

## **TECHNICAL FICHE<sup>1</sup>**

### **MACROECONOMIC IMPACTS**

As explained in the Impact Assessment accompanying the *Proposal for a Council Directive on a Common system of financial transaction tax and amending Directive 2008/7/EC (SEC(2011) 1102)* the use of Dynamic Stochastic Equilibrium (DSGE) models is a standard procedure of estimating the macroeconomic effects of policy changes.

Their advantage over sector-specific Partial Equilibrium Models is that they fully take into account spill-over effects to other sectors as well as second-round effects triggered by a policy change, including the effects of the recycling into the economy of higher tax revenues. One possible disadvantage is that they typically have a less detailed sectoral breakdown of the economy than partial equilibrium models.

In order to assess the macroeconomic impacts of taxes on financial transactions specifically, a new DSGE model has been developed. The version of the model used for the Impact Assessment was built on the assumption (amongst others) that all investment is financed with the help of issuing new shares, and that a fall in the price of shares works as a financing constraint for new investment and will hence trigger a decline in overall investment.

The model is a two-period (comparing two equilibriums) and closed-economy model. It includes hypotheses in terms of relocation and market reaction and, in the absence of specific information on the speed of the process, the assumption is made that the new "steady state" would be reached after 40 years<sup>2</sup>.

#### **1. THE IMPACT AS DEFINED IN THE IMPACT ASSESSMENT**

As stated in the Impact Assessment accompanying the directive proposal, the estimation of the possible cumulative deviation of GDP was established at -0.53% in the long run. This means that (when assuming in the baseline an annual growth of 1.5%) in 2050, instead of

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<sup>1</sup> This technical fiche should be considered as a non-paper that commits only the Commission's services involved in its preparation.

<sup>2</sup> In multi-period DSGE models, it typically takes several decades until the new equilibrium is reached. So as to remain consistent with other long-term modelling approaches (such as energy, transport and climate roadmaps) or long-term scenarios (such as demographic scenarios), the year 2050 was chosen.

GDP in Europe being 81.4% above today's level, it would be 80.9% above that level.

The model could not take into account the full concrete design of the tax as defined in the proposal. It was also based on the strong assumption that all new investment had to be exclusively financed with the help of issuing new shares that are traded and subject to the tax. As a result, the mitigating effects included in the proposal remained outside the model simulations and were taken into consideration ex post. This held namely for:

- the exclusion of primary markets from taxation,
- the exclusion of transactions that do not involve financial institutions or only non-EU parties,
- the ring-fencing of financial sources for investment that do not rely on securities.

## 2. MODELLING THE MITIGATING EFFECTS

Since the Impact Assessment was carried out, the model has been further developed. In particular, the assumption that all investment has to be financed with the help of issuing new shares has been changed to take into account the fact that companies also have access to alternative sources of finance that are not subject to the tax. This holds notably for the bulk of European enterprises (more than 95% if taken by number) not listed on stock exchanges and neither issuing shares nor other securities.

The additional model specifications<sup>3</sup> allow for the assumption that only a part of the sources of financing are affected by the tax on financial transactions. Indeed, securities-based financing is only partly affected by applying the tax (primary markets are excluded) and - more importantly - other forms of financing (such as borrowing from banks or the raising of capital through venture capital funds) are not taxed. Depending on the source and method applied<sup>4</sup>, these alternative and untaxed finance sources represent between 60 and 80% of all financing of investment. In the central scenario (assumed to be a conservative one), it is assumed that these alternative and untaxed finance sources represent 70%.

Under these assumptions, the estimation of the possible deviation of GDP was established at - 0.28%, as the tax is simulated to increase the cost of capital by about 7 basis points in this

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<sup>3</sup> For more details on the model specifications *see Lendvai, Raciborski, Vogel* (ECFIN Economic paper 540).

<sup>4</sup> The sources of financing of companies are generally assumed to be new equity (10%), retained earnings (55%) and debt (35%). The share of debt securities in total debt of non-financial corporations is estimated at about 15% (or about 5% of total financing). Hence, assuming bank debt and retained earnings are ring-fenced, the share of corporate financing that would be directly affected by the FTT is about 15% of the total. See for more details e.g. SEC(2011)1102, p 52 (method: Devereux-Griffith methodology, sources: ECB (2010), BIS quarterly Review June 2011). Assuming that other sources of financing (such as the retained earnings of listed companies) were also affected by the tax, this ratio could rise to about 20 to 40%.

scenario. As a consequence, in such a scenario, instead of being 81.4% above today's level, the European GDP in 2050 would have risen by 81.1% above today's level.

Also, and as was highlighted in the Impact Assessment as well, these model simulations assume the recycling of revenues generated by the FTT back into the economy with the help of lump-sum transfers to private households, so as to keep the Debt-to-GDP ratio constant and so as to allow for isolating the "distortionary" impact of the tax from other distortions.

Through this, the model paints a modest negative impact of the tax on economic efficiency and, thus, on GDP. An alternative scenario which lowers e.g. labour or corporate tax rates instead of lump-sum taxes to rebate FTT revenues would lead to a more favourable picture for overall economic efficiency and, thus, economic growth.<sup>5</sup>

The same held if the tax revenues collected were spent – be it at the European or be it at the national level - on growth-enhancing public investment. Here, model simulations show a positive impact of such spending (as compared to providing lump-sum transfers to private households) in the order of magnitude of 0.2% to 0.4% of GDP.<sup>6</sup>

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<sup>5</sup> For more details see *Lendvai, Raciborski, Vogel* (ECFIN Economic paper 540)

<sup>6</sup> European Commission, DG ECFIN (2012): Quarterly Review of the Euro Area (forthcoming)