Zentrum für Europäische Integrationsforschung
Center for European Integration Studies
Rheinische Friedrich-Wilhelms-Universität Bonn

R.W. Hafer and Ali M. Kutan

Detrending and the Money-Output Link: International Evidence

Working Paper

B 19
2001

DETRENDING AND THE MONEY-OUTPUT LINK:

INTERNATIONAL EVIDENCE

By

R.W. Hafer*

Ali M. Kutan**

Revised September 2001

*Professor and Chair, Department of Economics and Finance, SIUE; Visiting Scholar, Federal Reserve Bank of Atlanta.
**Professor, Department of Economics and Finance, SIUE; Senior Fellow, Center for European Integration Studies (ZEI), University of Bonn, Germany.

This paper was begun while Kutan was a Visiting Scholar with the Federal Reserve Bank of St. Louis. We would like to thank Garett Jones, colleagues at the Banks and an anonymous referee for comments and suggestions that improved an earlier version of this paper. Tansu Aksoy provided excellent research assistance. The views and conclusions expressed in the paper may not be those of the Federal Reserve Banks of Atlanta and St. Louis, or of the Federal Reserve System.

I. I. INTRODUCTION AND BACKGROUND

The question of whether there exists an empirical link between nominal money and real output has been subjected to a variety of modern econometric techniques that produce conflicting results. For example, Stock and Watson (1989) employ a vector autoregressive (VAR) model that accounts for several important economic variables and find that money exerts a significant effect on real economic activity. Friedman and Kuttner (1992,1993), on the other hand, find that using the same specification as Stock and Watson but extending the sample through the 1980s obviates the money-income link. Friedman and Kuttner's results indicate that interest rates are relatively more useful in explaining movements in output.[1] Thoma (1994) also reports that changes in money have a statistically insignificant impact on output in the U.S.

Empirical results such as these have found support in recent studies, both theoretical and empirical, in which money is shown to have little or no direct affect on economic cycles. Rudebusch and Svensson (1999, 2000), for example, show that the behavior of money (real or nominal) has no marginally significant impact on deviations of real output from potential (the output gap) once past movements in the gap and real rates of interest are accounted for. These findings are based on what Meyer (2001) refers to as the "consensus macro model" and have achieved an influential position among macroeconomists and policymakers.[2]

---

[1] The importance of interest rates has been questioned in a number of studies. For instance, Bernanke (1990) reports that the significance of the interest rate variable declines throughout the 1980s. Hafer and Kutan (1997) demonstrate that the impact of interest rates on output and the apparent decline in money's importance through the 1980s is largely a function of the stationarity assumption used.

[2] This consensus model usually can be written as a three-equation dynamic system, including an aggregate demand equation, a Phillips curve and a monetary policy rule. In this model, aggregate demand movements are driven by past deviations of output from potential and changes in the real rate of interest.

Other studies challenge the finding that money does not affect real output. An early study by Christiano and Ljungqvist (1988) uses a bivariate VAR model and report evidence supporting the existence of a statistically significant money-to-output relation. Davis and Tanner (1997), using monthly U.S. data extending back to the mid-1800's, find that even after interest rate affects are allowed for, money remains statistically significant in explaining short-run movements in real output. Employing a rolling regression approach, Swanson (1998) also finds a statistically significant relation between money—measured as simple sum aggregates and as Divisia measures—and output, even after an interest rate spread variable is added to the model. Hafer and Kutan (1997) consider whether different stationarity properties of the data have influenced reported outcomes. Since most prior studies assume difference stationarity, Hafer and Kutan demonstrate that estimating VAR models that include money and interest rate variables under the existence of trend stationarity can dramatically affect the conclusion. Indeed, they find that using a trend-stationarity assumption yields the finding that money significantly affects real output in the U.S.

A common characteristic of this literature is the focus on the United States. There are a few exceptions. For example, Krol and Ohanian (1990) test the Stock-Watson specification using data for Canada, Germany, Japan and the United Kingdom. They find that while money (actual and detrended) significantly affects output in the U.K., there is no such affect in Japan, Canada and Germany. They conclude that while detrending the growth rate of U.S. money impacts conclusions about the role of money, little is gained

---

As such, monetary policy works only indirectly through the interest rate channel. For other treatments of this model, see McCallum (2000). It should be noted that Nelson (2000) provides empirical estimates that refute the findings of Rudebusch and Svensson, at least for the United Kingdom and the United States.

when this approach is applied to the other countries. Another exception is a recent study by Hayo (1999). Using data from 14 European Union (EU) countries plus Canada, Japan, and the U.S., he finds that money-output test results are not sensitive to the use of data in levels versus data in differences. While these studies represent a broader analysis, they too focus on the money-output relation in relatively industrialized, financially developed countries.

An obvious question to ask is whether nominal money is relatively more useful than interest rates in explaining movements in real output across a wide variety of countries that includes industrial and developing economies. To address this question, we estimate an unconstrained, four-variable (output, money, prices and interest rates) VAR model for a sample of 20 industrialized and developing countries.[3] In addition to casting a wider net in terms of counties to analyze, it is important to determine whether the statistical importance (or lack thereof) of money is a function of the definition of money used. Thus our investigation compares the usefulness of both a narrow (M1) and broad (M2) measure of money in addition to a short-term interest rate.[4] We explore the sensitivity of our results to the use of different stationarity assumptions. Unlike previous work, we assess the empirical results by considering the financial development of the countries used. To this end the recent data set constructed by Beck, et al. (1999) is employed to investigate a potential link between financial development and our empirical results.

Where Rudebusch and Svensson find that M2 has no predictive power over output in the U.S., Nelson finds that movements in the St. Louis adjusted monetary base do.

[3] Hayo (1999) uses a similar VAR model.

[4] Nelson's (2000) work demonstrates that conclusions about money are subject to this concern.

The format of the paper is to first briefly discuss the econometric issues involved with the use of trend and difference stationary data in Section II. In Section III the data are described along with the specification of the estimated VARs. This section also presents the estimation results. Measures of financial market development and structure are then examined to see if there is a discernible pattern between the importance of money in explaining real output and a country's financial development. Some tentative conclusions and policy implications close the paper in Section IV.

II. ECONOMETRIC ISSUES

This paper adopts the approach of using both stationary (with and without trend) and difference stationary (DS) specifications of the VAR model. Our motivation for the use of stationary and difference-stationary assumptions stems from evidence indicating that unit root tests may falsely indicate difference stationarity. A number of studies have questioned the use of difference stationarity due to the low power of unit root tests. For example, Dejong, et al. (1992) show that the power of augmented Dickey-Fuller and Phillips-Perron tests against the alternative null hypothesis of trend stationarity is quite low. Dejong and Whiteman (1991) employ Bayesian analysis to test for the presence of a unity root in the data and report mixed results: When a zero-trend prior is assigned to trend-stationary alternatives, the data do not reject the presence of a unit root in the data. Relaxing this prior, however, often leads to rejection of the unit-root hypothesis. Rudebusch (1993) also reports that unit-root tests cannot distinguish between data simulated by a trend-stationary model or a difference-stationary model. In a more recent paper, Canova (1998) studies the business cycle properties of a small set of real macroeconomic time series for period 1955-1986. He finds that using different detrending techniques, including a linear time trend and first-order differences, produces different – both quantitatively and qualitatively – "stylized facts" of U.S. business cycles.

Concern about the stationarity properties of the data is important because of the economic implications. If money and real output are characterized by a difference-stationary model, then effects of monetary shocks on real output diminish very slowly. In other words, a monetary shock has a permanent impact on the level of output, because the shock affects the stochastic component of real output. If the money and output series are represented by a stationary model, however, then money shocks have only a transitory impact on output since they are mean reverting. Our own work (1997) suggests that the outcome from testing the money-output link for the U.S. is sensitive to which model is used. This paper thus extends this line of inquiry to a broad sample of countries.

III. DATA AND ESTIMATION RESULTS

The data used in this paper are quarterly observations of money, measured as a narrow (M1) and a broad (M2) aggregate; real output, measured as real GDP ($1990); the price level, measured as the CPI (1990=100); and a short-term government interest rate. Complete descriptions of the data and sample periods used are provided in the data appendix. We use the CPI to increase the sample of countries: Using the GDP deflator results in a reduction in country coverage. All data are taken from the IMF's *International Financial Statistics CD-ROM* release as of December 1998. Country-specific sample periods are dictated by the availability of data. In determining the country sample, we used the *ad hoc* rule that countries with fewer than ten years of data are omitted. This criterion and data availability results in a sample of 20 countries, a sample that extends the usual range of economic settings in which the relative impacts of money and interest rates on real output is tested.

To provide some background information for the economic diversity of the sample, Table 1 provides summary statistics on real output growth, inflation and money growth for the countries in the sample. As one can quickly see, the sample covers a broad set of economic experiences. For example, average real output growth ranges from about 1.7 percent in Switzerland to a high of 6.8 percent in Singapore. This range is dwarfed by that for inflation. In our sample, inflation runs from less than 2 percent to more than 50 percent. Interestingly, money growth, measured as M1 or as M2, also exhibits a range similar to that of inflation. Indeed, if one believes that in the long run money growth and inflation move one-for-one, then such an outcome is expected. Finding such a close relation between money growth and inflation across countries over time also would suggest that there is little relation between money growth and the growth of real output in the long run. And that is what the data in Table 1 suggests.[5] Even though the data do not suggest a reliable long-run relation between average money growth and real output growth, that does not preclude the existence of a short-run relation. To a large extent that is the question address in the remainder of this paper.

Estimation results

Three VAR models are estimated for each country. The first of these is a levels specification without a deterministic trend. The second VAR specification includes a

---

[5] Running a regression of real output growth on money growth across countries results in an estimated coefficient on money growth of 0.04 for M1 and M2. Neither estimate is statistically significant at the 5 percent level. Conversely, a regression of inflation on money growth yields estimated coefficients of 1.02 for M1 and 0.97 for M2, both significant at well below the one-percent level of significance. This result supports the belief that, on average, increasing money growth does not permanently increase real output

linear, deterministic time trend. This model is referred to as the TS specification. This version assumes that series are stationary around a deterministic trend term. Both stationary specifications use the log level of the data (except for the interest rate) and allow us to test whether the impact of money on output, if there is any, is transitory.[6] Furthermore, TS model allows us to interpret the results in terms of "detrended" variables (Krol and Ohanian, 1990). The third specification uses log first-differences of the data, except the interest rate, which is measured as a simple first-difference. In this difference stationary (DS) model any impact of money on output is viewed as long-lasting, since the series are assumed to have stochastic trends with fluctuations that are not mean reverting over time. In all VARs, a constant term and quarterly seasonal dummies are included.[7]

Before turning to the results, a brief discussion of lag length selection is in order. Swanson (1998) notes that many studies select the structure of the VAR by simply assigning *ad hoc* lag lengths. It is well known that inferences drawn from VARs are sensitive to the lag length used.[8] In this paper the lag structure for each country's VAR is chosen using the Akaike AIC and the Schwarz SC criteria. To keep the analysis manageable, three alternative lag lengths were tested (eight, six and four) for each monetary aggregate and for each stationarity assumption. In all but two cases, both lag-length-selection criteria select four lags. The exceptions are the TS model using M1 for

---

growth, but is more likely to lead to higher inflation. For a similar analysis and a review of the relevant literature, see Dwyer and Hafer (1999).

[6] In this model causality tests are (asymptotically) valid only if the series are stationary or if they are jointly difference stationary and cointegrated. If they are nonstationary and not cointegrated, standard Granger F-tests are not valid because of incorrect distributional properties. On this point, see Sims, Stock and Watson (1990).

[7] We searched for apparent structural breaks in data. Time-series plots of the data indicated a significant break for M1 for Finland during the second quarter of 1991. Therefore, for Finland, the estimated VAR models with M1 include a dummy variable that takes a value of 1 starting from 91:II to present and zero otherwise.

[8] See, among others, Hafer and Sheehan (1991) and the articles cited therein.

Portugal, where 8 lags are chosen, and the TS and DS models with Turkish M2 where 6 lags are used.[9]

Variance Decompositions

Variance decompositions derived from the VARs provide information on the quantitative importance of money and interest rates in explaining output. [10] In this paper we focus on the relative proportion of the total variation in output explained by money and interest rates. Consequently, we do not report the full set of variance decompositions (VDC) results.[11] For each country, six sets of variance decompositions are presented. These combinations reflect (a) the three VAR specifications and (b) the fact that we use two alternative orderings of the variables for each VAR. One version, labeled as "Ordering 1" in subsequent discussion, uses the ordering interest rate, money, prices and real output. As suggested by Sims (1980) and discussed in Todd (1990), an ordering that places the short-term interest rate first assumes little contemporaneous feedback from output to money. Because there are different priors about the presence of contemporaneous feedback from output to money or interest rates, an alternative ordering of output, prices, interest rate and money is estimated as a robustness test. This is referred to as "Ordering 2." All reported variance decompositions use a 4-year horizon.[12]

[9] A complete listing of the lag-length test results is available on request.
[10] In an earlier version of this paper we also reported Wald tests. These tests may be viewed as "within-sample" tests, because they do not provide an indication of the dynamic characteristics of variables in the system and their usefulness is limited to the sample period used. As a result, we rely on variance decompositions, which may be considered as out-of-sample tests, to gauge the relative strength of money and interest rates on output. For further discussion of these issues, see Masih and Masih (2001). We would like to thank the referee for encouraging us to take this approach.
[11] The complete set of results is available upon request.
[12] Increasing the horizon does not affect the qualitative outcomes reported.

The variance decompositions using M1 are found in Table 2.[13] There are two aspects to interpreting the array of results in Table 2. First, beneath each column heading is listed a ratio: the numerator is the VDC for M1 and the denominator is the VDC for the interest rate. Second, this ratio is reported for the two orderings discussed above. Last, because of the large number of combinations run, it is useful to establish some criterion for evaluating the results. In this paper the following set-up is used: When the VDC of money exceeds 10 percent *and* exceeds the VDC for the interest rate by 5 percent (not percentage points), the result appears in a shaded box. Although one may quibble that an alternative benchmark should be used, we believe that our choice is reasonable, and one that sets an acceptable minimum for money to be thought of as providing useful information about the behavior of real output.

The results in Table 2 provide an interesting comparison to previous work that has focused on the U.S. First, the results indicate that when the stationary specification without trend is used, M1's VDC exceeds that of the interest rate for Germany, the Netherlands, New Zealand, Portugal, Singapore and Switzerland, although this finding is sensitive to the ordering in New Zealand and Singapore. This suggests that M1 plays only a minor role relative to interest rates in explaining output in most other countries included in our sample.

---

[13] For ease of presentation, we report only the VDC results for money and interest rates. A full set of results is available upon request. One could also consider the impact of exchange rates on output within our VAR model. We believe that domestic interest rate captures this impact through interest parity relationship, which states that $i_d - i_f = e$ where i_d and i_f are domestic and foreign interest rates, and e is the expected change in the exchange rate. Assuming that the parity relationship holds, which is a reasonable assumption, because of the increasing level of world capital mobility, domestic interest rates may capture the foreign influences such as changes in foreign interest rates and exchange rates. In case of a fixed exchange rate regime, using exchange rates is not relevant. Therefore, our VAR models do not include exchange rates

Turning to the results based on the TS and DS specifications, the evidence for the U.S. corroborates our earlier finding (1997) that the VDC of M1 increases in absolute size and is larger than the interest rate when the TS specification is used relative to the DS model. As seen in Table 1, the TS specification delivers a VDC for M1 indicating that about one-fourth of the variance in real output is explained by money, compared with around 13-17 percent for the interest rate. When the DS specification is used, however, the results are dramatically altered. Now the interest rate dominates M1, the latter accounting for less than 3 percent of the variance in output.[14] Finding that the importance of money is affected by the specification occurs not only for the U.S., but also for Australia, Israel, Portugal, Spain, and Sweden. In other words, in these seven countries one would have rejected the usefulness of money based on the TS or DS specification alone when this conclusion is reversed using the alternative model.[15] Thus country-specific analyses must recognize the likelihood that model specification can significantly impact the conclusions reached.

One of the most interesting outcomes in Table 2 is the robustness of results for Germany, New Zealand, and Switzerland. For those countries the VDC evidence indicates that money exceeds the variance in real output accounted for by the interest rate regardless of specification and ordering. Is there an explanation for this outcome? An

---

[14] It is unresolved in the literature whether the interest rate should be included in its level of first-differenced for. For example, Bernanke and Blinder (1992) argue that first-differencing the interest rate in a VAR model is questionable. Because there is no agreed-to procedure in instances such as this, we also estimated the DS specification where the interest rate is included in its level form. These results were, for the most part, led to the same conclusions as the DS specification. Only in the case of Mexico were the results markedly different from those reported in Table 2. In that case using the DS specification with levels of the interest rate produced an M1 VDC that was larger than that for the interest rate, and exceeded 10 percent. Complete results using this specification are available upon request.

[15] One could argue that a similar conclusion could be drawn for Canada and the Netherlands. However, in those cases a change in the VAR ordering also changes the finding, suggesting that the sensitivity of money's role is explained by more than just the use of the TS or DS specifications.

obvious one is that Germany and Switzerland are recognized as countries in which the central bank follows a credible low-inflation policy. Such policy actions also have occurred, though more recently, in New Zealand.[16] In such a policy environment, movements of money may be more exogenous to output than in policy regimes where money growth is secondary to controlling interest rates as a means to stabilize economic activity. Below we investigate other potential explanations for this outcome, ones that focus on the development and structure of the countries' financial markets.

Table 3 presents the battery of outcomes with M2 replacing M1. The U.S. results are qualitatively identical to Table 2: the VDC for M2 exceeds that for the interest rate only when the TS specification is used. The switch to a broader measure of money impacts the results for several other countries. For instance, for the Netherlands and for Singapore the VDC for M2 does not exceed that of the interest rate even though it did for M1. The results for Portugal indicate that M2 has a greater explanatory power than the interest rate when the DS specification is used. Using M1, we found exactly the opposite: M1 dominated the interest rate when the TS model is used. There also are minor changes in the M1 vs M2 results for Canada, Japan and Norway. These results indicate that changes in the monetary aggregate can lead to changes in the outcome, but not always in a predictable fashion (e.g., moving to a broader measure leads to increased importance of the interest rate.)

The most noticeable change between Tables 2 and 3 is that the results for Turkey indicate that M2 but not M1 plays a prominent role in explaining the variance of output.

---

[16] For a discussion of central bank policies in Germany, see, among others, von Hagen (1999); for Switzerland, see Bernanke et al. (1999, chapter 4); and for New Zealand, see Evans, et al. (1996) and Bernanke et al. (1999, chapter 5). For a general discussion of the role of central banks, see Bernanke et al. (1999) and Mishkin (1999).

This switch may be explained by the significant trend of "dollarization" in Turkey. [17] Since Turkey's M2 includes foreign currency deposits, the behavior of M2 and its potential impact on real output in Turkey may reflect non-policy actions taken by the public in how they manage their portfolio of financial assets. For the broader M2 measure the specification (TS vs DS) and ordering have no effect on the significance on money in explaining the behavior of output variance. As we found with M1, the most striking result in Table 2 is that M2 dominates the interest rate in Germany, New Zealand and Switzerland. This finding not only appears to be robust across specifications, but also across definitions of money.

Overall, the results in Tables 2 and 3 suggest that the behavior of money may be more important in explaining real output than some have concluded.[18] While interpreting results such as these can be likened to a beauty contest, a money-friendly view is that the results do not reject the notion that money can, in many countries, serve as a useful indicator of future real output behavior. Such a conclusion is supported by the data in half of the countries tested. Viewing the results slightly differently, the fact that interest rates dominate money in only half of the countries is not over-whelming support for the predominant view among most economists and policy makers that interest rates are the only variable worth considering in policy analysis and deliberations.

Perhaps the most interesting finding is that money clearly dominates the interest rate in Germany, New Zealand and Switzerland.[19] This statement also is true for M2 in

---

[17] For example, the dollarization ratio based on the IMF data, as measured by the ratio of foreign currency deposits to GDP, in 1990 was about 5 percent, but this ratio jumped to around 15 percent in 1995 and then to 20 percent in 2000.

[18] Nelson's (2000) recent results would agree with this assessment.

[19] This outcome also appears to be robust to changing the sample period. At the suggestion of the referee, we estimated the VAR models using a common sample. In our attempt to maximize the sample length and

Turkey. What makes these countries different from the others? Is there something unique about these countries, other than the aforementioned approach to monetary policy, that generates this outcome? We investigate this question by comparing the financial development and structure of these countries with the others used.

The Role of Financial Size and Structure[20]

In this section we ask whether Germany, New Zealand and Switzerland are characterized by some measure of financial market development or structure that helps to explain our findings. To do this we utilize the data set constructed by Beck, et al. (1999).

The Beck, et al. (1999) data set is a comprehensive collection of economic and social measures used in previous research on economic growth. We selected several measures to capture the relative size of the central bank and the banking system, measured relative to total financial assets and to GDP. We also gauge the "depth" of the country's financial markets with using statistics such as the ratio of liquid liabilities to GDP and private credit extended by the banking system relative to GDP. Measures of the structure and efficiency of the countries' financial system are used, including the 3-bank concentration ratio, overhead costs and net interest margins of commercial banks. Finally, we include measures of the relative size of the stock and bond markets. A complete listing of the variables used and their mnemonics is provided in Table 4.

---

the number of countries, we were able to use only a subset of the twenty countries. Even so, over a common sample period of 1977/I-1996/II, we still find that M1 and M2 generate VDCs that are large in absolute magnitude and relative to the interest rate for Germany and Switzerland. The only other notable result from this estimate is that now we find that money, regardless of the specification, plays a secondary role to the interest rate in explaining output in the U.S. Complete common-sample estimates are available upon request.

[20] We would like to thank the referee for suggesting this line of inquiry.

Table 5 presents the summary statistics associated with each financial measure listed in Table 4, if available, for each country. For sake of comparison, we separate Germany, New Zealand and Switzerland from the rest of the countries. Do the financial data reveal any discernible pattern that explains our empirical results? In brief, the answer is no. For one thing, there is a great deal of variation in each measure across countries. For example, in Germany and Switzerland the assets of the central banks are less than one percent of total assets (CBA/TA). In New Zealand, however, the figure is over six percent. (For purpose of comparison, the figure for the U.S. is 2.91 percent.) Glancing down this column reveals that Germany and Switzerland have among the lowest measures in this category. Even so, similarly low measures are reported for France and the Netherlands, two countries for which money was not found to exert much influence relative to interest rates. The measure of deposit bank assets relative to total (DBA/TA) indicates less dispersal among countries, but no clear pattern emerges that would distinguish one country from another. So, size of the central bank and of the commercial banking system relative to the whole financial system does not appear as a likely explanation for our empirical results.

When measures of the financial system relative to GDP are considered, the size of the financial markets relative to GDP in Switzerland is larger than the average. Although "central bank assets to GDP" seem extraordinary, the other three measures all register the largest values of any country in the sample. Still, the fact that such is not found for Germany and New Zealand suggests that this characteristic isn't unique and is not an explanation for finding that money explains the behavior of real output better than interest rates.

Is there any evidence in measures of financial market structure and efficiency that solve the puzzle? The statistics under this umbrella heading presented in Table 5 suggest that the answer is no. Regardless of the specific measure used, whether it is the three-bank concentration ratio, measures of efficiency or size of the stock and bond markets, there is no apparent pattern that accounts for the findings in Tables 2 and 3.

IV. CONCLUSIONS

This study examines the empirical relation between money, interest rates and output across a sample of diverse economies. Previous analyses often rely on U.S. data or other financially developed countries from a specific region, such as the EU. In contrast, the evidence presented in this paper is based on a diverse sample of 20 countries, including industrial countries from different regions as well as economically and financially less-developed countries.

The results of our analysis suggest that rejecting money as a potentially informative tool in setting monetary policy is unwarranted. First, the results suggest that money often times play a significant role in explaining the behavior of real output. Across the different specifications used and countries examined, we find that in about half of the countries money accounts for more of the variance in real output than nominal interest rates. Second, our results indicate that concern over the stationarity assumption, found to be important for the U.S., can alter conclusions about the relative importance of money and interest rates in other countries as well.

The most robust result reported is the finding that in three countries--Germany, New Zealand and Switzerland--money, M1 or M2, uniformly explains a greater percentage of the variation in real output than do interest rates. Other than the well-known bias towards low-inflation policies by the central banks of these countries, a review of data measuring the size, structure and efficiency individual financial systems indicates that there is no obvious pattern that explains the empirical results. Still, this is likely to be a potentially fruitful avenue of future research.

In summary, we believe that our results do not support an out-and-out rejection of money as an informative economic variable when it comes to setting or evaluating monetary policy. As if it need be said, there is a clear need for further research.

References

Beck, Thorsten, and Asli Demirguc-Kunt, and Ross Levine. A New Database on Financial Development and Structure." Working Paper, University of Minnesota, June 1999.

Bernanke, Ben S. "On the Predictive Power of Interest Rates and Interest Rate Spreads." *New England Economic Review*, November/December 1990, 51-68.

______, and Alan S. Blinder. "The Federal Funds Rate and the Channels of Monetary Transmission." *American Economic Review*, September 1992, 901-21.

Bernanke, Ben. S., Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen. *Inflation Targeting: Lessons from the International Experience*, Princeton University Press, Princeton, New Jersey, 1999.

Christiano, Lawrence J., and Lars Ljungqvist. "Money Does Granger-Cause Output in the Bivariate Money-Output Relation." *Journal of Monetary Economics*, September 1988, 217-36.

Canova, Fabio. "Detrending and Business Cycle Facts." *Journal of Monetary Economics*, 1998, 41, 475-512.

Davis, Mark S., and J. Ernest Tanner. "Money and Economic Activity Revisited." *Journal of International Money and Finance*, 1997, 955-968.

Dejong, David N., John C. Nankervis, N.E. Savin, and Charles H. Whiteman. "The Power Problems of Unit Root Tests in Time Series with Autoregressive Errors." *Journal of Econometrics*, July-September 1992, 323-43.

Dejong, David N., and Charles H.Whiteman. "Reconsidering Trends and Random Walks in Macroeconomic Time Series." *Journal of Monetary Economics*, October 1991, 221-54.

Dwyer, Gerald P., Jr. and R.W. Hafer. "Are Money Growth and Inflation Still Related?" Federal Reserve Bank of Atlanta *Economic Review,* Second Quarter, 1999, 32-43.

Evans, Lewis, and Arthur Grimes, Bryce Wilkinson, David Teece. "Economic Reform in New Zealand 1984-95: The Pursuit of Efficiency." *Journal of Economic Literature*, December 1996, 1856-1902.

Friedman, Benjamin M., and Kennth N. Kuttner. Money, Income, Prices and Interest Rates." *American Economic Review*, June 1992, 472-92.

Friedman, Benjamin M., and Kenneth N. Kuttner. "Another Look at the Evidence on Money-Income Causality." *Journal of Econometrics*, May-June 1993, 189-203.

Hafer, R.W. and A.M. Kutan. "More Evidence on the Money-Output Relationship." *Economic Inquiry*, January 1997, 48-58.

_____, and Richard G. Sheehan. "Policy Inference Using VAR Models: The Effects of Alternative Lag Structures." *Economic Inquiry*, January 1991, 44-52.

Hayo, Bernd. "Money-Output Granger Causality Revisited: An Empirical Analysis of EU Countries." *Applied Economics*, 1999, 31, 1489-1501.

Krol, Robert and Lee E. Ohanian. "The Impact of Stochastic and Deterministic Trends on Money-Output Causality: A Multi-Country Investigation." *Journal of Econometrics*, September 1990, 291-308.

Masih, Rumi and Sbul M. M. Masih. "Long and Short Term Dynamic Casual Transmission amongst International Stock Markets." *Journal of International Money and Finance*, 2001, 20, 563-587.

McCallum, Bennett T. "Monetary Policy Analysis in Models without Money." Presented at the 25th Annual Economic Policy Conference, Federal Reserve Bank of St. Louis, October 2000.

Meltzer, Allan H. "The Transmission Mechanism." Paper prepared for "The Monetary Transmission Process: Recent Developments and Lessons for Europe," Bundesbank, Frankfurt, Germany, March 1999.

Meyer, Laurence H. "Does Money Matter ?" 2001 Homer Jones Memorial Lecture, Presented at Federal Reserve Bank of St. Louis, March 28, 2001.

Mishkin, Frederic S. "International Experiences with Different Monetary Policy Regimes." *Journal of Monetary Economics*, 43, 1999, 579-605.

_____. "What Should Central Banks Do?" *Federal Reserve Bank of St. Louis Economic Review*, November/December 2000, 1-14.

Nelson, Edward. "Direct Effects of Base Money on Aggregate Demand: Theory and Evidence." Working Paper, Bank of England, 2000.

Rudebusch, Glenn D. "The Uncertain Unit of Root in Real GNP." *American Economic Review*, March 1993, 264-72.

_____, and Lars E.O. Svensson. "Policy Rules for Inflation Targeting." In *Monetary Policy Rules*, edited by John B. Taylor, 203-62, Chicago: University of Chicago Press, 1999.

_____, and _____. “Eurosystem Monetary Targeting: Lessons from U.S. Data.” Working Paper, Federal Reserve Bank of San Francisco, May 2000.

Sims, Christopher A. “Comparison of Interwar and Postwar Business Cycles: Monetarism Reconsidered.” *American Economic Review*, May 1980, 250-57.

_____, James H. Stock, and Mark W. Watson. “Inference in Linear Time Series Models with Some Unit Roots.” *Econometrica*, January 1990, 113-44.

Stock, James H., and Mark W. Watson. “Interpreting the Evidence on Money-Income Causality.” *Journal of Econometrics*, January 1989, 161-81.

Swanson, Norman R., “Money and Output Viewed Through a Rolling Window.” *Journal of Monetary Economics*, 1998, 455-473.

Thoma, M. A. “Subsample Instability and Asymmetrics in Money-Income Causality.” *Journal of Econometrics*, 64, 1994, 279-306.

Todd, Richard M. “Vector Autoregression Evidence on Monetarism: Another Look at the Robustness Debate.” Federal Reserve Bank of Minneapolis *Quarterly Review*, Spring 1990, 19-37.

Von Hagen, Jurgen. “Money Growth Targeting by the Bundesbank.” *Journal of Monetary Economics*, 43, 1999, 681-701.

DATA APPENDIX

All quarterly data are taken from IMF's International Financial Statistics CD-ROM tape. The following further describes the data and indicates the sample periods for each country:

Prices: Consumer Price Index (CPI), 1990=100, line 64.
Money: Narrow money (M1) line 34 and M2=M1+quasi money (line 35)
Output: Real GDP (1990 prices), line 90
Interest rate: Money market rate (line 60B) for all countries, except Mexico and Israel (T-bill rate, line:60C), and Finland (central bank rate, line:60)

Country	Sample period
Australia	1969:4-1996:2
Canada	1975:1-1998:2
Finland	1970:1-1996:2
France	1970:1-1998:2
Germany	1960:2-1998:2
Japan	1957:3-1998:2
Israel	1986:1-1998:2
Italy	1970:1-1997:2
Korea	1976:4-1998:2
Mexico	1986:4-1997:3
Netherlands	1977:1-1997:2
New Zealand	1983:1-1998:2
Norway	1973:1-1998:2
Portugal	1981:1-1997:4
Singapore	1984:3-1998:1
Spain	1974:1-1998:2
Sweden	1969:1-1989:4
Switzerland	1975:4-1997:2
Turkey	1987:1-1998:1
United States	1957:3-1998:3

Table 1
Summary Statistics

COUNTRY	Mean and Standard Deviation (in parantheses)					Sample Period
	∆RGDP	∆M1	∆M2	∆CPI	TB	
USA	2.88 (0.92)	5.48 (1.77)	7.24 (1.17)	4.28 (0.80)	6.41 (3.32)	1957:4 1998:3
Australia	3.21 (1.25)	10.72 (2.65)	11.44 (1.99)	7.16(1.61)	9.37 (3.76)	1970:1 1996:3
Canada	2.80 (0.86)	8.72 (2.66)	9.24 (1.81)	5.04 (1.15)	8.91 (3.67)	1975:2 1998:2
Finland	2.52 (6.02)	15.72 (10.16)	10.96 (2.21)	6.96 (1.56)	8.12 (1.38)	1970:2 1996:2
France	2.48 (0.71)	7.96 (5.13)	13.08 (6.53)	6.04 (1.38)	8.82 (3.14)	1970:2 1998:2
Germany	3.12 (1.53)	7.88 (1.80)	8.28 (1.96)	3.20 (0.91)	5.52 (2.50)	1960:2 1998:3
Israel	4.56 (2.26)	21.68 (5.02)	19.44 (2.11)	12.96 (1.50)	14.60 (3.60)	1986:2 1998:2
Italy	2.40 (0.86)	11.28 (14.34)	10.76 (9.37)	9.28 (2.09)	12.37 (4.24)	1970:2 1997:2
Japan	5.04 (1.61)	10.80 (2.51)	11.20 (2.83)	4.32 (1.61)	6.41 (3.12)	1957:4 1998:2
Korea	5.48 (21.37)	13.84 (6.88)	18.48 (2.32)	7.92 (1.90)	14.25 (3.94)	1977:1 1998:2
Mexico	2.64 (5.34)	35.84 (8.98)	34.48 (15.56)	28.64 (7.32)	39.75 (31.11)	1987:1 1997:3
Netherlands	2.24 (0.92)	6.40 (1.80)	6.04 (1.27)	2.88 (0.78)	6.52 (2.46)	1977:2 1997:4
New Zealand	2.24 (2.90)	13.80 (10.81)	15.60 (10.13)	5.28 (1.59)	12.71 (5.70)	1983:2 1998:2
Norway	3.44 (4.00)	11.96 (3.67)	9.04 (2.20)	6.04 (1.28)	9.87 (3.50)	1973:2 1998:2
Portugal	2.68 (1.75)	14.84 (11.47)	14.96 (4.11)	11.20 (2.20)	13.33 (4.49)	1981:2 1997:4
Singapore	6.84 (3.44)	8.44 (2.81)	11.84 (1.78)	1.68 (0.63)	4.27 (1.51)	1984:4 1998:1
Spain	2.32 (0.48)	11.68 (2.04)	11.28 (2.63)	9.44 (1.94)	12.39 (4.95)	1974:2 1998:2
Sweden	2.64 (11.96)	3.72 (53.64)	11.96 (8.06)	7.92 (1.60)	9.42 (3.17)	1969:2 1989:4
Switzerland	1.68 (1.25)	4.24 (3.95)	6.48 (2.19)	2.88 (0.84)	3.36 (2.33)	1976:1 1998:2
Turkey	5.56 (27.47)	52.28 (12.31)	60.56 (5.20)	56.28 (5.04)	68.35 (32.30)	1987:2 1998:1

Note: RGDP is real GDP (1990$), M1 is the narrow definition of money, M2 is the broad definition of money, CPI is the consumer price index, and TB is a short-term interest rate. ∆ is the difference operator. All variables except the interest rate are expressed in logarithms. A more complete description of the data and the sample periods is found in the data appendix.

Table 2
Variance Decompositions
Money: M1

		Money / T-Bill		
COUNTRY	**Ordering**	**Stationary without trend**	**Trend Stationary (TS)**	**Difference Stationary (DS)**
USA	1	28.17 / 26.82	25.45 / 12.78	2.81 / 21.94
	2	25.40 / 30.37	24.51 / 16.58	2.25 / 13.02
	S.E.	0.03565	0.02488	0.00860
Australia	1	13.10 / 20.56	12.98 / 7.19	7.88 / 8.47
	2	10.52 / 22.05	13.20 / 5.17	7.51 / 8.58
	S.E.	0.03117	0.01936	0.01215
Canada	1	16.08 / 51.44	21.00 / 44.12	1.97 / 10.5
	2	16.10 / 47.95	21.12 / 43.85	13.56 / 11.94
	S.E.	0.02655	0.02446	0.00848
Finland	1	2.50 / 45.13	3.18 / 7.85	1.70 / 21.54
	2	0.68 / 46.24	0.48 / 9.18	1.76 / 23.98
	S.E.	0.03901	0.02284	0.02577
France	1	8.66 / 42.45	4.23 / 36.15	11.45 / 17.15
	2	9.09 / 53.40	5.06 / 48.46	10.37 / 16.23
	S.E.	0.02393	0.02026	0.00692
Germany	1	52.32 / 9.74	27.53 / 4.30	16.01 / 2.92
	2	43.43 / 8.54	22.94 / 4.90	25.58 / 2.26
	S.E.	0.04511	0.03134	0.01514
Israel	1	10.59 / 8.36	10.25 / 9.14	29.6 / 8.53
	2	4.78 / 1.83	5.51 / 2.40	12.36 / 5.88
	S.E.	0.03028	0.02393	0.01980
Italy	1	12.34 / 44.17	13.61 / 45.58	11.46 / 15.59
	2	7.31 / 43.00	7.38 / 46.35	2.44 / 16.67
	S.E.	0.02314	0.02190	0.00857
Japan	1	0.67 / 0.28	0.93 / 0.21	6.94 / 4.77
	2	2.53 / 0.15	3.07 / 0.16	2.68 / 4.59
	S.E.	0.06386	0.06473	0.01617
Korea	1	8.60 / 35.70	6.73 / 35.47	3.76 / 6.13
	2	5.42 / 7.98	4.39 / 9.29	2.94 / 3.23
	S.E.	0.06953	0.06101	0.04988

Table 2 (continued)

Mexico	1	6.29 / 35.44	13.35 / 18.02	17.36 / 18.00
	2	4.07 / 9.52	8.86 / 16.54	14.46 / 15.70
	S.E.	0.03081	0.02407	0.01986
Netherlands	1	31.00 / 23.68	14.81 / 21.85	10.69 / 9.01
	2	34.17 / 22.90	16.74 / 12.62	7.90 / 3.58
	S.E.	0.01726	0.01482	0.00926
New Zealand	1	20.56 / 24.26	21.78 / 13.53	25.48 / 4.34
	2	34.10 / 6.45	11.04 / 6.54	16.27 / 2.84
	S.E.	0.05654	0.02457	0.02799
Norway	1	7.32 / 30.51	14.06 / 30.33	8.32 / 19.34
	2	6.67 / 13.34	14.22 / 21.49	8.06 / 16.82
	S.E.	0.04337	0.03087	0.02393
Portugal	1	37.23 / 24.02	52.50 / 17.41	11.65 / 16.46
	2	17.63 / 7.10	49.74 / 24.19	7.71 / 11.98
	S.E.	0.01640	0.01326	0.01424
Singapore	1	57.23 / 33.65	36.20 / 28.88	19.44 / 6.85
	2	29.09 / 30.73	23.15 / 29.54	21.31 / 5.84
	S.E.	0.08495	0.02432	0.01567
Spain	1	5.41 / 14.03	6.85 / 1.76	22.35 / 7.69
	2	6.91 / 14.11	4.33 / 3.16	20.16 / 11.45
	S.E.	0.03454	0.02458	0.00440
Sweden	1	16.79 / 19.45	10.95 / 11.12	13.72 / 4.53
	2	8.71 / 16.91	6.37 / 8.07	15.64 / 1.94
	S.E.	0.02496	0.02328	0.02423
Switzerland	1	59.61 / 16.27	42.95 / 17.54	26.16 / 11.01
	2	53.33 / 13.94	39.19 / 12.42	21.61 / 8.46
	S.E.	0.03620	0.03060	0.01094
Turkey	1	12.09 / 35.02	17.96 / 32.06	20.08 / 18.59
	2	14.59 / 34.75	23.78 / 30.95	19.19 / 21.38
	S.E.	0.04056	0.04044	0.04805

Notes:
Ordering 1: TB, M1, CPI, RGDP
Ordering 2: RGDP, CPI, TB, M1
Variable definitions and sources are documented in Table 1 and the data appendix. S.E. is the standard error.

Table 3
Variance Decompositions
Money: M2

		Money / T-Bill		
COUNTRY	**Ordering**	**Stationary without trend**	**Trend Stationary (TS)**	**Difference Stationary (DS)**
USA	1	9.74 / 36.72	26.76 / 16.54	4.70 / 25.10
	2	5.25 / 36.66	19.58 / 15.62	3.46 / 11.76
	S.E.	0.03714	0.02721	0.00861
Australia	1	13.10 / 20.56	12.98 / 7.19	9.47 / 5.97
	2	10.53 / 22.05	13.20 / 5.17	7.18 / 6.19
	S.E.	0.03121	0.01879	0.01216
Canada	1	5.46 / 69.95	14.71 / 48.23	4.84 / 7.84
	2	4.23 / 64.84	13.68 / 51.65	3.75 / 10.02
	S.E.	0.02959	0.02404	0.00845
Finland	1	22.51 / 40.14	18.31 / 9.78	4.07 / 21.48
	2	10.82 / 40.39	3.98 / 11.05	1.54 / 24.13
	S.E.	0.03521	0.02447	0.02579
France	1	5.96 / 47.33	7.93 / 34.29	10.75 / 15.50
	2	3.68 / 59.15	3.79 / 45.82	7.06 / 14.68
	S.E.	0.02285	0.01975	0.00694
Germany	1	36.27 / 13.11	37.66 / 4.58	14.92 / 2.78
	2	27.68 / 10.57	33.37 / 2.41	15.24 / 2.08
	S.E.	0.04369	0.02923	0.01509
Israel	1	10.08 / 13.59	8.94 / 14.00	12.17 / 9.41
	2	4.31 / 3.90	5.60 / 4.22	11.21 / 6.70
	S.E.	0.02524	0.02382	0.01976
Italy	1	13.13 / 33.49	10.36 / 50.40	8.67 / 15.68
	2	6.70 / 26.66	6.54 / 40.32	3.87 / 15.60
	S.E.	0.02011	0.02129	0.00858
Japan	1	7.99 / 1.07	7.46 / 3.87	12.88 / 4.32
	2	4.45 / 0.12	4.68 / 1.15	9.90 / 3.91
	S.E.	0.05681	0.05723	0.01585
Korea	1	4.31 / 42.80	4.92 / 41.90	2.07 / 5.68
	2	4.03 / 15.41	4.57 / 19.44	1.79 / 5.71
	S.E.	0.07344	0.06480	0.05050

Table 3 (continued)

Mexico	1	7.66 / 36.15	14.56 / 44.40	19.79 / 21.81
	2	5.64 / 6.45	3.98 / 12.33	9.28 / 20.07
	S.E.	0.02943	0.02592	0.01965
Netherlands	1	17.22 / 43.95	20.23 / 21.99	4.94 / 7.94
	2	10.11 / 40.90	11.19 / 14.05	2.90 / 2.51
	S.E.	0.01758	0.01485	0.00923
New Zealand	1	12.37 / 22.13	34.84 / 12.72	26.43 / 9.74
	2	22.67 / 3.48	13.06 / 3.54	13.35 / 2.39
	S.E.	0.04008	0.02751	0.02729
Norway	1	1.01 / 46.67	7.54 / 8.71	6.12 / 15.02
	2	2.57 / 31.38	10.77 / 4.84	4.17 / 13.32
	S.E.	0.04776	0.03200	0.02390
Portugal	1	3.71 / 70.88	4.68 / 69.07	20.54 / 12.83
	2	1.86 / 62.92	2.11 / 64.98	20.18 / 9.27
	S.E.	0.02156	0.02144	0.01528
Singapore	1	26.38 / 29.15	14.81 / 25.17	7.39 / 10.08
	2	32.80 / 31.87	14.36 / 25.78	6.41 / 9.46
	S.E.	0.03932	0.02099	0.01596
Spain	1	1.00 / 31.89	5.34 / 2.19	7.39 / 8.01
	2	0.34 / 29.36	2.89 / 2.69	10.44 / 10.87
	S.E.	0.03598	0.02610	0.00439
Sweden	1	3.06 / 30.44	3.60 / 19.13	1.18 / 5.34
	2	3.15 / 22.12	3.97 / 11.86	1.36 / 2.84
	S.E.	0.02451	0.02258	0.02285
Switzerland	1	47.00 / 17.45	45.73 / 17.23	15.35 / 7.53
	2	46.00 / 16.60	46.39 / 15.78	15.02 / 5.62
	S.E.	0.02717	0.02697	0.01080
Turkey	1	25.65 / 19.21	35.99 / 27.47	41.72 / 18.27
	2	10.89 / 5.55	35.37 / 7.45	40.39 / 13.49
	S.E.	0.04690	0.03845	0.05139

Notes:
Ordering 1: TB, M2, CPI, RGDP
Ordering 2: RGDP, CPI, TB, M2
Variable definitions and sources are documented in Table 1 and the data appendix. S.E. is the standard error.

Table 4
Description of Financial Development Variables

Variable	Definition	Description/Page reference to Beck, et al. (1999)
CBA/TA	Central Bank Assets to Total Financial Assets	Central bank defined as institutions that perform duties of central banks. Total financial assets equal sum of central bank, deposit money bank and other financial institutions assets. End-of-period. Pages 5-6
DBA/TA	Deposit Money Bank Assets to Total Financial Assets	Deposit money banks are all financial institutions whose liabilities are in the form of deposits transferable by check or otherwise used in making payments. End-of-period. Page 6
CBA/GDP	Central Bank Assets to GDP	Central bank assets defined above. GDP as measured in IMF. Page 6
DBA/GDP	Deposit money banks assets to GDP	Deposit money banks, GDP as defined above. Page 6
LL/GDP	Liquid Liabilities to GDP	Equals sum of currency, demand deposits and interest-bearing liabilities of banks and other financial intermediaries relative to GDP. Pages 6-7
PC/GDP	Private Credit by Deposit Money Banks to GDP	Claims on private sector by deposit money banks relative to GDP. Page 7
CONC	3-Bank Concentration Ratio	Ratio of three largest banks' assets to total banking sector assets. Page 11
OVER/TA	Overhead Costs to Total Assets	Equals accounting value of bank's overhead costs relative to its total assets. End-of-period. Page 10
NIM/TA	Net Interest Margin to Total Assets	Equals accounting value of value of bank's net interest revenue relative to total assets. End-of-period. Page 10
CAP/GDP	Stock Market Capitalization to GDP	Value of listed shares on country's stock market relative to GDP. Values are end-of-year. Page 17.
DEBT/GDP	Long-Term Private Debt Issues to GDP	Equity issues, both long-term and debt issues, relative to GDP. Nominal measure. Page 18.

Source: Beck, et al. (1999).

Table 5
Measures of Financial Size, Structure and Efficiency

	SIZE						STRUCTURE AND EFFICIENCY				
COUNTRY	CBA/TA	DBA/TA	CBA/GDP	DMBA/GDP	LL/GDP	PC/GDP	CONC	OVER/TA	NIM/TA	CAP/GDP	DEBT/GDP
Germany	0.95	93.43	1.14	110.12	64.10	92.26	44.16	2.77	2.46	18.64	37.43
New Zealand	6.12	66.62	3.91	48.84	55.43	54.17	76.94	2.75	2.51	40.47	0.00
Switzerland	0.77	81.27	1.45	154.31	138.18	177.64	73.92	4.94	1.55	70.59	62.09
Australia	2.86	55.05	2.88	56.11	56.42	81.23	67.44	2.61	1.92	43.10	13.76
Canada	4.68	60.87	4.20	53.68	68.53	76.63	58.01	2.44	1.75	45.54	8.62
Finland	na	na	1.55	68.14	51.09	66.99	86.46	1.65	1.60	18.44	39.09
France	0.74	72.24	1.06	93.87	68.02	90.89	40.66	4.41	3.51	19.77	41.24
Israel	na	na	11.17	97.01	62.94	50.54	86.39	3.82	3.30	28.89	0.00
Italy	na	na	11.98	69.39	69.70	50.50	35.81	3.56	3.60	11.87	28.10
Japan	1.80	50.12	4.19	119.16	168.31	169.26	20.99	1.39	1.75	73.01	29.99
Korea, Rep. of	3.11	57.03	2.49	48.35	46.15	80.90	33.40	2.48	2.29	24.55	32.19
Mexico	17.60	48.78	7.69	19.18	23.37	17.61	59.06	5.03	5.35	14.55	0.97
Netherlands	0.46	51.42	0.84	93.66	81.76	127.97	73.34	1.00	1.46	40.92	16.56
Norway	2.38	54.76	2.88	63.13	53.83	88.51	84.54	2.48	3.13	15.19	19.17
Portugal	na	na	14.07	79.80	73.19	63.21	45.27	2.56	3.46	7.75	10.59
Singapore	na	na	na	89.63	102.71	94.80	72.91	1.43	2.09	123.06	3.65
Spain	7.14	85.99	7.30	87.45	72.85	72.02	46.44	3.49	3.76	18.08	9.28
Sweden	5.50	41.23	7.25	54.12	49.82	108.94	88.57	3.07	2.66	38.09	57.56
Turkey	34.38	59.61	9.26	18.64	21.82	13.82	44.77	6.36	9.37	6.14	0.69
United States	2.91	47.15	4.66	75.13	62.61	130.74	18.21	3.65	3.88	58.18	52.58

Notes: All measures are in percentages. Source: Beck, et al. (1999) Definitions of the measures used are provided in the data appendix to this paper.

2008		
B01-08	**Euro-Diplomatie durch gemeinsame „Wirtschaftsregierung“**	*Martin Seidel*
2007		
B03-07	**Löhne und Steuern im Systemwettbewerb der Mitgliedstaaten der Europäischen Union**	*Martin Seidel*
B02-07	**Konsolidierung und Reform der Europäischen Union**	*Martin Seidel*
B01-07	**The Ratification of European Treaties - Legal and Constitutional Basis of a European Referendum.**	*Martin Seidel*
2006		
B03-06	**Financial Frictions, Capital Reallocation, and Aggregate Fluctuations**	*Jürgen von Hagen, Haiping Zhang*
B02-06	**Financial Openness and Macroeconomic Volatility**	*Jürgen von Hagen, Haiping Zhang*
B01-06	**A Welfare Analysis of Capital Account Liberalization**	*Jürgen von Hagen, Haiping Zhang*
2005		
B11-05	**Das Kompetenz- und Entscheidungssystem des Vertrages von Rom im Wandel seiner Funktion und Verfassung**	*Martin Seidel*
B10-05	**Die Schutzklauseln der Beitrittsverträge**	*Martin Seidel*
B09-05	**Measuring Tax Burdens in Europe**	*Guntram B. Wolff*
B08-05	**Remittances as Investment in the Absence of Altruism**	*Gabriel González-König*
B07-05	**Economic Integration in a Multicone World?**	*Christian Volpe Martincus, Jennifer Pédussel Wu*
B06-05	**Banking Sector (Under?)Development in Central and Eastern Europe**	*Jürgen von Hagen, Valeriya Dinger*
B05-05	**Regulatory Standards Can Lead to Predation**	*Stefan Lutz*
B04-05	**Währungspolitik als Sozialpolitik**	*Martin Seidel*
B03-05	**Public Education in an Integrated Europe: Studying to Migrate and Teaching to Stay?**	*Panu Poutvaara*
B02-05	**Voice of the Diaspora: An Analysis of Migrant Voting Behavior**	*Jan Fidrmuc, Orla Doyle*
B01-05	**Macroeconomic Adjustment in the New EU Member States**	*Jürgen von Hagen, Iulia Traistaru*
2004		
B33-04	**The Effects of Transition and Political Instability On Foreign Direct Investment Inflows: Central Europe and the Balkans**	*Josef C. Brada, Ali M. Kutan, Taner M. Yigit*
B32-04	**The Choice of Exchange Rate Regimes in Developing Countries: A Mulitnominal Panal Analysis**	*Jürgen von Hagen, Jizhong Zhou*
B31-04	**Fear of Floating and Fear of Pegging: An Empirical Anaysis of De Facto Exchange Rate Regimes in Developing Countries**	*Jürgen von Hagen, Jizhong Zhou*
B30-04	**Der Vollzug von Gemeinschaftsrecht über die Mitgliedstaaten und seine Rolle für die EU und den Beitrittsprozess**	*Martin Seidel*
B29-04	**Deutschlands Wirtschaft, seine Schulden und die Unzulänglichkeiten der einheitlichen Geldpolitik im Eurosystem**	*Dieter Spethmann, Otto Steiger*
B28-04	**Fiscal Crises in U.S. Cities: Structural and Non-structural Causes**	*Guntram B. Wolff*
B27-04	**Firm Performance and Privatization in Ukraine**	*Galyna Grygorenko, Stefan Lutz*
B26-04	**Analyzing Trade Opening in Ukraine: Effects of a Customs Union with the EU**	*Oksana Harbuzyuk, Stefan Lutz*
B25-04	**Exchange Rate Risk and Convergence to the Euro**	*Lucjan T. Orlowski*
B24-04	**The Endogeneity of Money and the Eurosystem**	*Otto Steiger*
B23-04	**Which Lender of Last Resort for the Eurosystem?**	*Otto Steiger*
B22-04	**Non-Discretonary Monetary Policy: The Answer for Transition Economies?**	*Elham-Mafi Kreft, Steven F. Kreft*
B21-04	**The Effectiveness of Subsidies Revisited: Accounting for Wage and Employment Effects in Business R+D**	*Volker Reinthaler, Guntram B. Wolff*
B20-04	**Money Market Pressure and the Determinants of Banking Crises**	*Jürgen von Hagen, Tai-kuang Ho*
B19-04	**Die Stellung der Europäischen Zentralbank nach dem Verfassungsvertrag**	*Martin Seidel*

B18-04	**Transmission Channels of Business Cycles Synchronization in an Enlarged EMU**	*Iulia Traistaru*
B17-04	**Foreign Exchange Regime, the Real Exchange Rate and Current Account Sustainability: The Case of Turkey**	*Sübidey Togan, Hasan Ersel*
B16-04	**Does It Matter Where Immigrants Work? Traded Goods, Non-traded Goods, and Sector Specific Employment**	*Harry P. Bowen, Jennifer Pédussel Wu*
B15-04	**Do Economic Integration and Fiscal Competition Help to Explain Local Patterns?**	*Christian Volpe Martincus*
B14-04	**Euro Adoption and Maastricht Criteria: Rules or Discretion?**	*Jiri Jonas*
B13-04	**The Role of Electoral and Party Systems in the Development of Fiscal Institutions in the Central and Eastern European Countries**	*Sami Yläoutinen*
B12-04	**Measuring and Explaining Levels of Regional Economic Integration**	*Jennifer Pédussel Wu*
B11-04	**Economic Integration and Location of Manufacturing Activities: Evidence from MERCOSUR**	*Pablo Sanguinetti, Iulia Traistaru, Christian Volpe Martincus*
B10-04	**Economic Integration and Industry Location in Transition Countries**	*Laura Resmini*
B09-04	**Testing Creditor Moral Hazard in Souvereign Bond Markets: A Unified Theoretical Approach and Empirical Evidence**	*Ayse Y. Evrensel, Ali M. Kutan*
B08-04	**European Integration, Productivity Growth and Real Convergence**	*Taner M. Yigit, Ali M. Kutan*
B07-04	**The Contribution of Income, Social Capital, and Institutions to Human Well-being in Africa**	*Mina Baliamoune-Lutz, Stefan H. Lutz*
B06-04	**Rural Urban Inequality in Africa: A Panel Study of the Effects of Trade Liberalization and Financial Deepening**	*Mina Baliamoune-Lutz, Stefan H. Lutz*
B05-04	**Money Rules for the Eurozone Candidate Countries**	*Lucjan T. Orlowski*
B04-04	**Who is in Favor of Enlargement? Determinants of Support for EU Membership in the Candidate Countries' Referenda**	*Orla Doyle, Jan Fidrmuc*
B03-04	**Over- and Underbidding in Central Bank Open Market Operations Conducted as Fixed Rate Tender**	*Ulrich Bindseil*
B02-04	**Total Factor Productivity and Economic Freedom Implications for EU Enlargement**	*Ronald L. Moomaw, Euy Seok Yang*
B01-04	**Die neuen Schutzklauseln der Artikel 38 und 39 des Beitrittsvertrages: Schutz der alten Mitgliedstaaten vor Störungen durch die neuen Mitgliedstaaten**	*Martin Seidel*
2003		
B29-03	**Macroeconomic Implications of Low Inflation in the Euro Area**	*Jürgen von Hagen, Boris Hofmann*
B28-03	**The Effects of Transition and Political Instability on Foreign Direct Investment: Central Europe and the Balkans**	*Josef C. Brada, Ali M. Kutan, Taner M. Yigit*
B27-03	**The Performance of the Euribor Futures Market: Efficiency and the Impact of ECB Policy Announcements (Electronic Version of International Finance)**	*Kerstin Bernoth, Juergen von Hagen*
B26-03	**Souvereign Risk Premia in the European Government Bond Market (überarbeitete Version zum Herunterladen)**	*Kerstin Bernoth, Juergen von Hagen, Ludger Schulknecht*
B25-03	**How Flexible are Wages in EU Accession Countries?**	*Anna Iara, Iulia Traistaru*
B24-03	**Monetary Policy Reaction Functions: ECB versus Bundesbank**	*Bernd Hayo, Boris Hofmann*
B23-03	**Economic Integration and Manufacturing Concentration Patterns: Evidence from Mercosur**	*Iulia Traistaru, Christian Volpe Martincus*
B22-03	**Reformzwänge innerhalb der EU angesichts der Osterweiterung**	*Martin Seidel*
B21-03	**Reputation Flows: Contractual Disputes and the Channels for Inter-Firm Communication**	*William Pyle*
B20-03	**Urban Primacy, Gigantism, and International Trade: Evidence from Asia and the Americas**	*Ronald L. Moomaw, Mohammed A. Alwosabi*
B19-03	**An Empirical Analysis of Competing Explanations of Urban Primacy Evidence from Asia and the Americas**	*Ronald L. Moomaw, Mohammed A. Alwosabi*

B18-03	**The Effects of Regional and Industry-Wide FDI Spillovers on Export of Ukrainian Firms**	*Stefan H. Lutz, Oleksandr Talavera, Sang-Min Park*
B17-03	**Determinants of Inter-Regional Migration in the Baltic States**	*Mihails Hazans*
B16-03	**South-East Europe: Economic Performance, Perspectives, and Policy Challenges**	*Iulia Traistaru, Jürgen von Hagen*
B15-03	**Employed and Unemployed Search: The Marginal Willingness to Pay for Attributes in Lithuania, the US and the Netherlands**	*Jos van Ommeren, Mihails Hazans*
B14-03	**FCIs and Economic Activity: Some International Evidence**	*Charles Goodhart, Boris Hofmann*
B13-03	**The IS Curve and the Transmission of Monetary Policy: Is there a Puzzle?**	*Charles Goodhart, Boris Hofmann*
B12-03	**What Makes Regions in Eastern Europe Catching Up? The Role of Foreign Investment, Human Resources, and Geography**	*Gabriele Tondl, Goran Vuksic*
B11-03	**Die Weisungs- und Herrschaftsmacht der Europäischen Zentralbank im europäischen System der Zentralbanken - eine rechtliche Analyse**	*Martin Seidel*
B10-03	**Foreign Direct Investment and Perceptions of Vulnerability to Foreign Exchange Crises: Evidence from Transition Economies**	*Josef C. Brada, Vladimír Tomsík*
B09-03	**The European Central Bank and the Eurosystem: An Analysis of the Missing Central Monetary Institution in European Monetary Union**	*Gunnar Heinsohn, Otto Steiger*
B08-03	**The Determination of Capital Controls: Which Role Do Exchange Rate Regimes Play?**	*Jürgen von Hagen, Jizhong Zhou*
B07-03	**Nach Nizza und Stockholm: Stand des Binnenmarktes und Prioritäten für die Zukunft**	*Martin Seidel*
B06-03	**Fiscal Discipline and Growth in Euroland. Experiences with the Stability and Growth Pact**	*Jürgen von Hagen*
B05-03	**Reconsidering the Evidence: Are Eurozone Business Cycles Converging?**	*Michael Massmann, James Mitchell*
B04-03	**Do Ukrainian Firms Benefit from FDI?**	*Stefan H. Lutz, Oleksandr Talavera*
B03-03	**Europäische Steuerkoordination und die Schweiz**	*Stefan H. Lutz*
B02-03	**Commuting in the Baltic States: Patterns, Determinants, and Gains**	*Mihails Hazans*
B01-03	**Die Wirtschafts- und Währungsunion im rechtlichen und politischen Gefüge der Europäischen Union**	*Martin Seidel*
2002		
B30-02	**An Adverse Selection Model of Optimal Unemployment Assurance**	*Marcus Hagedorn, Ashok Kaul, Tim Mennel*
B29B-02	**Trade Agreements as Self-protection**	*Jennifer Pédussel Wu*
B29A-02	**Growth and Business Cycles with Imperfect Credit Markets**	*Debajyoti Chakrabarty*
B28-02	**Inequality, Politics and Economic Growth**	*Debajyoti Chakrabarty*
B27-02	**Poverty Traps and Growth in a Model of Endogenous Time Preference**	*Debajyoti Chakrabarty*
B26-02	**Monetary Convergence and Risk Premiums in the EU Candidate Countries**	*Lucjan T. Orlowski*
B25-02	**Trade Policy: *Institutional* Vs. *Economic* Factors**	*Stefan Lutz*
B24-02	**The Effects of Quotas on Vertical Intra-industry Trade**	*Stefan Lutz*
B23-02	**Legal Aspects of European Economic and Monetary Union**	*Martin Seidel*
B22-02	**Der Staat als *Lender of Last Resort* - oder: Die Achillesverse des Eurosystems**	*Otto Steiger*
B21-02	**Nominal and Real Stochastic Convergence Within the Transition Economies and to the European Union: Evidence from Panel Data**	*Ali M. Kutan, Taner M. Yigit*
B20-02	**The Impact of News, Oil Prices, and International Spillovers on Russian Fincancial Markets**	*Bernd Hayo, Ali M. Kutan*

B19-02	**East Germany: Transition with Unification, Experiments and Experiences**	*Jürgen von Hagen, Rolf R. Strauch, Guntram B. Wolff*
B18-02	**Regional Specialization and Employment Dynamics in Transition Countries**	*Iulia Traistaru, Guntram B. Wolff*
B17-02	**Specialization and Growth Patterns in Border Regions of Accession Countries**	*Laura Resmini*
B16-02	**Regional Specialization and Concentration of Industrial Activity in Accession Countries**	*Iulia Traistaru, Peter Nijkamp, Simonetta Longhi*
B15-02	**Does Broad Money Matter for Interest Rate Policy?**	*Matthias Brückner, Andreas Schaber*
B14-02	**The Long and Short of It: Global Liberalization, Poverty and Inequality**	*Christian E. Weller, Adam Hersch*
B13-02	**De Facto and Official Exchange Rate Regimes in Transition Economies**	*Jürgen von Hagen, Jizhong Zhou*
B12-02	**Argentina: The Anatomy of A Crisis**	*Jiri Jonas*
B11-02	**The Eurosystem and the Art of Central Banking**	*Gunnar Heinsohn, Otto Steiger*
B10-02	**National Origins of European Law: Towards an Autonomous System of European Law?**	*Martin Seidel*
B09-02	**Monetary Policy in the Euro Area - Lessons from the First Years**	*Volker Clausen, Bernd Hayo*
B08-02	**Has the Link Between the Spot and Forward Exchange Rates Broken Down? Evidence From Rolling Cointegration Tests**	*Ali M. Kutan, Su Zhou*
B07-02	**Perspektiven der Erweiterung der Europäischen Union**	*Martin Seidel*
B06-02	**Is There Asymmetry in Forward Exchange Rate Bias? Multi-Country Evidence**	*Su Zhou, Ali M. Kutan*
B05-02	**Real and Monetary Convergence Within the European Union and Between the European Union and Candidate Countries: A Rolling Cointegration Approach**	*Josef C. Brada, Ali M. Kutan, Su Zhou*
B04-02	**Asymmetric Monetary Policy Effects in EMU**	*Volker Clausen, Bernd Hayo*
B03-02	**The Choice of Exchange Rate Regimes: An Empirical Analysis for Transition Economies**	*Jürgen von Hagen, Jizhong Zhou*
B02-02	**The Euro System and the Federal Reserve System Compared: Facts and Challenges**	*Karlheinz Ruckriegel, Franz Seitz*
B01-02	**Does Inflation Targeting Matter?**	*Manfred J. M. Neumann, Jürgen von Hagen*
2001		
B29-01	**Is Kazakhstan Vulnerable to the Dutch Disease?**	*Karlygash Kuralbayeva, Ali M. Kutan, Michael L. Wyzan*
B28-01	**Political Economy of the Nice Treaty: Rebalancing the EU Council. The Future of European Agricultural Policies**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B27-01	**Investor Panic, IMF Actions, and Emerging Stock Market Returns and Volatility: A Panel Investigation**	*Bernd Hayo, Ali M. Kutan*
B26-01	**Regional Effects of Terrorism on Tourism: Evidence from Three Mediterranean Countries**	*Konstantinos Drakos, Ali M. Kutan*
B25-01	**Monetary Convergence of the EU Candidates to the Euro: A Theoretical Framework and Policy Implications**	*Lucjan T. Orlowski*
B24-01	**Disintegration and Trade**	*Jarko and Jan Fidrmuc*
B23-01	**Migration and Adjustment to Shocks in Transition Economies**	*Jan Fidrmuc*
B22-01	**Strategic Delegation and International Capital Taxation**	*Matthias Brückner*
B21-01	**Balkan and Mediterranean Candidates for European Union Membership: The Convergence of Their Monetary Policy With That of the Europaen Central Bank**	*Josef C. Brada, Ali M. Kutan*
B20-01	**An Empirical Inquiry of the Efficiency of Intergovernmental Transfers for Water Projects Based on the WRDA Data**	*Anna Rubinchik-Pessach*
B19-01	**Detrending and the Money-Output Link: International Evidence**	*R.W. Hafer, Ali M. Kutan*

B18-01	**Monetary Policy in Unknown Territory. The European Central Bank in the Early Years**	*Jürgen von Hagen, Matthias Brückner*
B17-01	**Executive Authority, the Personal Vote, and Budget Discipline in Latin American and Carribean Countries**	*Mark Hallerberg, Patrick Marier*
B16-01	**Sources of Inflation and Output Fluctuations in Poland and Hungary: Implications for Full Membership in the European Union**	*Selahattin Dibooglu, Ali M. Kutan*
B15-01	**Programs Without Alternative: Public Pensions in the OECD**	*Christian E. Weller*
B14-01	**Formal Fiscal Restraints and Budget Processes As Solutions to a Deficit and Spending Bias in Public Finances - U.S. Experience and Possible Lessons for EMU**	*Rolf R. Strauch, Jürgen von Hagen*
B13-01	**German Public Finances: Recent Experiences and Future Challenges**	*Jürgen von Hagen, Rolf R. Strauch*
B12-01	**The Impact of Eastern Enlargement On EU-Labour Markets. Pensions Reform Between Economic and Political Problems**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B11-01	**Inflationary Performance in a Monetary Union With Large Wage Setters**	*Lilia Cavallar*
B10-01	**Integration of the Baltic States into the EU and Institutions of Fiscal Convergence: A Critical Evaluation of Key Issues and Empirical Evidence**	*Ali M. Kutan, Niina Pautola-Mol*
B09-01	**Democracy in Transition Economies: Grease or Sand in the Wheels of Growth?**	*Jan Fidrmuc*
B08-01	**The Functioning of Economic Policy Coordination**	*Jürgen von Hagen, Susanne Mundschenk*
B07-01	**The Convergence of Monetary Policy Between Candidate Countries and the European Union**	*Josef C. Brada, Ali M. Kutan*
B06-01	**Opposites Attract: The Case of Greek and Turkish Financial Markets**	*Konstantinos Drakos, Ali M. Kutan*
B05-01	**Trade Rules and Global Governance: A Long Term Agenda. The Future of Banking.**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B04-01	**The Determination of Unemployment Benefits**	*Rafael di Tella, Robert J. MacCulloch*
B03-01	**Preferences Over Inflation and Unemployment: Evidence from Surveys of Happiness**	*Rafael di Tella, Robert J. MacCulloch, Andrew J. Oswald*
B02-01	**The Konstanz Seminar on Monetary Theory and Policy at Thirty**	*Michele Fratianni, Jürgen von Hagen*
B01-01	**Divided Boards: Partisanship Through Delegated Monetary Policy**	*Etienne Farvaque, Gael Lagadec*

2000

B20-00	**Breakin-up a Nation, From the Inside**	*Etienne Farvaque*
B19-00	**Income Dynamics and Stability in the Transition Process, general Reflections applied to the Czech Republic**	*Jens Hölscher*
B18-00	**Budget Processes: Theory and Experimental Evidence**	*Karl-Martin Ehrhart, Roy Gardner, Jürgen von Hagen, Claudia Keser*
B17-00	**Rückführung der Landwirtschaftspolitik in die Verantwortung der Mitgliedsstaaten? - Rechts- und Verfassungsfragen des Gemeinschaftsrechts**	*Martin Seidel*
B16-00	**The European Central Bank: Independence and Accountability**	*Christa Randzio-Plath, Tomasso Padoa-Schioppa*
B15-00	**Regional Risk Sharing and Redistribution in the German Federation**	*Jürgen von Hagen, Ralf Hepp*
B14-00	**Sources of Real Exchange Rate Fluctuations in Transition Economies: The Case of Poland and Hungary**	*Selahattin Dibooglu, Ali M. Kutan*
B13-00	**Back to the Future: The Growth Prospects of Transition Economies Reconsidered**	*Nauro F. Campos*

B12-00	**Rechtsetzung und Rechtsangleichung als Folge der Einheitlichen Europäischen Währung**	*Martin Seidel*
B11-00	**A Dynamic Approach to Inflation Targeting in Transition Economies**	*Lucjan T. Orlowski*
B10-00	**The Importance of Domestic Political Institutions: Why and How Belgium Qualified for EMU**	*Marc Hallerberg*
B09-00	**Rational Institutions Yield Hysteresis**	*Rafael Di Tella, Robert MacCulloch*
B08-00	**The Effectiveness of Self-Protection Policies for Safeguarding Emerging Market Economies from Crises**	*Kenneth Kletzer*
B07-00	**Financial Supervision and Policy Coordination in The EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B06-00	**The Demand for Money in Austria**	*Bernd Hayo*
B05-00	**Liberalization, Democracy and Economic Performance during Transition**	*Jan Fidrmuc*
B04-00	**A New Political Culture in The EU - Democratic Accountability of the ECB**	*Christa Randzio-Plath*
B03-00	**Integration, Disintegration and Trade in Europe: Evolution of Trade Relations during the 1990's**	*Jarko Fidrmuc, Jan Fidrmuc*
B02-00	**Inflation Bias and Productivity Shocks in Transition Economies: The Case of the Czech Republic**	*Josef C. Barda, Arthur E. King, Ali M. Kutan*
B01-00	**Monetary Union and Fiscal Federalism**	*Kenneth Kletzer, Jürgen von Hagen*
1999		
B26-99	**Skills, Labour Costs, and Vertically Differentiated Industries: A General Equilibrium Analysis**	*Stefan Lutz, Alessandro Turrini*
B25-99	**Micro and Macro Determinants of Public Support for Market Reforms in Eastern Europe**	*Bernd Hayo*
B24-99	**What Makes a Revolution?**	*Robert MacCulloch*
B23-99	**Informal Family Insurance and the Design of the Welfare State**	*Rafael Di Tella, Robert MacCulloch*
B22-99	**Partisan Social Happiness**	*Rafael Di Tella, Robert MacCulloch*
B21-99	**The End of Moderate Inflation in Three Transition Economies?**	*Josef C. Brada, Ali M. Kutan*
B20-99	**Subnational Government Bailouts in Germany**	*Helmut Seitz*
B19-99	**The Evolution of Monetary Policy in Transition Economies**	*Ali M. Kutan, Josef C. Brada*
B18-99	**Why are Eastern Europe's Banks not failing when everybody else's are?**	*Christian E. Weller, Bernard Morzuch*
B17-99	**Stability of Monetary Unions: Lessons from the Break-Up of Czechoslovakia**	*Jan Fidrmuc, Julius Horvath and Jarko Fidrmuc*
B16-99	**Multinational Banks and Development Finance**	*Christian E.Weller and Mark J. Scher*
B15-99	**Financial Crises after Financial Liberalization: Exceptional Circumstances or Structural Weakness?**	*Christian E. Weller*
B14-99	**Industry Effects of Monetary Policy in Germany**	*Bernd Hayo and Birgit Uhlenbrock*
B13-99	**Fiancial Fragility or What Went Right and What Could Go Wrong in Central European Banking?**	*Christian E. Weller and Jürgen von Hagen*
B12 -99	**Size Distortions of Tests of the Null Hypothesis of Stationarity: Evidence and Implications for Applied Work**	*Mehmet Caner and Lutz Kilian*
B11-99	**Financial Supervision and Policy Coordination in the EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B10-99	**Financial Liberalization, Multinational Banks and Credit Supply: The Case of Poland**	*Christian Weller*
B09-99	**Monetary Policy, Parameter Uncertainty and Optimal Learning**	*Volker Wieland*
B08-99	**The Connection between more Multinational Banks and less Real Credit in Transition Economies**	*Christian Weller*

B07-99	**Comovement and Catch-up in Productivity across Sectors: Evidence from the OECD**	*Christopher M. Cornwell and Jens-Uwe Wächter*
B06-99	**Productivity Convergence and Economic Growth: A Frontier Production Function Approach**	*Christopher M. Cornwell and Jens-Uwe Wächter*
B05-99	**Tumbling Giant: Germany‘s Experience with the Maastricht Fiscal Criteria**	*Jürgen von Hagen and Rolf Strauch*
B04-99	**The Finance-Investment Link in a Transition Economy: Evidence for Poland from Panel Data**	*Christian Weller*
B03-99	**The Macroeconomics of Happiness**	*Rafael Di Tella, Robert MacCulloch and Andrew J. Oswald*
B02-99	**The Consequences of Labour Market Flexibility: Panel Evidence Based on Survey Data**	*Rafael Di Tella and Robert MacCulloch*
B01-99	**The Excess Volatility of Foreign Exchange Rates: Statistical Puzzle or Theoretical Artifact?**	*Robert B.H. Hauswald*

1998

B16-98	**Labour Market + Tax Policy in the EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B15-98	**Can Taxing Foreign Competition Harm the Domestic Industry?**	*Stefan Lutz*
B14-98	**Free Trade and Arms Races: Some Thoughts Regarding EU-Russian Trade**	*Rafael Reuveny and John Maxwell*
B13-98	**Fiscal Policy and Intranational Risk-Sharing**	*Jürgen von Hagen*
B12-98	**Price Stability and Monetary Policy Effectiveness when Nominal Interest Rates are Bounded at Zero**	*Athanasios Orphanides and Volker Wieland*
B11A-98	**Die Bewertung der "dauerhaft tragbaren öffentlichen Finanzlage"der EU Mitgliedstaaten beim Übergang zur dritten Stufe der EWWU**	*Rolf Strauch*
B11-98	**Exchange Rate Regimes in the Transition Economies: Case Study of the Czech Republic: 1990-1997**	*Julius Horvath and Jiri Jonas*
B10-98	**Der Wettbewerb der Rechts- und politischen Systeme in der Europäischen Union**	*Martin Seidel*
B09-98	**U.S. Monetary Policy and Monetary Policy and the ESCB**	*Robert L. Hetzel*
B08-98	**Money-Output Granger Causality Revisited: An Empirical Analysis of EU Countries (überarbeitete Version zum Herunterladen)**	*Bernd Hayo*
B07-98	**Designing Voluntary Environmental Agreements in Europe: Some Lessons from the U.S. EPA’s 33/50 Program**	*John W. Maxwell*
B06-98	**Monetary Union, Asymmetric Productivity Shocks and Fiscal Insurance: an Analytical Discussion of Welfare Issues**	*Kenneth Kletzer*
B05-98	**Estimating a European Demand for Money (überarbeitete Version zum Herunterladen)**	*Bernd Hayo*
B04-98	**The EMU’s Exchange Rate Policy**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B03-98	**Central Bank Policy in a More Perfect Financial System**	*Jürgen von Hagen / Ingo Fender*
B02-98	**Trade with Low-Wage Countries and Wage Inequality**	*Jaleel Ahmad*
B01-98	**Budgeting Institutions for Aggregate Fiscal Discipline**	*Jürgen von Hagen*

1997

B04-97	**Macroeconomic Stabilization with a Common Currency: Does European Monetary Unification Create a Need for Fiscal Insurance or Federalism?**	*Kenneth Kletzer*
B-03-97	**Liberalising European Markets for Energy and Telecommunications: Some Lessons from the US Electric Utility Industry**	*Tom Lyon / John Mayo*
B02-97	**Employment and EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B01-97	**A Stability Pact for Europe**	*(a Forum organized by ZEI)*

ISSN 1436 - 6053

Zentrum für Europäische Integrationsforschung
Center for European Integration Studies
Rheinische Friedrich-Wilhelms-Universität Bonn

Walter-Flex-Strasse 3
D-53113 Bonn
Germany

Tel.: +49-228-73-1732
Fax: +49-228-73-1809
www.zei.de