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Editorial

By Gabriel Fagan, Monetary Policy Research Division, DG-Research, ECB.

In the light of the recently announced increase in VAT rates in Germany, the impact of indirect tax changes on the economy is a hot topic. The lead article in this issue focuses on this question while providing, for the first time, some results from a version of the New Area Wide Model which is currently under development in DG-Research. The article shows that, in order to properly understand these impacts, it is essential to embed the analysis in a framework which accounts for the response of agents to the resulting changes in incentives. In addition, especially in the case of a preannounced tax change, expectations of agents play a key role.

The second article focuses on another highly topical issue, namely the widespread view that global current account imbalances are linked to excess liquidity in international financial markets. While this hypothesis seems to be consistent with some of the stylised facts, the article concludes that it has a number of limitations which mean that it cannot be fully accepted at face value. The third article addresses the issue of cross-border bank mergers and competition policy, an issue which has attracted considerable media attention over the last 12 months. The article highlights an increasing focus on competition issues in merger reviews in industrial countries and reviews some recent empirical evidence which suggests that increasing competition is beneficial for the banking sector and likely will improve economic performance.

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Forthcoming Workshops/Conferences

- Joint Conference of the ECB and FRBC on “The Role of Central Counterparties”, Frankfurt, 3-4 April, 2006.
- 3rd European Central Bank Conference on “Financial Statistics for a Global Economy”, Frankfurt, Steigenberger Frankfurter Hof, 4-5 May, 2006.
- Euro Area Business Cycle Network Training School on “Bayesian Methods for DSGE Models and VARs”, hosted by Deutsche Bundesbank, Eltville, 5-9 June, 2006.
- Conference on “Financial Globalisation and Integration”, Frankfurt, 17-18 July, 2006.
- 7th Workshop of the Euro Area Business Cycle Network (EABCN) on “Estimation and Empirical Validation of Structural Models for Business Cycle Analysis”, Zurich, Swiss National Bank, 29-30 August, 2006.
- Conference on “Financial System Modernisation and Economic Growth in Europe”, ECB, CFS, and Deutsche Bundesbank, Berlin, 28-29 September, 2006.
- Conference on “Financial Integration and Stability”, ECB, CFS and Bank of Spain, Madrid, 30 November – 1 December, 2006.

How Do VAT Changes Affect the Economy? An Illustration Using the New Area-Wide Model

By Günter Coenen and Peter McAdam, *Econometric Modelling Division, DG Research, ECB*

Changes in VAT rates, such as the one foreseen to be implemented in Germany next year, and their economic consequences are a recurrent issue in the policy debate. What are the key mechanisms through which VAT changes affect economic activity and price and wage developments? And what are the implications of pre-announcing their implementation? To address these questions, this article employs a calibrated version of the New Area-Wide Model which is currently under development within the Directorate General Research. This model builds on recent advances in developing micro-founded dynamic stochastic general equilibrium models suitable for quantitative policy analysis.

Taxes affect relative prices in the economy; and the particular way that prices and quantities of goods and services and factors of production react to changes in relative prices can be an important determinant of inflation and output developments at both short and long-term horizons. Hence, a thorough understanding of the numerous channels through which taxes influence the economy is important for the conduct of monetary policy (cf. González-Páramo, 2005).

In this article, we focus on the Value-Added Tax (VAT) and employ a calibrated two-country version of the New Area-Wide Model (NAWM) to illustrate the working of key mechanisms through which VAT changes affect the economy. The NAWM builds on recent advances in developing micro-founded dynamic stochastic general equilibrium (DSGE) models suitable for quantitative policy analysis, as exemplified by the closed-economy model of the euro area by Smets and Wouters (2003), the International Monetary Fund's Global Economy Model (GEM; cf. Bayoumi, Laxton and Pesenti, 2004) or the Federal Reserve Board's new open economy model named SIGMA (cf. Erceg, Guerrieri and Gust, 2005). Thus, it incorporates a relatively large number of nominal and real frictions in an effort to improve its empirical fit regarding both the domestic and the international dimension.¹

Our analysis confirms the widely-held view that the distortions arising from the VAT have a detrimental effect on economic activity and price and wage developments. These distortions are caused not only by the impact of the VAT on relative prices of goods and services but, most importantly, by the wedge that it drives between the effective consumption wage of households (the purchasing power of the after-tax wage) and the effective labour cost of firms. In this context, we further show that it is of importance to distinguish between alternative uses of the additional tax revenues, such as enhanced transfers or the reduction of non-wage labour cost, when gauging the macroeconomic impact of a VAT increase. As far as the short-term horizon is concerned, we also illustrate the potential importance of anticipation effects on the part of the public in a situation

where a VAT increase is pre-announced, as in Germany most recently. Such anticipation effects cannot easily be analysed using traditional macroeconomic models because they typically do not incorporate forward-looking expectations.

A simple example

To illustrate the basic economic mechanisms by which VAT changes affect macroeconomic outcomes, it is useful to start with a simple example. To this end, consider a representative household that faces a labour-leisure and consumption-savings decision. The lifetime utility function of this household is given by

$$E_t \left[\sum_{k=0}^{\infty} \beta^k u(C_{t+k}, 1 - N_{t+k}) \right],$$

where the variable C denotes consumption, N ($1 - N$) refers to hours worked (leisure), and the discount factor $0 < \beta < 1$ specifies the degree of patience, with a higher value indicating a larger willingness to postpone consumption and leisure. The operator $E_t[\cdot]$ indicates the expectation conditional on the information available at date t .

The household's date- t budget constraint is

$$(1 + \tau_t^C) P_t C_t + R_t^{-1} B_{t+1} = W_t N_t + B_t + TR_t,$$

where P is the pre-tax price of a unit of the consumption good, W denotes the nominal wage rate, and B is the household's holdings of nominal one-period bonds that yield a risk-less gross nominal return of R . The consumption tax rate – henceforth interpreted as VAT rate – is denoted by τ^C ; and TR denotes lump-sum transfers to the household that are financed by the consumption tax revenues.

¹ For a detailed description of the current version of the NAWM and a broader analysis of tax reforms and their possible impact on the performance of labour markets in the euro area, see Coenen, McAdam and Straub (2005).

The optimal decision of the household is characterised by two first-order conditions. One is that the marginal rate of substitution between leisure and consumption is equal to the household's real effective consumption wage; that is,

$$\frac{u_N(C_t, 1-N_t)}{u_C(C_t, 1-N_t)} = \frac{W_t}{(1+\tau_t^c)P_t},$$

where $u_C(\cdot, \cdot)$ and $u_N(\cdot, \cdot)$ indicate, respectively, the marginal utility of consumption and leisure.

The other condition is the consumption Euler equation according to which the marginal rate of substitution between consumption today and consumption tomorrow is equal to the intertemporal price of a unit of the consumption good; that is,

$$\beta R_t E_t \left[\frac{u_C(C_{t+1}, 1-N_{t+1})}{u_C(C_t, 1-N_t)} \frac{(1+\tau_t^c)P_t}{(1+\tau_{t+1}^c)P_{t+1}} \right] = 1.$$

These two conditions separate the intratemporal and intertemporal effects of a change in the VAT rate. The intratemporal effect is captured by the factor $1/(1+\tau_t^c)$. At a given point in time, this factor introduces an implicit tax on labour income and distorts the relative price of consumption and leisure. As a result, in response to a VAT increase, the household will choose to work less and to cut back consumption. The factor $(1+\tau_t^c)/(1+\tau_{t+1}^c)$ captures the intertemporal effect. If, for example, the VAT rate is expected to be higher in the future, the household will bring forward spending by choosing a higher value for consumption today.

Clearly, this simple example neglects other potentially important economic mechanisms such as those operating through the accumulation of physical capital and the acquisition of foreign assets. It also does not incorporate the consequences of changes in both domestic and international relative prices; nor does it give consideration to nominal and real frictions that exist in reality. Furthermore, possible interactions between households' and firms' decisions are ignored. Finally, the consequences of alternative uses of the accruing tax revenues are not captured. In the following we therefore employ the NAWM, which offers a richer and more realistic setting, as a laboratory to examine the macroeconomic effects of a VAT increase.

Macroeconomic effects of a VAT increase

In examining the macroeconomic effects of a VAT increase using the NAWM, we start by quantifying the implied long-run effects and then portray the transitional dynamics towards the modified steady state. Finally, we

illustrate the potential importance of anticipation effects following the pre-announcement of a VAT increase.

Long-run effects

Table 1 indicates the long-run effects on selected domestic and foreign variables of a permanent increase in the VAT rate equal to one percentage point. We consider two alternative cases regarding the usage of the additional tax revenues: in the first case, it is assumed that the additional revenues are used to finance a rise in lump-sum transfers to households; and in the second case, they are used to lower firms' non-wage labour cost that originate in their contributions to social security.

Table 1: Long-Run Effects of a VAT Increase

	Use of additional tax revenues	
	Lump-sum transfers to households	Reduction in non-wage labour cost
Euro area		
Output	-0.29	0.13
Consumption	-0.27	0.12
Investment	-0.19	0.08
Exports	-0.24	0.11
Imports	-0.08	0.03
Hours worked	-0.33	0.14
After-tax real wage	-0.79	0.47
Effective real labour cost	0.04	-0.02
Relative after-tax price of the consumption good	0.93	0.81
Terms of trade	-0.17	0.07
Rest of the world		
Output	-0.01	0.01
Consumption	-0.03	0.01

Note: For the baseline version of the NAWM, this table indicates the steady-state effects on selected domestic and foreign variables of a permanent one-percentage-point VAT increase under alternative assumptions regarding the use of the additional revenues. All effects are reported as percentage-point changes relative to the initial steady state.

For the case that the revenues are used to finance a rise in transfers to households, the results presented in the first column of Table 1 reveal that the VAT increase has detrimental long-run effects on economic activity and relative price and wage developments. Consumption is reduced by more than a quarter of a percentage point, whereas the output effect is somewhat stronger. While the VAT increase raises the price of the consumption good relative to the investment good (thereby explaining at least in part the weaker impact on investment), it is the effect on the after-tax real wage that turns out to be decisive (the effect on firms' effective labour cost are fairly small): the after-tax real wage decreases by more than three-quarters

Figure 1: Dynamic responses to an unanticipated VAT increase

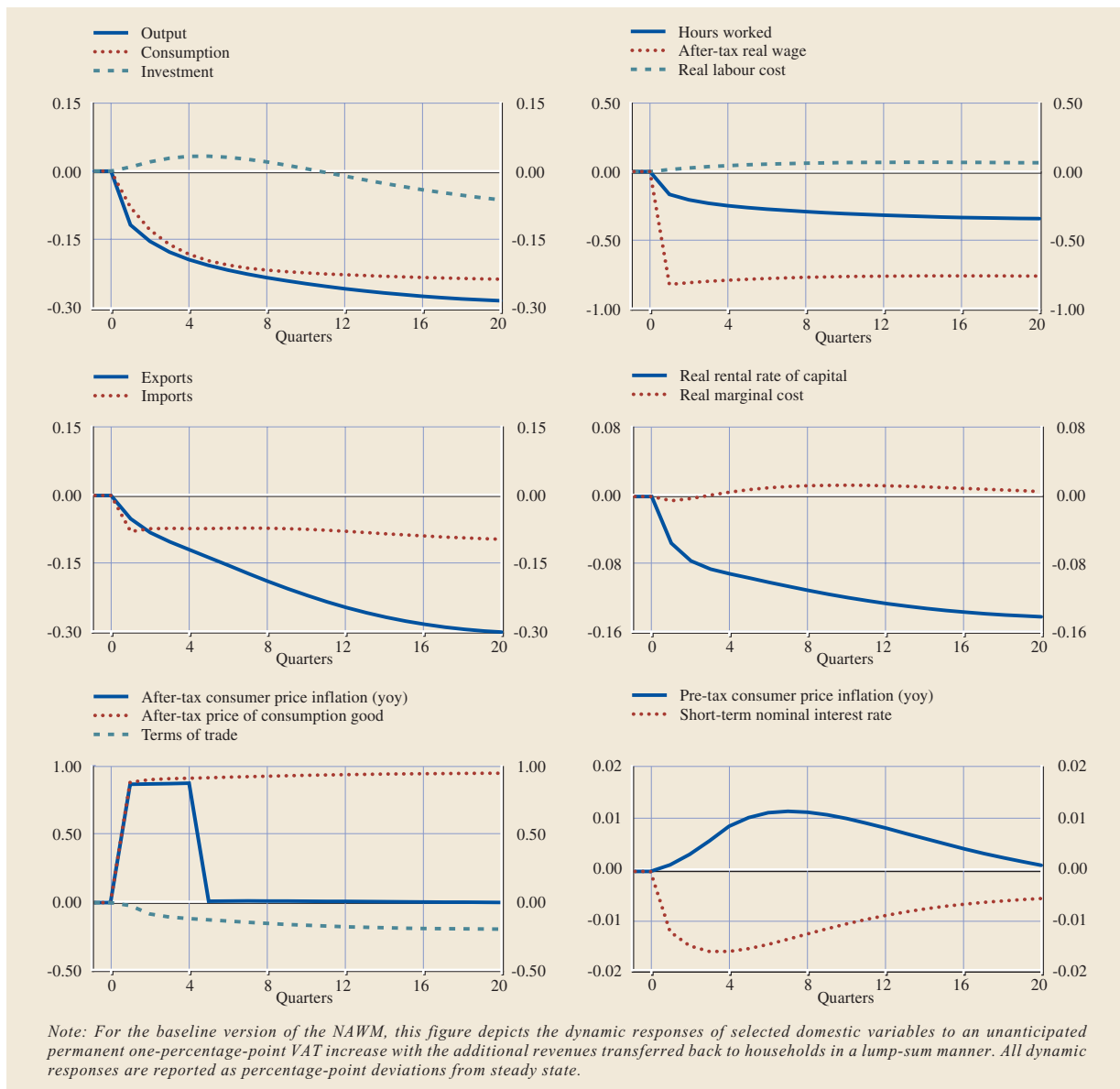
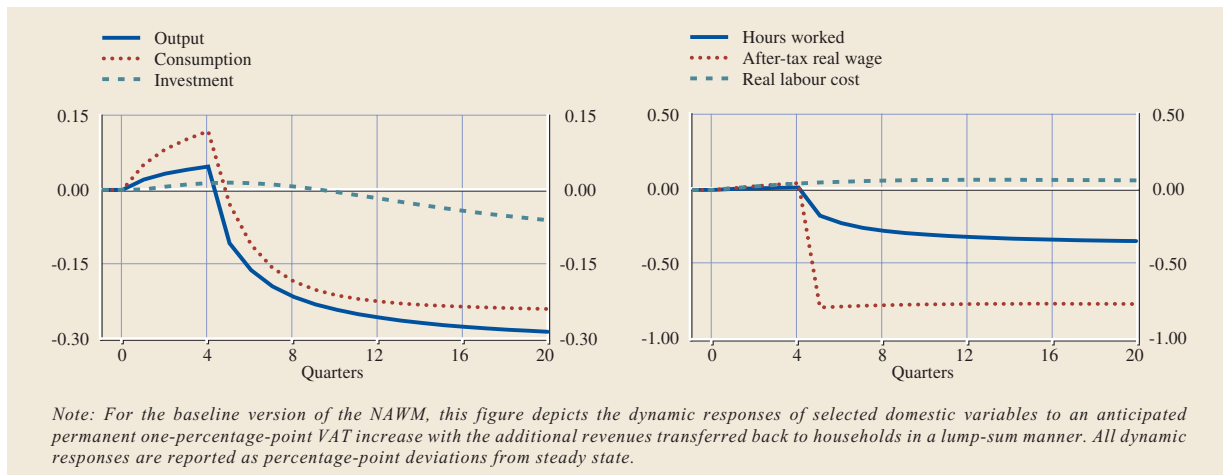


Figure 2: Dynamic responses to an anticipated VAT increase



of a percentage point, which is accompanied by a noticeable decline in hours worked. Hence, the fall in after-tax wage income reinforces the direct relative price effects by further dampening consumption. The shortfall in consumption in turn results in a decline of imports, despite the fact that the terms of trade (defined as the domestic import price relative to the export price in domestic currency) improve, shifting domestic demand towards imported goods. This terms-of-trade effect reflects the need to globally balance the demand and supply of domestic versus foreign goods. Likewise, owing to the terms-of-trade effect, foreign demand for domestic goods falters, resulting in a negative, albeit very small spill-over effect onto the rest of the world.

Interestingly, as shown in the second column of the table, using the revenues from the VAT increase to lower firms' non-wage labour cost has beneficial effects on overall economic performance as the positive supply-side effects of the reduction in non-wage labour cost dominate the detrimental consequences of the VAT increase, translating, for instance, into an increase of both consumption and hours worked. This demonstrates that the particular way that the additional tax revenues are used is of key importance for gauging the effect of the VAT increase.

Transitional dynamics

In illustrating the transitional dynamics implied by the increase in the VAT rate we focus on the case where the additional tax revenues are rebated in a lump-sum manner. To this end, Figure 1 depicts the dynamic responses of selected variables to the permanent increase in the VAT rate of one percentage point.

On impact, consumption starts to gradually fall, while investment is hardly affected, reflecting the sharp increase in the after-tax price of the consumption good relative to the investment good. At the same time, the decrease in the after-tax real wage and in hours worked

implies a strong decline in disposable wage income (which is reinforced by a fall in the rental rate of capital owing to the fact that the use of capital services as a factor of production has become relatively abundant). While this further depresses consumption, the lasting improvement in the terms of trade shifts domestic demand towards foreign goods. This dampens the primarily demand-driven fall in imports and also gives rise to a contraction of exports. Because of the increase in firms' effective labour cost (as opposed to the fall in the after-tax real wage of households), real marginal cost gradually increases, putting moderate upward pressure on *pre-tax* consumer price developments. In contrast, *after-tax* consumer price inflation, measured on a year-on-year basis, surges over the year following the VAT increase. However, given the fall in output and assuming that the monetary authority follows a Taylor-type interest-rate rule that disregards the first-round effects of the VAT increase on prices, the nominal interest rate remains virtually unchanged.

Announcement effects

Of course, the pattern of the transitional dynamics depends in important ways on the implementation of the VAT increase. So far, we have assumed that the latter is implemented immediately upon its announcement. In contrast, Figure 2 portrays the outcomes for selected domestic variables under the assumption that the VAT increase is announced four quarters in advance of its actual implementation. In anticipation of the VAT increase, households bring forward consumption by a noticeable amount, mainly by reducing their savings (resulting in a deterioration of the trade balance; not shown in the figure) but also due to a temporary increase in their wage income reflecting a positive, albeit small anticipation effect of the VAT increase on the after-tax real wage and hours worked. All in all, these results illustrate that forward-looking behaviour may be of importance when assessing the macroeconomic impact of a VAT increase at short-term horizons.

Global Imbalances and “Excess Liquidity”: Is There a Link?

by Luca Dedola, Monetary Policy Research Division, DG Research, ECB

Concerns about the sustainability of the current macroeconomic imbalances at the global level have dominated international policy debates. This article discusses a popular hypothesis linking global imbalances to the alleged presence of “excess liquidity” in international financial markets. It argues that while this hypothesis seems consistent with several aspects of current global imbalances, like the concurrence of low interest rates, asset price inflation and a high demand for US assets, especially as official reserves, it faces the challenge of accounting for the Asian savings surplus.

The single most apparent fact characterizing global imbalances is the size and resilience of the US current account (henceforth CA) deficit. From 1.6 percent of US

GDP in 1997 it grew to 4.2 in the year 2000 and kept increasing afterwards: in the third quarter of 2005 it stood at USD 741.1 billion, or 5.8 percent of GDP. As a

consequence, the U.S. economy must borrow around USD 2 billion per day from foreign investors to finance its domestic spending. Researchers and policymakers have debated whether global imbalances stem from productivity growth differentials, excessive savings outside the US or insufficient US public and private savings, and the role of exchange rate policies pursued by Asian countries.¹ This article reviews one additional popular explanation linking global imbalances to the alleged presence of “excess liquidity” in international financial markets, which has so far received less attention from the academic profession. This is surprising as **a potential role of “excess liquidity” would directly establish central banks as a major player in the building-up and possible unwinding of global imbalances.**

The “excess liquidity” hypothesis can be phrased roughly as follows². An exceedingly loose monetary stance in most countries – but particularly the US and those economies actively managing their currency’s external value vis-à-vis the US dollar – has led to an abnormal amount of liquidity well in excess of the needs of real transactions in the economy. Global “excess liquidity” has driven long-term world interest rates to their current historically low level. From a national perspective, low interest rates, ceteris paribus, reduce savings and sustain investment, thus contribute to a current account deficit. National savings would be further reduced for those countries where low interest rates and “excess liquidity” would have decreased risk-premia in financial markets and fuelled rapid increases of asset prices. As it is already evident, **the major challenge is to explain why globally loose monetary policy might contribute to a US CA deficit, while this is not the case for many other countries,** especially emerging Asia, which imports the loose US monetary policy by pegging the exchange rate.

The “excess liquidity” hypothesis is *prima facie* consistent with a few “stylized” facts characterizing the current global imbalances. First, there are indeed signs that the generally very accommodative stance of monetary policy pursued by many central banks over the last few years has led to sustained growth in global liquidity in “excess” of what was needed to finance non-inflationary growth. For example, according to several measures, monetary aggregates have indeed grown much in excess of economic activity in the United States and in the euro area, not to mention Japan. Despite some evidence that since 2000, the rapidly increasing rate of residential property appreciation together with falling nominal interest rates could have fuelled a sustained decrease in US savings,³ one immediate difficulty with attributing the recent developments in personal savings mainly to US monetary policy, however, is that long-

term US interest rates remained at more or less unchanged low levels, despite the continual tightening by the US Federal Reserve. This tightening and the associated gradual correction of the excess liquidity situation should have resulted in an increase in long-term interest rates, unless “excess liquidity” has also other sources than the US monetary policy stance.⁴

In fact, in terms of net flows, the US external imbalance is mostly financed through foreign official lending, in large part corresponding to the build up of official reserves by five Asian countries: Japan, China, Hong Kong, Taiwan and South Korea.⁵ As a result of these operations these countries accumulated large stocks of US dollar-denominated reserves which were then largely invested in US Treasuries. According to some estimates, these operations might have reduced long-term interest rates in the US by at least 30-60 basis points.⁶

While intriguing, the above “excess liquidity” explanation for global imbalances runs into two sorts of difficulties. First, one would have to explain why the expansionary monetary policy impulses have so far been mostly absorbed by surging asset prices but not yet by higher inflation and inflation expectations. Inflationary pressures may have been contained by “globalization”, i.e. increased pressure from international competition on traded goods prices and wages, and by more credible monetary policies in all industrialised economies.⁷ However, globalisation, through high rates of growth in emerging markets, particularly Chinese growth, has also had the effect of adding to global inflationary pressures by raising world demand on commodities, including energy, which are necessary to sustain the expansion of infrastructure and productive capacity. Thus the competition effect must be quite strong to dominate the price pressures from increases in world demand.

1 See the survey in Corsetti (2006). Most academic and policy papers on the issue of global imbalances are available in the website “Current Account Sustainability of Major Industrialized Countries”, at the University of Madison, Wisconsin, <http://currentaccount.lafollette.wisc.edu/>

2 The clearest (and perhaps most blunt) articulation of the role of “excess liquidity” in causing the current global imbalances can be found in *The Economist*, January 14th-20th 2006, page 68-69.

3 See Lansing (2005), and Greenspan and Kennedy (2005).

4 US public savings also have deteriorated markedly after 2000. This fact would be consistent with the “twin deficits” hypothesis, i.e. the idea that fiscal shocks raising the budget deficit also raise the current account deficit; see Corsetti and Muller (2006).

5 Official reserves held by these countries (consisting to a large extent of dollar-denominated assets) grew from 1.16 trillion dollars in 2000 to 2.66 trillion dollars in 2004. It has been argued that in the last months of 2005 China alone owned reserves up to 800 billion dollars. See Corsetti (2006).

6 See e.g. Bernanke, Reinhart and Sack (2004). Nevertheless it is not uncontroversial to assume that (relatively small) flows should affect the price of a (relatively large) stock of financial assets.

7 Rogoff (2003) argues that it is the first factor that has influenced the second by making inflation surprises more costly and less effective in boosting domestic output. For an empirical attempt at quantifying these factors see Chen, Imbs and Scott (2004).

Moreover, the increased competition effect should primarily affect relative prices rather than the overall price level – particularly the relative price of traded in terms of non-traded goods and low-skilled vs. high-skilled wages.

Another major challenge for the “excess liquidity” hypothesis is that, like the well-known “savings glut”, it should be able to account for the distribution of imbalances across countries.⁸ Furthermore, while the “savings glut” has to explain why the supposedly abundant global savings flow into the US despite the lackluster (risk-adjusted) returns they earn, **the “excess liquidity” hypothesis has to explain why countries allegedly contributing to global liquidity – especially those emerging markets which have pursued a policy of foreign exchange interventions – have such high saving rates, given that expansionary monetary policies should stimulate investment and consumption demand.** This is most starkly apparent in the case of China, where despite GDP growth rates of around 9 percent per year, so far there has been little evidence that the Chinese dollar peg has led to increased inflationary pressures and overheating or a revaluation in real terms. As often argued, an important reason may have been an extremely elastic supply of labor.⁹ Chinese savings and investment might also be much less interest rate sensitive than in the US. In addition, undervaluation of the exchange rate, by worsening the country’s terms of

trade, could have contributed to reducing the purchasing power and therefore the relative wealth of domestic households. But in light of the arguments above, an overall strategy of export-led industrialization pursued through an exchange-rate peg with strict capital controls, in order to critically offset any effect from “excess liquidity” appears to require public policies of over-accumulation of foreign assets in the form of official reserves, in turn discouraging domestic consumption.

To conclude, the “excess liquidity” hypothesis seems to be consistent with several aspects of global imbalances, like the concurrence of a high demand for US assets, low interest rates and asset price inflation. However, in order to significantly contribute to the current pattern of imbalances, it has also to crucially rely on some ad hoc assumptions and shocks, particularly concerning the reasons for Asian excess savings. Thus, it could be highly rewarding to investigate the hypothesis more thoroughly.

⁸ For a similar view see Issing (2005). It should be pointed out, however, that “excess liquidity”, in contrast to the “savings glut”, is consistent with the above mentioned high level of US CA financing through the accumulation of international reserves in dollar-denominated assets. Obviously these developments would be very difficult to reconcile with the presumption that international investors are chasing superior US returns.

⁹ See Dooley, Folkerts-Landau and Garber (2005).

Cross-Border Banking and Competition Policy

By Elena Carletti, Center for Financial Studies, Philipp Hartmann, Financial Research Division, DG Research, ECB, and Steven Ongena, Tilburg University

Cross-border takeover battles in banking have brought the issue of competition policy in that sector to the top of policy agendas. We first document a trend that merger reviews in industrial countries are increasingly conducted taking competition considerations into account. Second, we report empirical evidence suggesting that legislative changes strengthening competition aspects in the review of bank mergers are likely to improve the efficiency of the economy.

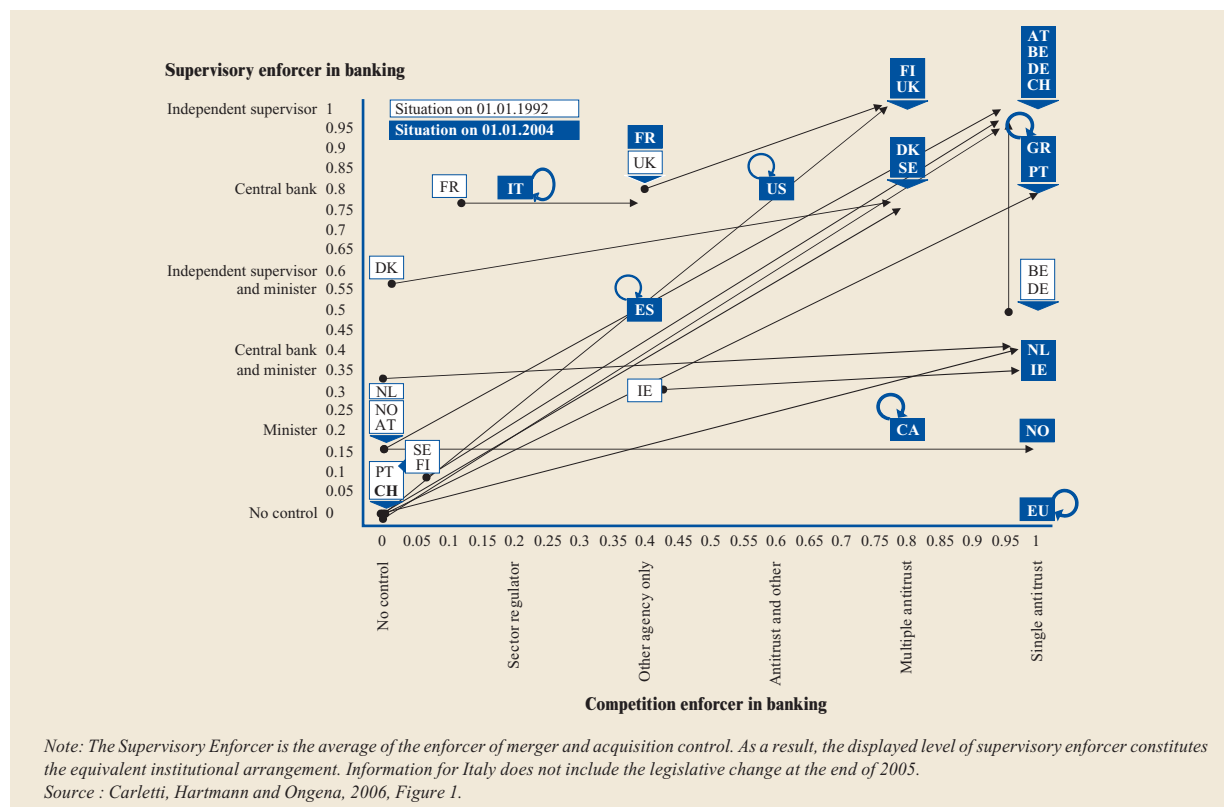
A number of highly publicised takeover attempts illustrate the difficulties of banks to enter foreign markets in the European Union (EU). An important case was the effort by the Spanish Banco Santander Central Hispano to take over the Portuguese group Champalimaud in 1999 (see e.g. Kerjean, 2000, for details). More recently, Banco Bilbao Vizcaya Argentaria from Spain lost its takeover battle for Banca Nazionale del Lavoro from Italy against Unipol and ABN AMRO from the Netherlands had major difficulties to purchase Banca Antonveneta against Banca Popolare di Lodi. In these and other cases from different countries domestic authorities have been widely seen as not taking

a fully impartial attitude between the foreign and domestic rivals.

The greater role of competition policy in bank merger reviews

The Italian cases are interesting, as they led at the end of 2005 to a fundamental reform of the allocation of competition and supervisory responsibilities with regard to the review of bank mergers. In the new law on the protection of savings the Italian competition authority (Autorità garante della concorrenza e del mercato) is

Figure 1: Development of bank merger review responsibilities in industrial countries



given the competence to examine bank mergers from a competition perspective and the Italian supervisory authority, the Banca d’Italia, preserves the competence to examine them from a stability perspective (see e.g. ECB, 2005). Note that before the change in law, Banca d’Italia had the unique competence to examine bank mergers from each of the two perspectives, and the Italian antitrust could only issue a non-binding opinion.

As one can see in Figure 1, the increasing role of competition authorities is a general trend. **Over the last decade many industrial countries strengthened merger reviews in banking and in many countries this development went hand in hand with a considerably larger role of competition considerations or competition authorities in the review of bank mergers.** The figure shows on the horizontal axis a categorisation of possible authorities that can be in charge of enforcing competition considerations in the review of bank mergers. The more a country is located to the right, the clearer merger review competence is allocated to the competition authority. The more a country is located to the left, the more this competence is allocated to an authority whose primary role is not to look after competition. For example, “sector regulator” would usually refer to the bank supervisor, whose main role is to preserve financial stability.

Figure 1 also shows a similar categorisation for the enforcement of supervisory merger reviews in banking. The more a country is up in the figure, the clearer supervisory reviews are allocated to an independent authority in charge of banking stability, the more it is down the greater is the influence of political bodies. The fact that most arrows point “North East” shows the general trend that many countries have strengthened merger control between 1992 and 2004, in particular – but not only – competition reviews. What are the economic effects of such a trend towards competition policy in banking?

The effect of changes in competition control on banks and non-financial firms

In Carletti, Hartmann and Ongena (2006) we investigate the economic effects of changes in these financial laws from the perspective of efficiency. In a first step, we run standard market models with sector stock indices for banks and non-financial firms and estimate the abnormal returns that occur at the time when the market learns that a law will enhance the influence of competition policy in the review of bank mergers. A few key results of this event study are displayed in the upper panel of Table 1. **When a sample country enhances competition control in bank merger reviews, then this leads on average to a positive**

cumulative abnormal return for banks of about 2.3% (for a 21-day event window), and to a negative abnormal return for non-financial firms of about -1%. The difference of 3.3% is statistically and economically significant.

The negative abnormal returns of non-financial firms are related to the specific feature of our sample in that competition control in banking is often introduced together with competition control in other sectors. The associated reduction in market power of non-financial firms should therefore reduce their profits. The parallel reduction of market power in banking should reduce loan and increase deposit rates, which will increase their profits. The strong negative reaction of non-financial firms' stock prices simply means that market operators expect the first effect to dominate the second.

In order to interpret the positive reaction of bank stocks Carletti et al. (2006), in a second step, regress the cumulative absolute bank returns associated with the various instances of legally strengthened competition control on a number of institutional characteristics of merger review processes in the respective countries. The results are shown in the lower panel of Table 1.

Table 1: Stock Valuation Effects of Changes in Merger Control and Explanations

Event Studies	[-60,0]	[-20,0]
Banks	5.0*	2.3*
Firms	-2.5**	-1.0**
Banks minus firms	7.6***	3.3**
Cross-section Regressions	(1)	(2)
Competition criteria	-22.9**	-15.8*
Δ Competition criteria	-11.8	-17.3**
Competition enforcer	3.7	-23.8*
Δ Competition overturning	-2.7	16.3*
Mandatory notification	7.7	25.6***
National market		41.6***
National market*C3		-26.6*
Adjusted R ²	0.26	0.53

*Note: Event study results in the upper panel are displayed for a 61 day and a 21 day event window. Data are daily. The estimated cumulative abnormal returns are in %. Cross-section regressions in the lower panel are reported for banks. The explained variable is the cumulative abnormal return across legislative changes for a 21 day event window. Specification (1) excludes the geographical market and specification (2) includes it. C3 is the market share of the 3 largest banks in the respective country. The symbol Δ refers to changes. *, ** and *** denote statistical significance at the 10, 5 and 1% level, respectively.*

Source: Carletti, Hartmann and Ongena, 2006, Tables 4 and 6.

It turns out that the effect of the laws on bank returns are lower in countries in which competition reviews are mainly conducted on the basis of competition criteria and not diluted by e.g. political or social aspects (variable competition criteria). To further assess the impact of the strength of competition reviews on returns, in specification (2) a variable is introduced measuring whether the competent competition authority regards the whole country as the relevant market or smaller regional markets (variable national market). As one could have expected, this variable has a positive effect on cumulative abnormal bank returns. In addition, in this specification there is also a significant effect of the requirement to formally notify a merger (variable mandatory notification), which is positive. For non-banks the effects of these factors are either insignificant or they have the opposite sign (not reported).

The first question is why banks and non-financial firms are different with respect to these factors. The salient difference is that **banks are subject to substantial regulation and supervision, whereas non-financial firms are not.** For example, mergers of non-financial firms are only subject to competition reviews (and not to supervisory reviews), which tend to be more transparent than the supervisory reviews. Finally, supervisory authorities are sometimes involved in encouraging takeovers of unhealthy or failing banks by more robust banks, which may affect the industry structure and the profitability of existing banks.

Conclusions

Overall, the results are consistent with the hypothesis that **a greater focus on competition criteria in the review of bank mergers increases the market valuation of banks, as it imposes a positive externality on banks that limits the scope for mergers that are not strictly efficiency enhancing.** Part of this externality may work through the traditionally greater transparency of competition reviews.

So, the evidence provided here is in line with the newly emerging literature suggesting that competition may have been regarded too negatively in the banking sector (see Carletti and Hartmann, 2003, for a survey). **A continuing trend further strengthening competition in European banking could therefore be beneficial for economic performance.** As cross-border mergers in general tend to be competition enhancing, since they are “out of market” mergers, this trend may also facilitate their emergence, thereby helping the completion of the single market for financial services with significant further benefits for households and firms (see e.g. European Commission, 2005a and b).

It should, however, not be forgotten that financial stability needs to be monitored as well. The research presented here is relatively silent about the effects of stronger competition components in bank merger reviews on banking stability. While there are probably good reasons to believe that

competitive banking sectors are a pre-condition for healthy banking systems in the long run (see e.g. Carletti, Hartmann and Spagnolo, 2003, or Boyd and de Nicolo, 2005), further research on merger reviews is still advisable to fully illuminate their stability implications.

Forecasting the Central Bank's Inflation Objective is a Good Rule of Thumb

By Marie Diron and Benoît Mojon, ECBWP-564

Since 1990 there has been a widespread adoption of inflation targeting and other forms of quantified inflation objectives. Indeed, central banks in a majority of industrialised countries have either adopted some form of inflation targeting or, most notably for the euro area, defined a quantified inflation objective.

The main purpose of quantified inflation objectives is to anchor inflation expectations and hence help central banks to stabilise inflation at the desired level. If the objective is credible, price and wage setters should expect that the general price level will grow at the rate of the inflation “target”, at least in the medium to long run. This expectation will be reflected in the price and wage setting decisions. This mechanism itself should help deliver realised inflation close to the target.

A recent paper by Marie Diron and Benoît Mojon (ECB WP 564) proposes a new metric to test whether this anchoring of expectation is effective. The metric is simply the forecast errors one makes by forecasting that future inflation will be equal to the inflation objective. In particular, are these forecast error smaller or larger than the errors of survey based forecasts or of econometric forecasting models?

This test is implemented for the euro area and for inflation targeting countries (Australia, Canada, New Zealand, Norway, Sweden, Switzerland and the United Kingdom) over the last 10 years.

The results provide unconditional support for the use of the inflation objectives of the central banks as a forecasting device for inflation at horizons 1 year and 2 years ahead (econometric models are better at shorter horizons such as one quarter). In most countries, the forecast error associated with the inflation objective is smaller than the one based on econometric models and published forecasts. In other words, while inflation is never exactly at the target, “trusting” the central bank’s target has provided an ex ante reliable and, to a large extent, unbeatable inflation forecasting device for countries that have adopted a quantified inflation objective.

The paper argues that this result could be and perhaps should be used by central banks in their communication as it may induce more agents to choose the inflation target as a rule of thumb inflation forecast. This would facilitate the central bank’s task of maintaining low and stable inflation.

Joint Conference of the ECB, CFS and OeNB on “Financial Development, Integration and Stability in Central, Eastern and South-Eastern Europe”

By Frédéric Boissay, DG-Research, Financial Research

The new Chief Economist of the European Bank for Reconstruction and Development **Erik Berglof** called for new initiatives at EU but also regional levels to enforce laws and improve corporate governance in Central and Eastern Europe (CEE). Last November, Berglof was keynote speaker at the conference on “Financial Development, Integration and Stability in Central, Eastern and South-Eastern Europe”, which was held in Vienna and co-organised by the ECB, CFS, and the Oesterreichische Nationalbank. He argued that the contours of a new European capitalism have now emerged, characterised by a high and increasing ownership concentration, not only in western but also in eastern Europe. Despite the large number of laws adopted over a very short period of time in CEE countries, courts are still struggling to keep pace with these financial developments and, in particular, protect minority investors. In a context where the forces that brought institutional improvements over the last decade are running out of steam, Berglof emphasised the need for better corporate governance.

Similar issues were addressed by **René Stulz** (Ohio State University) in his keynote lecture. Stulz started by pointing out the following paradox. Although barriers to trade in financial assets have been removed since World War II, the cumulative sum of net equity flows from developed to less developed countries (where the marginal productivity of capital is higher) is still negative. He explained this paradox by the so-called twin agency problems: private benefits are extracted both at the firm level (by corporate insiders) and at the state level (by state rulers). By preventing capital providers from fully accruing their investment returns, these twin agency problems also explain why corporate ownership is highly concentrated in countries where investor rights are poorly protected. Concentrated ownership has important macroeconomic implications, as it deters foreign investors from investing in domestic firms. This is especially the case in CEE countries, where a number of indicators show that there is ample room for progress. According to Stulz, improvements in governance would make it possible for Eastern Europe to take more advantage from financial globalisation.

The strong positive effect of the introduction of the euro on real investment is one of the important results presented at the conference. The ECB Lamfalussy Fellow **Tomas Dvorak** (Union College, Schenectady, NY) provided sectoral evidence that this effect was particularly strong immediately after 1999, irrespective of countries' financial development. As there is no evidence that the introduction of the euro increased the efficiency of capital allocation, he also argued that the effect of the euro on real investment comes from the building up of capital. Therefore, Dvorak expects that the introduction of the euro in CEE countries would have a real effect beyond the one related to international trade.

A detailed summary of the conference is available on the ECB-CFS network website at <http://www.eu-financial-system.org/past.html>.

Selected Recent Journal Publications by ECB Staff

1. Dedola, L. and Corsetti, G. (2005), "A Macroeconomic Model of International Price Discrimination", *Journal of International Economics*, 67(1), pp. 129-155.
2. Dedola, L. and Lippi, F. (2005), "The Monetary Transmission Mechanism: Evidence from the Industries of Five OECD countries", *European Economic Review*, 49(6), pp. 1543-1569.
3. Ehrmann, M. and Fratzscher, M. (2005), "Equal Size, Equal Role? Interest Rate Interdependence Between the Euro Area and the US", *The Economic Journal*, 115(506), pp. 928-948.
4. Gropp, R., Vesala, J. and Vulpes, G. (2006), "Equity and Bond Market Signals as Leading Indicators of Bank Fragility", *Journal of Money, Credit and Banking*, 38(2), pp. 210-232.
5. Smets F. and Wouters, R. (2005), "Bayesian New Neoclassical Synthesis (NNS) Models: Modern Tools for Central Banks", *Journal of the European Economic Association*, 3(2-3), pp. 422-433.
6. Vestin, D. and Nessén, M. (2005), "Average Inflation Targeting", *Journal of Money, Credit and Banking*, 37(5), pp. 837-863.

References on "How Do VAT Changes Affect the Economy? An Illustration Using the New Area-Wide Model"

Bayoumi, T., D. Laxton and P. Pesenti, 2004, "Benefits and Spillovers of Greater Competition in Europe: A Macroeconomic Assessment", ECB Working Paper No. 341, European Central Bank, April.

Coenen, G., P. McAdam and R. Straub, 2005, "Tax Reform and Labour-Market Performance in the Euro Area: A Simulation-Based Analysis Using the New Area-Wide Model", presented at the IRFMP-IMF conference on "DSGE Modelling at Policymaking Institutions: Progress & Prospects", Washington, 1-2 December, and available at <http://www.federalreserve.gov/events/conferences/if20051202/program.htm>.

Erceg, C. J., L. Guerrieri and C. Gust, 2005, "SIGMA: A New Open Economy Model for Policy Analysis", International Finance Discussion Papers No. 835, Board of Governors of the Federal Reserve System, July.

González-Páramo, J. M., 2005, "Taxation, Tax Reform and Monetary Policy", Speech at the Universidad Complutense, 13 May.

Smets, F. and R. Wouters, 2003, "An Estimated Stochastic Dynamic General Equilibrium Model of the Euro Area", *Journal of the European Economic Association*, 1, 1123-1175.

References on “Global Imbalances and ‘Excess Liquidity’: Is There a Link?”

- Bernanke, Reinhardt and Sack (2004), “Monetary Policy Alternatives at the Zero Bound: an Empirical Assessment”, Brookings Papers on Economic Activity.
- Chen, Imbs, and Scott (2004), “Competition, Globalization and the Decline of Inflation”, CEPR Discussion Papers 4695.
- Corsetti (2006), “Global imbalances”, mimeo, EUI.
- Corsetti and Muller (2006), “Twin Deficits: squaring theory evidence and common sense”, paper prepared for the Economic Policy Panel in April 2006.
- Dooley, Folkerts-Landau and Garber (2005), “Direct Investment, Rising Real Wages And The Absorption Of Excess Labor In The Periphery”, in R. Clarida (ed.) “G7 Current Account Imbalances: Sustainability and Adjustment” NBER.
- Greenspan, and Kennedy (2005), “Estimates of Home Mortgage Originations, Repayments, and Debt on One-to-Four-Family Residences”, Federal Reserve Board, Finance and Economics Discussion Series Paper 2005-41.
- Issing (2005), “Addressing Global Imbalances: The Role of Macroeconomic policy”, contribution to the Symposium on ‘Productivity, Competitiveness and Globalization’, Paris.
- Lansing (2005), “Spendthrift Nation”, Federal Reserve Bank of San Francisco Economic Letter 2005-30.
- Rogoff (2003), “Globalization and Global Disinflation”, paper presented at the Jackson Hole Conference.

References on “Cross-Border Banking and Competition Policy”

- Boyd, J., and G. de Nicolo (2005), “The Theory of Bank Risk Taking and Competition Revisited”, *Journal of Finance*, 60(3), 1329-1343.
- Carletti, E., and P. Hartmann (2003), “Competition and Stability: What’s Special About Banking?”, in P. Mizen (ed.), “Monetary History, Exchange Rates and Financial Markets: Essays in Honour of Charles Goodhart”, Volume Two, (Cheltenham: Edward Elgar), 202-229.
- Carletti, E., P. Hartmann and S. Ongena (2006), “The Economic Impact of Financial Laws: The Case of Bank Merger Control”, mimeo, Frankfurt, January.
- Carletti, E., P. Hartmann and G. Spagnolo (2003), “Bank Mergers, Competition and Liquidity”, ECB Working Paper, no. 292, November.
- European Central Bank (2005), “Opinion of the European Central Bank of 23 December 2005 at the Request of the Italian Ministry of the Economy and Finance on an Amendment to the Draft Law on the Protection of Savings Concerning the Banca d’Italia”, CON/2005/98, Frankfurt.
- European Commission (2005a), “Cross-border Consolidation in the EU Financial Sector”, SEC(2005) 1398, Brussels, 8 November.
- European Commission (2005b), “White Paper – Financial Services Policy 2005-2010”, COM(2005) 629 final, Brussels, 1 December.
- Evanoff, D., and G. Kaufman (eds., 2006), “Cross-Border Banking: Regulatory Challenges”, (Hackensack, NJ: World Scientific Publishing).
- Kerjean, S. (2000), “Le secteur bancaire européen à l’épreuve du contrôle des concentrations”, *Banque et Droit*, 69, 14-26.

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