct-99	Oct-02	-44.35	-46.76	-51.95	-45.30	-46.08	BTAR*	9.28	8.20	0.01	7.29	yes,asym	yes	BTAR*
	8.2	Jan-93	Oct-02	-103.19	-104.05	-113.55	-103.18	-104.01	BTAR*	8.15	12.23	0.00	12.26	yes,asym	yes	BTAR*
	9.1	Jan-93	Sep-99													STD_LL
	9.1	Oct-99	Oct-02	-86.70	-87.53	-94.52	-85.81	-89.19	BTAR*	4.16	10.10	1.09	9.66	no	no	STD
	9.2	Jan-93	Nov-95	-47.95	-48.12	-49.31	-50.45	-52.67	MTAR*	4.70	4.40			no	no	STD
	9.2	Dec-95	Oct-02	-32.28	-33.99	-34.78	-32.22	-34.14	BTAR*	4.25	4.35	0.68	2.73	no	no	STD
Ireland	1	Jan-93	Dec-98													STD_LL
	1	Jan-99	Oct-02	0.88	-6.38	-4.79	-0.83	-5.90	TAR*	4.42	7.86			no	yes	SYM
	2	Apr-94	Oct-02	204.74	204.10	201.43	204.75	200.84	MTAR*	3.37	3.87			no	no	STD
	4	Jan-94	Oct-02	84.72	74.09	73.80	81.24	78.39	BTAR*	5.96	13.59	0.31	13.05	yes,asym	yes	BTAR*
	5	Jan-94	Oct-02	100.70	99.91	97.57	100.76	92.56	MTAR*	7.59	8.42			yes,asym	no	MTAR*
	6	Jan-93	Oct-02	222.40	217.02	213.50	221.14	217.42	BTAR*	20.20	10.99	1.87	5.37	yes,asym	yes	BTAR*
	9.1	Jan-94	Oct-02													STD_LL
	9.2	Jan-94	Oct-02	-4.59	-7.76	-4.93	-10.89	-11.68	MTAR*	7.48	6.96			yes,asym	yes	MTAR*
Italy	2	Jan-95	May-98													STD_LL
	2	Jun-98	Oct-02	111.00	101.34	97.15	112.24	36.21	MTAR*	109.54	171.85			yes,asym	no	MTAR*
	4.1	Jan-93	Jul-99	123.08	122.88	117.97	123.05	122.24	BTAR*	3.93	6.86	0.02	6.85	no	yes	SYM
	4.1	Aug-99	Oct-02	-46.74	-47.26	-45.98	-47.05	-48.64	MTAR*	3.83	1.80			no	yes	SYM
	4.2	Jul-94	Oct-02	116.67	114.13	114.03	115.88	113.13	MTAR*	13.40	3.89			yes,asym	yes	MTAR*
	5	Jan-95	Dec-96	16.77	15.94	11.91	13.72	13.06	BTAR*	3.52	5.48	0.01	5.54	no	yes	SYM
	5	Jan-97	Oct-02	98.93	98.31	98.95	98.62	87.16	MTAR*	10.39	12.10			yes,asym	yes	MTAR*
	7	Jan-93	Feb-95	-11.59	-12.10	-15.17	-12.13	-12.13	BTAR*	2.46	4.60	1.18	4.93	no	yes	SYM
	7	Mar-95	Oct-02	43.46	42.32	41.43	43.42	41.52	BTAR*	4.32	3.98	0.00	3.98	no	yes	SYM
	8	Feb-95	Jan-97	14.98	13.44	12.45	14.80	14.17	BTAR*	5.00	3.95	0.46	4.36	no	yes	SYM
	8	Feb-97	Oct-02	-1.28	-6.40	-3.02	0.52	-1.87	TAR*	15.49	7.48			yes,asym	yes	TAR*
Netherlands	2	Jan-93	Jun-95	-11.78	-12.02	-12.24	-12.07	-14.61	MTAR*	5.63	2.63			no	yes	SYM
	2	Jul-95	Oct-02	27.84	24.93	22.81	27.36	23.70	BTAR*	5.09	7.79	0.58	4.68	no	no	STD
	4	Jan-93	Aug-98	50.66	48.54	49.25	46.82	44.75	MTAR*	9.25	5.87			yes,asym	yes	MTAR*
	4	Sep-98	Oct-02	2.40	-10.60	-12.11	2.87	0.41	BTAR*	37.08	19.39	9.19	8.01	yes,asym	yes	BTAR*
	7	Jan-93	Dec-98													STD_LL
	7	Jan-99	Oct-02													STD_LL
	8.1	Jan-93	Nov-95	3.19	0.04	0.79	3.02	-0.57	MTAR*	4.12	3.37			no	no	STD
	8.1	Dec-95	Oct-02	52.92	49.89	46.63	51.58	44.83	MTAR*	8.49	8.39			yes,asym	yes	MTAR*
	8.2	Jan-93	Dec-95	12.43	11.85	7.45	12.48	10.12	BTAR*	4.06	6.06	0.03	6.08	no	no	STD
	8.2	Jan-96	Oct-02	61.71	57.66	59.49	62.53	50.99	MTAR*	9.51	12.40			yes,asym	no	MTAR*
Portugal	2	Aug-93	Dec-95	64.49	62.75	61.81	64.55	63.62	BTAR*	3.09	2.77	0.99	4.63	no	no	STD
	2	Jan-96	Oct-02	141.47	140.42	141.00	139.34	136.80	MTAR*	6.12	4.78			yes,asym	no	MTAR*
	3	Oct-94	Apr-98	123.60	118.82	120.62	123.96	120.57	TAR*	6.52	5.27			yes,asym	yes	TAR*
	3	May-98	Oct-02													STD_LL
	4.1	Oct-94	Oct-99	125.73	124.03	122.80	125.73	123.19	BTAR*	8.17	4.32	0.44	3.00	yes,asym	yes	BTAR*
	4.1	Nov-99	Oct-02	-6.35	-6.94	-8.24	-8.11	-9.39	MTAR*	22.04	3.01			yes,asym	yes	MTAR*
	4.2	Oct-94	Nov-99													STD_LL

Table C5: Cost of Funds Approach - Determination of Optimal Pass-Through Model

		sample period		AIC of different TAR-type models					best TAR	cointegration based on best TAR: coint test	asymmetry tests				Engle -Granger	optimal pass-through
country	bankrate	start	end	TAR^0	TAR*	BTAR*	$MTAR^0$	MTAR*	(min AIC)	H_0: $\Sigma\rho_j=0$	H_0: $\rho_1=\rho_2$	H_0: $\rho_1=\rho_3$	H_0: $\rho_2=\rho_3$	coint?	coint?	model
	4.2	Dec-99	Oct-02	10.97	8.36	10.14	12.49	10.70	TAR*	12.48	5.15			yes,asym	yes	TAR*
	8.1	Oct-94	Nov-00	62.63	61.87	61.21	59.43	50.73	MTAR*	9.11	12.70			yes,asym	yes	MTAR*
	8.1	Feb-96	Oct-02	-37.86	-38.24	-37.84	-38.15	-43.45	MTAR*	14.24	5.78			yes,asym	yes	MTAR*
	8.2	Oct-94	Jul-96	7.48	6.78	1.99	6.97	3.26	BTAR*	4.76	7.71	0.06	7.63	no	yes	SYM
	8.2	Aug-96	Oct-02	36.12	34.36	32.80	33.89	29.79	MTAR*	7.26	7.41			yes,asym	no	MTAR*
Spain	2	Jan-93	Sep-96	49.91	48.09	41.69	50.09	46.83	BTAR*	5.11	10.15	0.00	8.82	yes,asym	no	BTAR*
	2	Oct-96	Oct-02	146.49	139.20	147.06	139.82	135.55	MTAR*	17.16	12.31			yes,asym	no	MTAR*
	3	Apr-94	Oct-02	299.73	298.95	292.22	299.80	298.40	BTAR*	5.16	9.60	0.37	8.68	no	yes	SYM
	4	Jan-93	Nov-96	64.08	63.74	61.26	63.87	62.73	BTAR*	2.92	3.31	0.01	4.07	no	yes	SYM
	4	Dec-96	Oct-02	80.63	73.17	78.68	79.51	75.82	TAR*	25.40	8.16			yes,asym	yes	TAR*
	5	Jan-93	Sep-94	20.58	9.11	11.10	19.13	13.13	TAR*	7.18	11.68			yes,asym	yes	TAR*
	5	Oct-94	Oct-02	168.60	165.88	166.30	169.29	162.31	MTAR*	13.16	7.06			yes,asym	yes	MTAR*
	7	Jan-93	Jan-95	11.86	-6.21	-26.49	9.00	-22.39	BTAR*	44.89	1.13	75.48	74.77	yes,asym	yes	BTAR*
	7	Feb-95	Oct-02	16.62	12.49	10.51	17.09	15.57	BTAR*	12.26	8.45	0.60	7.81	yes,asym	yes	BTAR*
	8	Jan-94	Oct-02	94.80	93.28	93.80	92.92	87.05	MTAR*	7.88	7.97			yes,asym	yes	MTAR*

See notes to Table B5.

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +1% cost of funds shock				multiplier for a -1% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2	Apr-95	Feb-99	BTAR*	0.3100	0.1313	0.6573	0.3425	0.6027	0.8845	0.9597	0.3425	0.5753	0.8419	0.9470
	2	Mar-99	Oct-02	SYM		0.0364	0.4950	0.0870	0.1938	0.3201	0.4423	0.0870	0.1938	0.3201	0.4423
	3	Apr-95	Aug-97	STD		0.2891	0.4103	0.3745	0.4072	0.4102	0.4103	0.3745	0.4072	0.4102	0.4103
	3	Sep-97	Oct-02	BTAR*	0.0640	0.2004	0.5535	0.2912	0.5591	0.7059	0.6094	0.2912	0.5591	0.7059	0.6094
	4[(3)]	Apr-95	Aug-97	MTAR*	-0.1486	0.0546	1.1908	0.2572	0.3716	0.5668	0.7749	0.2572	0.4118	0.6210	0.8275
	4	Sep-97	Oct-02	BTAR*	0.0110	0.2626	0.5618	0.3620	0.7363	0.7137	0.7138	0.3620	0.6415	0.6237	0.6238
	7	Apr-95	Nov-99	STD		0.0462	0.0419	0.0415	0.0419	0.0419	0.0419	0.0415	0.0419	0.0419	0.0419
	7	Dec-99	Oct-02	TAR*	-0.0178	0.0193	0.0402	0.0435	0.0543	0.0455	0.0408	0.0435	0.0511	0.0418	0.0404
	8	Apr-95	Mar-97	SYM		0.2262	0.6726	0.3442	0.4755	0.5763	0.6494	0.3442	0.4755	0.5763	0.6494
	8	Apr-97	Oct-02	TAR*	-0.1527	0.1417	0.3982	0.3061	0.5133	0.4528	0.4103	0.3061	0.5530	0.4955	0.4198
Belgium	2[(3)]	Jan-93	Aug-95	TAR*	-0.2760	0.4880	0.7951	0.7106	1.1523	0.8243	0.7951	0.7106	1.2588	0.9903	0.9180
	2	Sep-95	Oct-02	STD		0.5726	0.6763	0.6604	0.6760	0.6763	0.6763	0.6604	0.6760	0.6763	0.6763
	3	Jan-93	Dec-95	STD		0.1437	0.1616	0.1596	0.1616	0.1616	0.1616	0.1596	0.1616	0.1616	0.1616
	3	Jan-96	Oct-02	STD_LL		0.2024	0.4229	0.3079	0.3916	0.4184	0.4228	0.3079	0.3916	0.4184	0.4228
	4.1	Jan-93	Mar-95	MTAR*	0.2013	0.3858	0.4435	0.4235	0.3337	0.4293	0.4395	0.4235	0.3337	0.4293	0.4395
	4.1	Apr-95	Oct-02	BTAR*	0.0390	0.1507	0.8379	0.1750	0.5257	0.9302	1.1925	0.1750	0.3360	0.5442	0.6867
	4.2[(2)]	Jan-94	Oct-02	STD_LL		0.2885	0.8496	0.4791	0.6880	0.8031	0.8458	0.4791	0.6880	0.8031	0.8458
	5[(1)]	Jan-93	Aug-96	MTAR*		0.0317	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312
	5	Sep-96	Oct-02	STD		0.3822	0.4588	0.4460	0.4584	0.4588	0.4588	0.4460	0.4584	0.4588	0.4588
	8[(2)]	Jan-94	Oct-02	BTAR*	0.0780	1.0200	0.8572	0.7671	1.0520	0.9429	0.7916	0.7671	1.0520	1.0222	0.9259
	9	Jan-93	Dec-95	SYM		0.1020	0.3544	0.1808	0.2711	0.3267	0.3513	0.1808	0.2711	0.3267	0.3513
	9	Jan-96	Oct-02	STD_LL		-0.0147	-0.0558	-0.0255	-0.0393	-0.0492	-0.0547	-0.0255	-0.0393	-0.0492	-0.0547
Finland	2[(2)]	Apr-94	Oct-02	BTAR*	0.0160	0.1730	0.7106	0.2377	0.4264	0.7170	0.8880	0.2377	0.2986	0.3531	0.3823
	3	Jan-93	Sep-97	MTAR*	0.5539	0.6876	0.9580	0.8293	0.7684	0.8196	0.8916	0.8293	0.7684	0.8196	0.8916
	3	Oct-97	Oct-02	MTAR*	-0.0767	0.3611	0.8170	0.5552	0.6089	0.7295	0.8018	0.5552	0.6331	0.7366	0.8030
	5	Jan-93	Apr-98	SYM		0.7693	0.9722	0.7573	0.9174	0.9646	0.9720	0.7573	0.9174	0.9646	0.9720
	5	May-98	Oct-02	SYM		0.7044	0.9508	0.6956	0.8739	0.9374	0.9503	0.6956	0.8739	0.9374	0.9503
	7	Jan-93	Feb-98	STD_LL		0.0540	0.2143	0.0945	0.1473	0.1863	0.2094	0.0945	0.1473	0.1863	0.2094
	7	Mar-98	Oct-02	MTAR*	0.0410	0.0778	0.1791	0.1923	0.2077	0.2188	0.1983	0.1923	0.2257	0.2364	0.2075
	8	Jan-93	Nov-99	STD_LL		0.0860	0.5042	0.1573	0.2656	0.3680	0.4599	0.1573	0.2656	0.3680	0.4599
	8	Dec-99	Oct-02	STD_LL		0.0269	0.1045	0.0469	0.0728	0.0915	0.1023	0.0469	0.0728	0.0915	0.1023
France	4	Jan-93	Jun-97	SYM		0.2730	0.5436	0.3480	0.4426	0.5061	0.5385	0.3480	0.4426	0.5061	0.5385
	4	Jul-97	Oct-02	TAR*	-0.1362	0.3250	0.7657	0.8308	0.8332	0.7863	0.7676	0.8308	0.7951	0.7747	0.7665
	5	Jan-93	Apr-97	SYM		0.2454	0.5930	0.3055	0.4277	0.5193	0.5783	0.3055	0.4277	0.5193	0.5783
	5	May-97	Oct-02	MTAR*	-0.0227	0.3398	0.7342	0.2508	0.5114	0.6106	0.6745	0.2508	0.4187	0.5943	0.7237
	8[(2)]	Jan-93	Oct-02	BTAR*	0.0920	1.6735	0.9560	0.6058	1.0969	0.8448	0.8953	0.6058	1.1325	0.7666	0.9902
	9	Jan-93	May-98	MTAR*	0.0879	0.0005	0.1401	0.0444	0.0667	-0.0093	0.0128	0.0444	0.0745	0.0150	0.0325
	9	Jun-98	Oct-02	STD		0.0403	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412
Germany	2	Jan-93	Jun-95	MTAR*	-0.0292	0.5608	1.0147	0.8522	1.0670	1.0094	1.0171	0.8522	1.1434	1.0144	1.0212
	2	Jul-95	Oct-02	STD		0.4642	0.6060	0.5728	0.6042	0.6060	0.6060	0.5728	0.6042	0.6060	0.6060
	3	Jan-93	Mar-97	STD		0.2094	0.3534	0.2947	0.3437	0.3528	0.3534	0.2947	0.3437	0.3528	0.3534
	3	Apr-97	Oct-02	STD		0.0843	0.1431	0.1189	0.1390	0.1428	0.1431	0.1189	0.1390	0.1428	0.1431
	4	Jan-93	Feb-01	BTAR*	0.0210	0.2330	0.7828	0.3671	0.5324	0.5937	0.5937	0.3671	0.6329	0.7537	0.7538
	4	Mar-01	Oct-02	SYM		0.2586	0.2462	0.2856	0.2614	0.2481	0.2462	0.2856	0.2614	0.2481	0.2462
	5[(1)]	Nov-96	Oct-02	BTAR*	0.2340	0.2613	0.4926	0.4241	0.2608	0.0781	0.1825	0.4241	0.2608	0.0781	0.0435
	8.1	Jan-93	Sep-99	STD_LL		0.3730	0.7405	0.5581	0.6956	0.7350	0.7404	0.5581	0.6956	0.7350	0.7404
	8.1	Oct-99	Oct-02	BTAR*	0.1100	0.5024	0.7968	0.8328	0.7452	0.7756	0.7903	0.8328	0.7499	0.7797	0.7917
	8.2[(2)]	Jan-93	Oct-02	BTAR*	0.0270	0.6523	0.8325	0.7222	0.8417	0.8400	0.8360	0.7222	0.8627	0.8463	0.8410
	9.1	Jan-93	Sep-99	STD_LL		0.2313	0.7085	0.3872	0.5628	0.6640	0.7044	0.3872	0.5628	0.6640	0.7044
	9.1	Oct-99	Oct-02	STD		0.0951	0.2019	0.1454	0.1861	0.1996	0.2019	0.1454	0.1861	0.1996	0.2019
	9.2	Jan-93	Nov-95	STD		0.4560	0.6635	0.5986	0.6572	0.6633	0.6635	0.5986	0.6572	0.6633	0.6635
	9.2	Dec-95	Oct-02	STD		0.3477	0.5070	0.4569	0.5021	0.5069	0.5070	0.4569	0.5021	0.5069	0.5070
Ireland	1	Jan-93	Dec-98	STD_LL		0.3767	0.6351	0.5300	0.6177	0.6339	0.6351	0.5300	0.6177	0.6339	0.6351
	1	Jan-99	Oct-02	SYM		0.3941	0.8613	0.6150	0.7950	0.8522	0.8611	0.6150	0.7950	0.8522	0.8611
	2[(2)]	Apr-94	Oct-02	STD		0.0425	0.0610	0.0554	0.0605	0.0610	0.0610	0.0554	0.0605	0.0610	0.0610
	4[(2)]	Jan-94	Oct-02	BTAR*	0.3450	0.4323	0.5719	0.5241	0.5581	0.5618	0.5634	0.5241	0.5581	0.5618	0.5634
	5[(2)]	Jan-94	Oct-02	MTAR*	-0.3883	0.2207	0.3929	0.4172	0.6746	0.6156	0.5413	0.4172	0.6746	0.6156	0.5413
	6[(2)(3)]	Jan-93	Oct-02	TAR[0]		0.8901	1.0572	0.9271	0.6791	0.7926	0.6963	0.9271	0.7149	0.9045	0.8962
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0558	0.0924	0.0779	0.0901	0.0922	0.0924	0.0779	0.0901	0.0922	0.0924
	9.2[(2)]	Jan-94	Oct-02	MTAR*	-0.0072	0.1921	0.2396	0.1817	0.2648	0.2568	0.2485	0.1817	0.2550	0.2499	0.2450
Italy	2	Jan-95	May-98	STD_LL		0.1491	0.9277	0.2742	0.4674	0.6555	0.8326	0.2742	0.4674	0.6555	0.8326
	2	Jun-98	Oct-02	MTAR*	-0.2291	0.1391	0.1192	0.1285	0.1865	0.1896	0.1491	0.1285	0.1865	0.1896	0.1491
	4.1	Jan-93	Jul-99	SYM		0.2658	1.0168	0.4738	0.7521	0.9463	1.0230	0.4738	0.7521	0.9463	1.0230
	4.1	Aug-99	Oct-02	SYM		0.3127	0.6836	0.5425	0.6746	0.6840	0.6836	0.5425	0.6746	0.6840	0.6836
	4.2[(2)]	Jul-94	Oct-02	MTAR*	0.1270	0.3131	0.9467	0.5769	0.8251	0.9232	0.9472	0.5769	0.8164	0.9246	0.9482
	5	Jan-95	Dec-96	SYM		0.3351	0.5322	0.3530	0.4415	0.4977	0.5272	0.3530	0.4415	0.4977	0.5272
	5	Jan-97	Oct-02	MTAR*	-0.2827	0.6548	1.0109	0.8193	0.8249	0.9118	0.9818	0.8193	0.8323	0.9179	0.9840
	7	Jan-93	Feb-95	SYM		0.2186	0.5928	0.4210	0.5866	0.5974	0.5927	0.4210	0.5866	0.5974	0.5927
	7	Mar-95	Oct-02	SYM		0.2498	0.6334	0.3682	0.4904	0.5740	0.6231	0.3682	0.4904	0.5740	0.6231
	8	Feb-95	Jan-97	SYM		0.2827	0.7417	0.5142	0.7546	0.7834	0.7391	0.5142	0.7546	0.7834	0.7391
	8	Feb-97	Oct-02	TAR*	-0.1454	0.2711	0.6375	0.5182	0.5852	0.6285	0.6376	0.5182	0.6625	0.6569	0.6380
Netherlands	2	Jan-93	Jun-95	SYM		0.4521	0.7570	0.6894	0.7813	0.7584	0.7570	0.6894	0.7813	0.7584	0.7570
	2	Jul-95	Oct-02	STD		0.3922	0.6787	0.5577	0.6571	0.6771	0.6787	0.5577	0.6571	0.6771	0.6787
	4	Jan-93	Aug-98	MTAR*	-0.0417	0.1904	1.0631	0.2735	0.7265	0.9020	0.9115	0.2735	0.7625	1.0032	0.9994
	4.2[(3)]	Sep-98	Oct-02	TAR*	0.1349	1.0140	1.0036	0.8353	0.9469	1.0610	1.0280	0.8353	1.0011	1.0567	1.0198
	7	Jan-93	Dec-98	STD_LL		0.0040	0.0155	0.0070	0.0109	0.0136	0.0152	0.0070	0.0109	0.0136	0.0152
	7	Jan-99	Oct-02	STD_LL		0.0074	0.0238	0.0126	0.0185	0.0221	0.0236	0.0126	0.0185	0.0221	0.0236
	8.1	Jan-93	Nov-95	STD		0.3068	0.3880	0.3710	0.3873	0.3880	0.3880	0.3710	0.3873	0.3880	0.3880
	8.1	Dec-95	Oct-02	MTAR*	-0.1959	0.1832	0.5586	0.1985	0.5130	0.7230	0.6675	0.1985	0.3926	0.5910	0.6571
	8.2	Jan-93	Dec-95	STD		0.2265	0.3101	0.2876	0.3085	0.3101	0.3101	0.2876	0.3085	0.3101	0.3101
	8.2	Jan-96	Oct-02	MTAR*	-0.1647	0.0671	0.2968	0.0812	0.1477	0.2215	0.2884	0.0812	0.1452	0.2184	0.2871
Portugal	2	Aug-93	Dec-95	STD		-0.0408	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627
	2	Jan-96	Oct-02	MTAR*	-0.4462	0.0657	1.5010	0.2115	0.4797	0.8437	1.3809	0.2115	0.4112	0.7533	1.2987
	3	Oct-94	Apr-98	TAR*	-1.2311	0.4327	0.7839	0.7561	0.1843	0.7628	0.7783	0.7561	0.1843	0.7628	0.7783

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +1% cost of funds shock				multiplier for a -1% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	3	May-98	Oct-02	STD_LL		0.1775	0.3163	0.2554	0.3046	0.3153	0.3163	0.2554	0.3046	0.3153	0.3163
	4.1[3]	Oct-94	Oct-99	SYM		0.2468	1.2363	0.6497	1.0909	1.2248	1.2363	0.6497	1.0909	1.2248	1.2363
	4.1	Nov-99	Oct-02	MTAR*	-0.0586	0.2314	0.6504	0.6288	0.8424	0.6786	0.6516	0.6288	0.8076	0.6559	0.6497
	4.2	Oct-94	Nov-99	STD_LL		0.6136	1.3299	0.9440	1.2179	1.3124	1.3294	0.9440	1.2179	1.3124	1.3294
	4.2	Dec-99	Oct-02	TAR*	0.1430	0.7814	0.7654	0.6954	0.7880	0.7557	0.7657	0.6954	0.7880	0.7557	0.7657
	8.1	Oct-94	Nov-00	MTAR*	0.2156	0.4769	0.8585	0.4601	0.7113	0.8323	0.8563	0.4601	0.6157	0.8299	0.8560
	8.1	Feb-96	Oct-02	MTAR*	-0.1036	0.5123	0.7696	1.0382	0.7624	0.8558	0.7822	1.0382	0.6829	0.8419	0.7787
	8.2	Oct-94	Jul-96	SYM		0.2419	0.6230	0.4183	0.5887	0.6304	0.6232	0.4183	0.5887	0.6304	0.6232
	8.2	Aug-96	Oct-02	MTAR*	-0.1170	0.3668	0.7449	0.6455	0.5765	0.5874	0.6660	0.6455	0.6040	0.6452	0.6946
Spain	2[3]	Jan-93	Sep-96	MTAR*	-0.3263	0.2392	0.5263	0.2290	0.3226	0.4764	0.6545	0.2290	0.3226	0.4764	0.6545
	2	Oct-96	Oct-02	MTAR*	0.3741	0.1275	1.0195	0.3144	0.5950	0.8998	1.1836	0.3144	0.6467	0.9654	1.2262
	3[2]	Apr-94	Oct-02	SYM		0.1702	1.0986	0.4204	0.7310	0.9520	1.0753	0.4204	0.7310	0.9520	1.0753
	4	Jan-93	Nov-96	SYM		0.6374	0.9678	0.9703	0.9794	0.9674	0.9678	0.9703	0.9794	0.9674	0.9678
	4	Dec-96	Oct-02	TAR*	-0.2871	0.6433	0.7892	0.7219	1.0300	0.8248	0.7842	0.7219	1.0300	0.8248	0.7842
	5	Jan-93	Sep-94	TAR*	-0.6153	0.3824	0.8466	0.4177	0.6408	0.9534	0.8490	0.4177	0.6408	0.9534	0.8490
	5	Oct-94	Oct-02	MTAR*	0.3736	0.3609	0.9964	0.5777	0.9454	0.9787	0.9937	0.5777	0.8096	0.9245	0.9855
	7	Jan-93	Jan-95	BTAR*	0.4190	0.1648	0.3723	0.3032	0.3358	0.3956	0.4073	0.3032	0.3358	0.3956	0.4073
	7[3]	Feb-95	Oct-02	TAR*	0.1505	0.1690	0.5062	0.3009	0.3799	0.4757	0.5155	0.3009	0.4284	0.5238	0.5276
	8[2]	Jan-94	Oct-02	MTAR*	0.1625	0.5246	0.9249	0.7752	0.8179	0.8293	0.8467	0.7752	0.8465	0.8543	0.8672

See notes to Table B6.

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.5% cost of funds shock				multiplier for a -0.5% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2	Apr-95	Feb-99	BTAR*	0.3100	0.1313	0.6573	0.3425	0.5640	0.8244	0.9356	0.3425	0.5640	0.8244	0.9356
	2	Mar-99	Oct-02	SYM		0.0364	0.4950	0.0870	0.1938	0.3201	0.4423	0.0870	0.1938	0.3201	0.4423
	3	Apr-95	Aug-97	STD		0.2891	0.4103	0.3745	0.4072	0.4102	0.4103	0.3745	0.4072	0.4102	0.4103
	3	Sep-97	Oct-02	BTAR*	0.0640	0.2004	0.5535	0.2912	0.5591	0.7059	0.6094	0.2912	0.5591	0.7059	0.6094
	4[(3)]	Apr-95	Aug-97	MTAR*	-0.1486	0.0546	1.1908	0.2572	0.3692	0.5634	0.7710	0.2572	0.5163	0.7741	1.0042
	4	Sep-97	Oct-02	BTAR*	0.0110	0.2626	0.5618	0.3620	0.6415	0.6237	0.6238	0.3620	0.6415	0.6237	0.6238
	7	Apr-95	Nov-99	STD		0.0462	0.0419	0.0415	0.0419	0.0419	0.0419	0.0415	0.0419	0.0419	0.0419
	7	Dec-99	Oct-02	TAR*	-0.0178	0.0193	0.0402	0.0435	0.0511	0.0443	0.0407	0.0435	0.0511	0.0443	0.0407
	8	Apr-95	Mar-97	SYM		0.2262	0.6726	0.3442	0.4755	0.5763	0.6494	0.3442	0.4755	0.5763	0.6494
	8	Apr-97	Oct-02	TAR*	-0.1527	0.1417	0.3982	0.3061	0.5530	0.4715	0.4145	0.3061	0.5530	0.4715	0.4145
Belgium	2[(3)]	Jan-93	Aug-95	TAR*	-0.2760	0.4880	0.7951	0.7106	1.2588	0.8295	0.7951	0.7106	1.2588	0.8295	0.7951
	2	Sep-95	Oct-02	STD		0.5726	0.6763	0.6604	0.6760	0.6763	0.6763	0.6604	0.6760	0.6763	0.6763
	3	Jan-93	Dec-95	STD		0.1437	0.1616	0.1596	0.1616	0.1616	0.1616	0.1596	0.1616	0.1616	0.1616
	3	Jan-96	Oct-02	STD_LL		0.2024	0.4229	0.3079	0.3916	0.4184	0.4228	0.3079	0.3916	0.4184	0.4228
	4.1	Jan-93	Mar-95	MTAR*	0.2013	0.3858	0.4435	0.4235	0.3337	0.4293	0.4395	0.4235	0.3337	0.4293	0.4395
	4.1	Apr-95	Oct-02	BTAR*	0.0390	0.1507	0.8379	0.1750	0.5506	0.7589	0.9044	0.1750	0.2407	0.2858	0.3168
	4.2[(2)]	Jan-94	Oct-02	STD_LL		0.2885	0.8496	0.4791	0.6880	0.8031	0.8458	0.4791	0.6880	0.8031	0.8458
	5[(1)]	Jan-93	Aug-96	MTAR*		0.0317	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312
	5	Sep-96	Oct-02	STD		0.3822	0.4588	0.4460	0.4584	0.4588	0.4588	0.4460	0.4584	0.4588	0.4588
	8[(2)]	Jan-94	Oct-02	BTAR*	0.0780	1.0200	0.8572	0.7671	1.0520	0.9962	0.9000	0.7671	1.0520	1.0217	0.9310
	9	Jan-93	Dec-95	SYM		0.1020	0.3544	0.1808	0.2711	0.3267	0.3513	0.1808	0.2711	0.3267	0.3513
	9	Jan-96	Oct-02	STD_LL		-0.0147	-0.0558	-0.0255	-0.0393	-0.0492	-0.0547	-0.0255	-0.0393	-0.0492	-0.0547
Finland	2[(2)]	Apr-94	Oct-02	BTAR*	0.0160	0.1730	0.7106	0.2377	0.4972	0.7695	0.9095	0.2377	0.2986	0.3531	0.3823
	3	Jan-93	Sep-97	MTAR*	0.5539	0.6876	0.9580	0.8293	0.7684	0.8196	0.8916	0.8293	0.7684	0.8196	0.8916
	3	Oct-97	Oct-02	MTAR*	-0.0767	0.3611	0.8170	0.5552	0.6089	0.7295	0.8018	0.5552	0.6331	0.7366	0.8030
	5	Jan-93	Apr-98	SYM		0.7693	0.9722	0.7573	0.9174	0.9646	0.9720	0.7573	0.9174	0.9646	0.9720
	5	May-98	Oct-02	SYM		0.7044	0.9508	0.6956	0.8739	0.9374	0.9503	0.6956	0.8739	0.9374	0.9503
	7	Jan-93	Feb-98	STD_LL		0.0540	0.2143	0.0945	0.1473	0.1863	0.2094	0.0945	0.1473	0.1863	0.2094
	7	Mar-98	Oct-02	MTAR*	0.0410	0.0778	0.1791	0.1923	0.2077	0.2229	0.2007	0.1923	0.2257	0.2364	0.2075
	8	Jan-93	Nov-99	STD_LL		0.0860	0.5042	0.1573	0.2656	0.3680	0.4599	0.1573	0.2656	0.3680	0.4599
	8	Dec-99	Oct-02	STD_LL		0.0269	0.1045	0.0469	0.0728	0.0915	0.1023	0.0469	0.0728	0.0915	0.1023
France	4	Jan-93	Jun-97	SYM		0.2730	0.5436	0.3480	0.4426	0.5061	0.5385	0.3480	0.4426	0.5061	0.5385
	4	Jul-97	Oct-02	TAR*	-0.1362	0.3250	0.7657	0.8308	0.8332	0.7863	0.7676	0.8308	0.7951	0.7747	0.7665
	5	Jan-93	Apr-97	SYM		0.2454	0.5930	0.3055	0.4277	0.5193	0.5783	0.3055	0.4277	0.5193	0.5783
	5	May-97	Oct-02	MTAR*	-0.0227	0.3398	0.7342	0.2508	0.5114	0.5803	0.6562	0.2508	0.4187	0.5276	0.6517
	8[(2)]	Jan-93	Oct-02	BTAR*	0.0920	1.6735	0.9560	0.6058	1.0969	0.5143	1.1316	0.6058	1.1325	0.5672	1.1173
	9	Jan-93	May-98	MTAR*	0.0879	0.0005	0.1401	0.0444	0.0667	-0.0093	0.0128	0.0444	0.0667	-0.0093	0.0128
	9	Jun-98	Oct-02	STD		0.0403	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412
Germany	2	Jan-93	Jun-95	MTAR*	-0.0292	0.5608	1.0147	0.8522	1.0670	1.0094	1.0188	0.8522	1.1434	0.9789	1.0166
	2	Jul-95	Oct-02	STD		0.4642	0.6060	0.5728	0.6042	0.6060	0.6060	0.5728	0.6042	0.6060	0.6060
	3	Jan-93	Mar-97	STD		0.2094	0.3534	0.2947	0.3437	0.3528	0.3534	0.2947	0.3437	0.3528	0.3534
	3	Apr-97	Oct-02	STD		0.0843	0.1431	0.1189	0.1390	0.1428	0.1431	0.1189	0.1390	0.1428	0.1431
	4	Jan-93	Feb-01	BTAR*	0.0210	0.2330	0.7828	0.3671	0.5140	0.5756	0.5756	0.3671	0.6579	0.7627	0.7627
	4	Mar-01	Oct-02	SYM		0.2586	0.2462	0.2856	0.2614	0.2481	0.2462	0.2856	0.2614	0.2481	0.2462
	5[(1)]	Nov-96	Oct-02	BTAR*	0.2340	0.2613	0.4926	0.4241	0.2608	0.0781	0.0458	0.4241	0.2608	0.0781	0.0458
	8.1	Jan-93	Sep-99	STD_LL		0.3730	0.7405	0.5581	0.6956	0.7350	0.7404	0.5581	0.6956	0.7350	0.7404
	8.1	Oct-99	Oct-02	BTAR*	0.1100	0.5024	0.7968	0.8328	0.7452	0.7756	0.7903	0.8328	0.7499	0.7797	0.7917
	8.2[(2)]	Jan-93	Oct-02	BTAR*	0.0270	0.6523	0.8325	0.7222	0.8051	0.7954	0.8043	0.7222	0.8051	0.7954	0.8043
	9.1	Jan-93	Sep-99	STD_LL		0.2313	0.7085	0.3872	0.5628	0.6640	0.7044	0.3872	0.5628	0.6640	0.7044
	9.1	Oct-99	Oct-02	STD		0.0951	0.2019	0.1454	0.1861	0.1996	0.2019	0.1454	0.1861	0.1996	0.2019
	9.2	Jan-93	Nov-95	STD		0.4560	0.6635	0.5986	0.6572	0.6633	0.6635	0.5986	0.6572	0.6633	0.6635
	9.2	Dec-95	Oct-02	STD		0.3477	0.5070	0.4569	0.5021	0.5069	0.5070	0.4569	0.5021	0.5069	0.5070
Ireland	1	Jan-93	Dec-98	STD_LL		0.3767	0.6351	0.5300	0.6177	0.6339	0.6351	0.5300	0.6177	0.6339	0.6351
	1	Jan-99	Oct-02	SYM		0.3941	0.8613	0.6150	0.7950	0.8522	0.8611	0.6150	0.7950	0.8522	0.8611
	2[(2)]	Apr-94	Oct-02	STD		0.0425	0.0610	0.0554	0.0605	0.0610	0.0610	0.0554	0.0605	0.0610	0.0610
	4[(2)]	Jan-94	Oct-02	BTAR*	0.3450	0.4323	0.5719	0.5241	0.5581	0.5618	0.5634	0.5241	0.5581	0.5618	0.5634
	5[(2)]	Jan-94	Oct-02	MTAR*	-0.3883	0.2207	0.3929	0.4172	0.6746	0.6156	0.5413	0.4172	0.6746	0.6156	0.5413
	6[(2)(3)]	Jan-93	Oct-02	TAR[0]		0.8901	1.0572	0.9271	0.6792	0.7929	0.6969	0.9271	0.7149	0.9045	0.8962
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0558	0.0924	0.0779	0.0901	0.0922	0.0924	0.0779	0.0901	0.0922	0.0924
	9.2[(2)]	Jan-94	Oct-02	MTAR*	-0.0072	0.1921	0.2396	0.1817	0.2587	0.2535	0.2468	0.1817	0.2550	0.2499	0.2450
Italy	2	Jan-95	May-98	STD_LL		0.1491	0.9277	0.2742	0.4674	0.6555	0.8326	0.2742	0.4674	0.6555	0.8326
	2	Jun-98	Oct-02	MTAR*	-0.2291	0.1391	0.1192	0.1285	0.1865	0.1896	0.1491	0.1285	0.1865	0.1896	0.1491
	4.1	Jan-93	Jul-99	SYM		0.2658	1.0168	0.4738	0.7521	0.9463	1.0230	0.4738	0.7521	0.9463	1.0230
	4.1	Aug-99	Oct-02	SYM		0.3127	0.6836	0.5425	0.6746	0.6840	0.6836	0.5425	0.6746	0.6840	0.6836
	4.2[(2)]	Jul-94	Oct-02	MTAR*	0.1270	0.3131	0.9467	0.5769	0.8251	0.9283	0.9488	0.5769	0.8164	0.9246	0.9482
	5	Jan-95	Dec-96	SYM		0.3351	0.5322	0.3530	0.4415	0.4977	0.5272	0.3530	0.4415	0.4977	0.5272
	5	Jan-97	Oct-02	MTAR*	-0.2827	0.6548	1.0109	0.8193	0.8323	0.9179	0.9840	0.8193	0.8323	0.9179	0.9840
	7	Jan-93	Feb-95	SYM		0.2186	0.5928	0.4210	0.5866	0.5974	0.5927	0.4210	0.5866	0.5974	0.5927
	7	Mar-95	Oct-02	SYM		0.2498	0.6334	0.3682	0.4904	0.5740	0.6231	0.3682	0.4904	0.5740	0.6231
	8	Feb-95	Jan-97	SYM		0.2827	0.7417	0.5142	0.7546	0.7834	0.7391	0.5142	0.7546	0.7834	0.7391
	8	Feb-97	Oct-02	TAR*	-0.1454	0.2711	0.6375	0.5182	0.5852	0.6285	0.6376	0.5182	0.6625	0.6569	0.6380
Netherlands	2	Jan-93	Jun-95	SYM		0.4521	0.7570	0.6894	0.7813	0.7584	0.7570	0.6894	0.7813	0.7584	0.7570
	2	Jul-95	Oct-02	STD		0.3922	0.6787	0.5577	0.6571	0.6771	0.6787	0.5577	0.6571	0.6771	0.6787
	4	Jan-93	Aug-98	MTAR*	-0.0417	0.1904	1.0631	0.2735	0.7206	0.8957	0.8958	0.2735	0.7709	1.0277	1.0221
	4.2[(3)]	Sep-98	Oct-02	TAR*	0.1349	1.0140	1.0036	0.8353	0.9469	1.0610	1.0280	0.8353	0.9469	1.0610	1.0280
	7	Jan-93	Dec-98	STD_LL		0.0040	0.0155	0.0070	0.0109	0.0136	0.0152	0.0070	0.0109	0.0136	0.0152
	7	Jan-99	Oct-02	STD_LL		0.0074	0.0238	0.0126	0.0185	0.0221	0.0236	0.0126	0.0185	0.0221	0.0236
	8.1	Jan-93	Nov-95	STD		0.3068	0.3880	0.3710	0.3873	0.3880	0.3880	0.3710	0.3873	0.3880	0.3880
	8.1	Dec-95	Oct-02	MTAR*	-0.1959	0.1832	0.5586	0.1985	0.3926	0.5910	0.6571	0.1985	0.3926	0.5910	0.6571
	8.2	Jan-93	Dec-95	STD		0.2265	0.3101	0.2876	0.3085	0.3101	0.3101	0.2876	0.3085	0.3101	0.3101
	8.2	Jan-96	Oct-02	MTAR*	-0.1647	0.0671	0.2968	0.0812	0.1452	0.2184	0.2871	0.0812	0.1452	0.2184	0.2871
Portugal	2	Aug-93	Dec-95	STD		-0.0408	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627
	2	Jan-96	Oct-02	MTAR*	-0.4462	0.0657	1.5010	0.2115	0.4797	0.8437	1.3809	0.2115	0.4112	0.7533	1.2987
	3	Oct-94	Apr-98	TAR*	-1.2311	0.4327	0.7839	0.7561	0.1843	0.7628	0.7783	0.7561	0.1843	0.7628	0.7783

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.5% cost of funds shock				multiplier for a -0.5% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	3	May-98	Oct-02	STD_LL		0.1775	0.3163	0.2554	0.3046	0.3153	0.3163	0.2554	0.3046	0.3153	0.3163
	4.1[3]	Oct-94	Oct-99	SYM		0.2468	1.2363	0.6497	1.0909	1.2248	1.2363	0.6497	1.0909	1.2248	1.2363
	4.1	Nov-99	Oct-02	MTAR*	-0.0586	0.2314	0.6504	0.6288	0.8424	0.6786	0.6516	0.6288	0.8076	0.6559	0.6497
	4.2	Oct-94	Nov-99	STD_LL		0.6136	1.3299	0.9440	1.2179	1.3124	1.3294	0.9440	1.2179	1.3124	1.3294
	4.2	Dec-99	Oct-02	TAR*	0.1430	0.7814	0.7654	0.6954	0.7880	0.7557	0.7657	0.6954	0.7880	0.7557	0.7657
	8.1	Oct-94	Nov-00	MTAR*	0.2156	0.4769	0.8585	0.4601	0.7113	0.8579	0.8585	0.4601	0.7113	0.8579	0.8585
	8.1	Feb-96	Oct-02	MTAR*	-0.1036	0.5123	0.7696	1.0382	0.7624	0.8229	0.7797	1.0382	0.6829	0.8419	0.7777
	8.2	Oct-94	Jul-96	SYM		0.2419	0.6230	0.4183	0.5887	0.6304	0.6232	0.4183	0.5887	0.6304	0.6232
	8.2	Aug-96	Oct-02	MTAR*	-0.1170	0.3668	0.7449	0.6455	0.5765	0.6181	0.6810	0.6455	0.6040	0.6452	0.6946
Spain	2[3]	Jan-93	Sep-96	MTAR*	-0.3263	0.2392	0.5263	0.2290	0.3226	0.4764	0.6545	0.2290	0.3226	0.4764	0.6545
	2	Oct-96	Oct-02	MTAR*	0.3741	0.1275	1.0195	0.3144	0.5950	0.8998	1.1836	0.3144	0.6467	0.9654	1.2262
	3[2]	Apr-94	Oct-02	SYM		0.1702	1.0986	0.4204	0.7310	0.9520	1.0753	0.4204	0.7310	0.9520	1.0753
	4	Jan-93	Nov-96	SYM		0.6374	0.9678	0.9703	0.9794	0.9674	0.9678	0.9703	0.9794	0.9674	0.9678
	4	Dec-96	Oct-02	TAR*	-0.2871	0.6433	0.7892	0.7219	1.0300	0.8248	0.7842	0.7219	1.0300	0.8248	0.7842
	5	Jan-93	Sep-94	TAR*	-0.6153	0.3824	0.8466	0.4177	0.6408	0.9534	0.8490	0.4177	0.6408	0.9534	0.8490
	5	Oct-94	Oct-02	MTAR*	0.3736	0.3609	0.9964	0.5777	0.9454	0.9798	0.9939	0.5777	0.9454	0.9798	0.9939
	7	Jan-93	Jan-95	BTAR*	0.4190	0.1648	0.3723	0.3032	0.3358	0.3956	0.4073	0.3032	0.3358	0.3956	0.4073
	7[3]	Feb-95	Oct-02	TAR*	0.1505	0.1690	0.5062	0.3009	0.3799	0.4757	0.5155	0.3009	0.4022	0.4972	0.5201
	8[2]	Jan-94	Oct-02	MTAR*	0.1625	0.5246	0.9249	0.7752	0.8024	0.8142	0.8344	0.7752	0.8469	0.8546	0.8674

See notes to Table B6.

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.25% cost of funds shock				multiplier for a -0.25% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
Austria	2	Apr-95	Feb-99	BTAR*	0.3100	0.1313	0.6573	0.3425	0.5640	0.8244	0.9356	0.3425	0.5640	0.8244	0.9356
	2	Mar-99	Oct-02	SYM		0.0364	0.4950	0.0870	0.1938	0.3201	0.4423	0.0870	0.1938	0.3201	0.4423
	3	Apr-95	Aug-97	STD		0.2891	0.4103	0.3745	0.4072	0.4102	0.4103	0.3745	0.4072	0.4102	0.4103
	3	Sep-97	Oct-02	BTAR*	0.0640	0.2004	0.5535	0.2912	0.5591	0.7059	0.6094	0.2912	0.5591	0.7059	0.6094
	4[(3)]	Apr-95	Aug-97	MTAR*	-0.1486	0.0546	1.1908	0.2572	0.3644	0.5564	0.7633	0.2572	0.5163	0.7741	1.0042
	4	Sep-97	Oct-02	BTAR*	0.0110	0.2626	0.5618	0.3620	0.6415	0.6237	0.6238	0.3620	0.6415	0.6237	0.6238
	7	Apr-95	Nov-99	STD		0.0462	0.0419	0.0415	0.0419	0.0419	0.0419	0.0415	0.0419	0.0419	0.0419
	7	Dec-99	Oct-02	TAR*	-0.0178	0.0193	0.0402	0.0435	0.0511	0.0443	0.0407	0.0435	0.0511	0.0443	0.0407
	8	Apr-95	Mar-97	SYM		0.2262	0.6726	0.3442	0.4755	0.5763	0.6494	0.3442	0.4755	0.5763	0.6494
	8	Apr-97	Oct-02	TAR*	-0.1527	0.1417	0.3982	0.3061	0.5530	0.4715	0.4145	0.3061	0.5530	0.4715	0.4145
Belgium	2[(3)]	Jan-93	Aug-95	TAR*	-0.2760	0.4880	0.7951	0.7106	1.2588	0.8295	0.7951	0.7106	1.2588	0.8295	0.7951
	2	Sep-95	Oct-02	STD		0.5726	0.6763	0.6604	0.6760	0.6763	0.6763	0.6604	0.6760	0.6763	0.6763
	3	Jan-93	Dec-95	STD		0.1437	0.1616	0.1596	0.1616	0.1616	0.1616	0.1596	0.1616	0.1616	0.1616
	3	Jan-96	Oct-02	STD_LL		0.2024	0.4229	0.3079	0.3916	0.4184	0.4228	0.3079	0.3916	0.4184	0.4228
	4.1	Jan-93	Mar-95	MTAR*	0.2013	0.3858	0.4435	0.4235	0.3337	0.4293	0.4395	0.4235	0.3337	0.4293	0.4395
	4.1	Apr-95	Oct-02	BTAR*	0.0390	0.1507	0.8379	0.1750	0.2407	0.2858	0.3168	0.1750	0.2407	0.2858	0.3168
	4.2[(2)]	Jan-94	Oct-02	STD_LL		0.2885	0.8496	0.4791	0.6880	0.8031	0.8458	0.4791	0.6880	0.8031	0.8458
	5[(1)]	Jan-93	Aug-96	MTAR*		0.0317	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312	0.0312
	5	Sep-96	Oct-02	STD		0.3822	0.4588	0.4460	0.4584	0.4588	0.4588	0.4460	0.4584	0.4588	0.4588
	8[(2)]	Jan-94	Oct-02	BTAR*	0.0780	1.0200	0.8572	0.7671	1.0520	1.0097	0.9163	0.7671	1.0520	1.0097	0.9163
	9	Jan-93	Dec-95	SYM		0.1020	0.3544	0.1808	0.2711	0.3267	0.3513	0.1808	0.2711	0.3267	0.3513
	9	Jan-96	Oct-02	STD_LL		-0.0147	-0.0558	-0.0255	-0.0393	-0.0492	-0.0547	-0.0255	-0.0393	-0.0492	-0.0547
Finland	2[(2)]	Apr-94	Oct-02	BTAR*	0.0160	0.1730	0.7106	0.2377	0.4973	0.6263	0.6982	0.2377	0.2986	0.3531	0.3823
	3	Jan-93	Sep-97	MTAR*	0.5539	0.6876	0.9580	0.8293	0.7684	0.8196	0.8916	0.8293	0.7684	0.8196	0.8916
	3	Oct-97	Oct-02	MTAR*	-0.0767	0.3611	0.8170	0.5552	0.6089	0.7295	0.8018	0.5552	0.6796	0.7598	0.8070
	5	Jan-93	Apr-98	SYM		0.7693	0.9722	0.7573	0.9174	0.9646	0.9720	0.7573	0.9174	0.9646	0.9720
	5	May-98	Oct-02	SYM		0.7044	0.9508	0.6956	0.8739	0.9374	0.9503	0.6956	0.8739	0.9374	0.9503
	7	Jan-93	Feb-98	STD_LL		0.0540	0.2143	0.0945	0.1473	0.1863	0.2094	0.0945	0.1473	0.1863	0.2094
	7	Mar-98	Oct-02	MTAR*	0.0410	0.0778	0.1791	0.1923	0.2109	0.2246	0.2015	0.1923	0.2109	0.2246	0.2015
	8	Jan-93	Nov-99	STD_LL		0.0860	0.5042	0.1573	0.2656	0.3680	0.4599	0.1573	0.2656	0.3680	0.4599
	8	Dec-99	Oct-02	STD_LL		0.0269	0.1045	0.0469	0.0728	0.0915	0.1023	0.0469	0.0728	0.0915	0.1023
France	4	Jan-93	Jun-97	SYM		0.2730	0.5436	0.3480	0.4426	0.5061	0.5385	0.3480	0.4426	0.5061	0.5385
	4	Jul-97	Oct-02	TAR*	-0.1362	0.3250	0.7657	0.8308	0.7951	0.7747	0.7665	0.8308	0.7951	0.7747	0.7665
	5	Jan-93	Apr-97	SYM		0.2454	0.5930	0.3055	0.4277	0.5193	0.5783	0.3055	0.4277	0.5193	0.5783
	5	May-97	Oct-02	MTAR*	-0.0227	0.3398	0.7342	0.2508	0.4535	0.5314	0.6319	0.2508	0.4187	0.5276	0.6339
	8[(2)]	Jan-93	Oct-02	BTAR*	0.0920	1.6735	0.9560	0.6058	0.8018	0.7053	0.7722	0.6058	0.9071	0.5595	0.6837
	9	Jan-93	May-98	MTAR*	0.0879	0.0005	0.1401	0.0444	0.0667	-0.0093	0.0128	0.0444	0.0667	-0.0093	0.0128
	9	Jun-98	Oct-02	STD		0.0403	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412	0.0412
Germany	2	Jan-93	Jun-95	MTAR*	-0.0292	0.5608	1.0147	0.8522	1.0670	1.0094	1.0188	0.8522	1.1434	0.9789	1.0166
	2	Jul-95	Oct-02	STD		0.4642	0.6060	0.5728	0.6042	0.6060	0.6060	0.5728	0.6042	0.6060	0.6060
	3	Jan-93	Mar-97	STD		0.2094	0.3534	0.2947	0.3437	0.3528	0.3534	0.2947	0.3437	0.3528	0.3534
	3	Apr-97	Oct-02	STD		0.0843	0.1431	0.1189	0.1390	0.1428	0.1431	0.1189	0.1390	0.1428	0.1431
	4	Jan-93	Feb-01	BTAR*	0.0210	0.2330	0.7828	0.3671	0.5140	0.5756	0.5756	0.3671	0.7080	0.7646	0.7646
	4	Mar-01	Oct-02	SYM		0.2586	0.2462	0.2856	0.2614	0.2481	0.2462	0.2856	0.2614	0.2481	0.2462
	5[(1)]	Nov-96	Oct-02	BTAR*	0.2340	0.2613	0.4926	0.4241	0.2608	0.0781	0.0458	0.4241	0.2608	0.0781	0.0458
	8.1	Jan-93	Sep-99	STD_LL		0.3730	0.7405	0.5581	0.6956	0.7350	0.7404	0.5581	0.6956	0.7350	0.7404
	8.1	Oct-99	Oct-02	BTAR*	0.1100	0.5024	0.7968	0.8328	0.7095	0.7438	0.7795	0.8328	0.7095	0.7438	0.7795
	8.2[(2)]	Jan-93	Oct-02	BTAR*	0.0270	0.6523	0.8325	0.7222	0.8051	0.7954	0.8043	0.7222	0.8051	0.7954	0.8043
	9.1	Jan-93	Sep-99	STD_LL		0.2313	0.7085	0.3872	0.5628	0.6640	0.7044	0.3872	0.5628	0.6640	0.7044
	9.1	Oct-99	Oct-02	STD		0.0951	0.2019	0.1454	0.1861	0.1996	0.2019	0.1454	0.1861	0.1996	0.2019
	9.2	Jan-93	Nov-95	STD		0.4560	0.6635	0.5986	0.6572	0.6633	0.6635	0.5986	0.6572	0.6633	0.6635
	9.2	Dec-95	Oct-02	STD		0.3477	0.5070	0.4569	0.5021	0.5069	0.5070	0.4569	0.5021	0.5069	0.5070
Ireland	1	Jan-93	Dec-98	STD_LL		0.3767	0.6351	0.5300	0.6177	0.6339	0.6351	0.5300	0.6177	0.6339	0.6351
	1	Jan-99	Oct-02	SYM		0.3941	0.8613	0.6150	0.7950	0.8522	0.8611	0.6150	0.7950	0.8522	0.8611
	2[(2)]	Apr-94	Oct-02	STD		0.0425	0.0610	0.0554	0.0605	0.0610	0.0610	0.0554	0.0605	0.0610	0.0610
	4[(2)]	Jan-94	Oct-02	BTAR*	0.3450	0.4323	0.5719	0.5241	0.5581	0.5618	0.5634	0.5241	0.5581	0.5618	0.5634
	5[(2)]	Jan-94	Oct-02	MTAR*	-0.3883	0.2207	0.3929	0.4172	0.6746	0.6156	0.5413	0.4172	0.6746	0.6156	0.5413
	6[(2)(3)]	Jan-93	Oct-02	TAR[0]		0.8901	1.0572	0.9271	0.6796	0.7936	0.6983	0.9271	0.7149	0.9045	0.8962
	9.1[(2)]	Jan-94	Oct-02	STD_LL		0.0558	0.0924	0.0779	0.0901	0.0922	0.0924	0.0779	0.0901	0.0922	0.0924
	9.2[(2)]	Jan-94	Oct-02	MTAR*	-0.0072	0.1921	0.2396	0.1817	0.2587	0.2550	0.2476	0.1817	0.2550	0.2499	0.2450
Italy	2	Jan-95	May-98	STD_LL		0.1491	0.9277	0.2742	0.4674	0.6555	0.8326	0.2742	0.4674	0.6555	0.8326
	2	Jun-98	Oct-02	MTAR*	-0.2291	0.1391	0.1192	0.1285	0.1865	0.1896	0.1491	0.1285	0.1865	0.1896	0.1491
	4.1	Jan-93	Jul-99	SYM		0.2658	1.0168	0.4738	0.7521	0.9463	1.0230	0.4738	0.7521	0.9463	1.0230
	4.1	Aug-99	Oct-02	SYM		0.3127	0.6836	0.5425	0.6746	0.6840	0.6836	0.5425	0.6746	0.6840	0.6836
	4.2[(2)]	Jul-94	Oct-02	MTAR*	0.1270	0.3131	0.9467	0.5769	0.8317	0.9365	0.9508	0.5769	0.8164	0.9246	0.9482
	5	Jan-95	Dec-96	SYM		0.3351	0.5322	0.3530	0.4415	0.4977	0.5272	0.3530	0.4415	0.4977	0.5272
	5	Jan-97	Oct-02	MTAR*	-0.2827	0.6548	1.0109	0.8193	0.8323	0.9179	0.9840	0.8193	0.8323	0.9179	0.9840
	7	Jan-93	Feb-95	SYM		0.2186	0.5928	0.4210	0.5866	0.5974	0.5927	0.4210	0.5866	0.5974	0.5927
	7	Mar-95	Oct-02	SYM		0.2498	0.6334	0.3682	0.4904	0.5740	0.6231	0.3682	0.4904	0.5740	0.6231
	8	Feb-95	Jan-97	SYM		0.2827	0.7417	0.5142	0.7546	0.7834	0.7391	0.5142	0.7546	0.7834	0.7391
	8	Feb-97	Oct-02	TAR*	-0.1454	0.2711	0.6375	0.5182	0.6625	0.6569	0.6380	0.5182	0.6625	0.6569	0.6380
Netherlands	2	Jan-93	Jun-95	SYM		0.4521	0.7570	0.6894	0.7813	0.7584	0.7570	0.6894	0.7813	0.7584	0.7570
	2	Jul-95	Oct-02	STD		0.3922	0.6787	0.5577	0.6571	0.6771	0.6787	0.5577	0.6571	0.6771	0.6787
	4	Jan-93	Aug-98	MTAR*	-0.0417	0.1904	1.0631	0.2735	0.7090	0.8830	0.8835	0.2735	0.6627	0.9485	0.9351
	4.2[(3)]	Sep-98	Oct-02	TAR*	0.1349	1.0140	1.0036	0.8353	0.9469	1.0610	1.0280	0.8353	0.9469	1.0610	1.0280
	7	Jan-93	Dec-98	STD_LL		0.0040	0.0155	0.0070	0.0109	0.0136	0.0152	0.0070	0.0109	0.0136	0.0152
	7	Jan-99	Oct-02	STD_LL		0.0074	0.0238	0.0126	0.0185	0.0221	0.0236	0.0126	0.0185	0.0221	0.0236
	8.1	Jan-93	Nov-95	STD		0.3068	0.3880	0.3710	0.3873	0.3880	0.3880	0.3710	0.3873	0.3880	0.3880
	8.1	Dec-95	Oct-02	MTAR*	-0.1959	0.1832	0.5586	0.1985	0.3926	0.5910	0.6571	0.1985	0.3926	0.5910	0.6571
	8.2	Jan-93	Dec-95	STD		0.2265	0.3101	0.2876	0.3085	0.3101	0.3101	0.2876	0.3085	0.3101	0.3101
	8.2	Jan-96	Oct-02	MTAR*	-0.1647	0.0671	0.2968	0.0812	0.1452	0.2184	0.2871	0.0812	0.1452	0.2184	0.2871
Portugal	2	Aug-93	Dec-95	STD		-0.0408	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627	-0.0550	-0.0618	-0.0627	-0.0627
	2	Jan-96	Oct-02	MTAR*	-0.4462	0.0657	1.5010	0.2115	0.4112	0.7533	1.2987	0.2115	0.4112	0.7533	1.2987
	3	Oct-94	Apr-98	TAR*	-1.2311	0.4327	0.7839	0.7561	0.1843	0.7628	0.7783	0.7561	0.1843	0.7628	0.7783

Table C6: Cost of Funds Policy Approach - Multiplier Based on Optimal Pass-Through Model

		sample period				impact		multiplier for a +0.25% cost of funds shock				multiplier for a -0.25% cost of funds shock			
country	bankrate	start	end	model	threshold	multiplier	long-run	1 mth	3 mth	6 mth	12 mth	1 mth	3 mth	6 mth	12 mth
	3	May-98	Oct-02	STD_LL		0.1775	0.3163	0.2554	0.3046	0.3153	0.3163	0.2554	0.3046	0.3153	0.3163
	4.1[3]	Oct-94	Oct-99	SYM		0.2468	1.2363	0.6497	1.0909	1.2248	1.2363	0.6497	1.0909	1.2248	1.2363
	4.1	Nov-99	Oct-02	MTAR*	-0.0586	0.2314	0.6504	0.6288	0.8424	0.6974	0.6501	0.6288	0.8076	0.6559	0.6497
	4.2	Oct-94	Nov-99	STD_LL		0.6136	1.3299	0.9440	1.2179	1.3124	1.3294	0.9440	1.2179	1.3124	1.3294
	4.2	Dec-99	Oct-02	TAR*	0.1430	0.7814	0.7654	0.6954	0.7880	0.7557	0.7657	0.6954	0.7880	0.7557	0.7657
	8.1	Oct-94	Nov-00	MTAR*	0.2156	0.4769	0.8585	0.4601	0.7113	0.8579	0.8585	0.4601	0.7113	0.8579	0.8585
	8.1	Feb-96	Oct-02	MTAR*	-0.1036	0.5123	0.7696	1.0382	0.7391	0.8217	0.7779	1.0382	0.6829	0.8419	0.7777
	8.2	Oct-94	Jul-96	SYM		0.2419	0.6230	0.4183	0.5887	0.6304	0.6232	0.4183	0.5887	0.6304	0.6232
	8.2	Aug-96	Oct-02	MTAR*	-0.1170	0.3668	0.7449	0.6455	0.6249	0.6564	0.7003	0.6455	0.6249	0.6564	0.7003
Spain	2[3]	Jan-93	Sep-96	MTAR*	-0.3263	0.2392	0.5263	0.2290	0.3226	0.4764	0.6545	0.2290	0.3226	0.4764	0.6545
	2	Oct-96	Oct-02	MTAR*	0.3741	0.1275	1.0195	0.3144	0.5950	0.8998	1.1836	0.3144	0.5950	0.8998	1.1836
	3[2]	Apr-94	Oct-02	SYM		0.1702	1.0986	0.4204	0.7310	0.9520	1.0753	0.4204	0.7310	0.9520	1.0753
	4	Jan-93	Nov-96	SYM		0.6374	0.9678	0.9703	0.9794	0.9674	0.9678	0.9703	0.9794	0.9674	0.9678
	4	Dec-96	Oct-02	TAR*	-0.2871	0.6433	0.7892	0.7219	1.0300	0.8248	0.7842	0.7219	1.0300	0.8248	0.7842
	5	Jan-93	Sep-94	TAR*	-0.6153	0.3824	0.8466	0.4177	0.6408	0.9534	0.8490	0.4177	0.6408	0.9534	0.8490
	5	Oct-94	Oct-02	MTAR*	0.3736	0.3609	0.9964	0.5777	0.9454	0.9798	0.9939	0.5777	0.9454	0.9798	0.9939
	7	Jan-93	Jan-95	BTAR*	0.4190	0.1648	0.3723	0.3032	0.3358	0.3956	0.4073	0.3032	0.3358	0.3956	0.4073
	7[3]	Feb-95	Oct-02	TAR*	0.1505	0.1690	0.5062	0.3009	0.3799	0.4757	0.5155	0.3009	0.3799	0.4757	0.5155
	8[2]	Jan-94	Oct-02	MTAR*	0.1625	0.5246	0.9249	0.7752	0.8024	0.8142	0.8344	0.7752	0.8024	0.8142	0.8344

See notes to Table B6.