

# **Fiscal Stimulus Packages, Uncertainty and Economic Crisis Is the Option of Waiting Valuable?**

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## **1. Status quo**

It is by now clear that the financial crisis has become a crisis of the real economy, not only in the US and the UK, but especially in euro area member countries like Ireland and Germany.<sup>1</sup> According to the most recent interim report by the EU Commission, GDP in the EU is expected to fall by 1.8 percent in 2009 before recovering moderately to 0.5 percent growth in 2010. This is the consequence of a severe contraction of world trade and manufacturing output and, in some countries, of overdue corrections in housing markets.<sup>2</sup>

Policymakers in the EU member states are currently shaping rescue packages to mitigate the impact of the crisis on their economies. Even Germany has acted with the German coalition government recently agreeing on a substantial stimulus package, after an evening of heavy-handed negotiations.<sup>3</sup>

The remainder of this contribution is organized as follows. Section 2 discusses whether fiscal policy is the generic solution to sustain demand in the current crisis and highlights the potential benefits of fiscal policy cooperation in the euro area. Section 3 analyses whether the option value of waiting in times of uncertainty is a good guideline for macro policies in times of crisis while section 4 finally comes up with a proposal of what to do now: fiscal policy might be a stabilizing tool of economic activity through the work of the built-in “automatic stabilizers”.

## **2. Fiscal policy as the generic solution to sustain demand?**

Taking the dire outlook as a starting point, politicians and economists are pondering about what could be done to keep the real economy from collapsing and to stabilize it.

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<sup>1</sup> Claessens, S., Kose, M.A. Terrones, M.E. (2008), What Happens During Recessions, Crunches and Busts?, IMF Working Paper 08/274, International Monetary Fund, Washington/DC, December.

<sup>2</sup> European Commission (2009), Interim Forecast, DG for Economic and Financial Affairs, January, Brussels.

<sup>3</sup> For details see <http://www.euointelligence.com/article.581+M515193432ba.0.html>. In the meantime, the IMF has come out in favor of an increase of direct government expenditure and speaks against general tax cuts. See Claessens, S., Kose, M.A. and Terrones, M.E. (2008), op. cit.

The generic answer which is constantly brought forth since the collapse of Lehman Brothers seems to be *to use fiscal policy to sustain demand*, since monetary policy with its main interest rates approaching zero will not be effective any more. Fiscal policy seems particularly appropriate since our macroeconomic models tell us that fiscal policy multipliers increase when more economic agents become liquidity constrained because they are then likely to spend any additional income they receive. But a closer look at what fiscal policy can actually achieve suggests that one should be very cautious in expecting too much from this policy instrument.

As some forecasters are already expecting an upturn in the second quarter of 2009, Germany's stimulus is likely to be *mostly pro-cyclical*. The main driver of the current economic weakness is uncertainty that made firms postpone hiring decisions and investment.<sup>4</sup> But economic and financial uncertainty is now falling, according to all indicators of the financial fear factor. Obviously, the global policy response to the financial and economic crisis has calmed stock markets "as the fears of an economic Armageddon have subsided". Also political uncertainty has dropped as many world leaders have clarified the details of their stimulus packages.<sup>5</sup> Hopefully, thus, the economic medicine has not been administered just as the patient is striving to leave the hospital!

Depending on their ideological couleur, fiscal policy proposals by German political parties ahead of the super-election year 2009 varied from deficit-financed spending increases, balanced budget spending increases (financed with higher taxes) to deficit financed tax cuts until the turn-of-year 2008/09. However, these proposals did not become more appropriate the more they were contended with increasing frequency and vehemence. Instead, the long-forgotten political expenditure cycle of the Nordhaus-type appeared to be back on stage again.<sup>6</sup> Moreover, the stabilizing impacts of fiscal policy in general are often largely overestimated. The often emphasized multiplier effect of additional government spending or of temporary tax cuts is often hardly smaller than one.<sup>7</sup> However, in order to avoid a too Germano-centric perspective, the potential benefits of fiscal policy coordination in the euro area should be addressed in the following.

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<sup>4</sup> See Belke, A., Goecke, M. (2005), Real Options Effects on Employment: Does Exchange Rate Uncertainty Matter for Aggregation?, in: German Economic Review, Vol. 6, pp. 185-203, and Bloom, N. (2008), The Impact of Uncertainty Shocks, Stanford, forthcoming in Econometrica.

<sup>5</sup> See Bloem, N., Floetotto, M. (2009), The recession will be over sooner than you think, VoxEU, January 12, <http://www.voxeu.org/index.php?q=node/2785>. They report that the key measures of uncertainty have dropped so rapidly that they believe growth will resume by mid-2009.

<sup>6</sup> Nordhaus, W. D. (1975), The Political Business Cycle, Review of Economic Studies, Vol. 42, pp. 169-190.

<sup>7</sup> Mountford, A., Uhlig, H. (2008), What Are the Effects of Fiscal Policy Shocks?, NBER Working Paper No. 14551, National Bureau of Economic Research, Cambridge/MA.

## **2.1 On the benefits of fiscal policy coordination in EMU – the case of a liquidity trap**

Policymakers in the EU member states are currently shaping rescue packages to prevent the financial crisis hitting their economies with unmitigated force. Each government seems to respond to the emerging problems with a country-specific set of measures. Given the global nature of the crisis, would coordinated action at the European level be a better approach? Or can actions by national governments be expected to deal more adequately with the problems facing the national economy than a pan-European set of measures? The Merkel government has even been accused by some of displaying free-rider behavior in the area of fiscal policy since it was more reluctant in pushing forward large fiscal rescue packages in the fight against the crisis than its euro area counterparts with partly higher debt burdens and often higher fiscal deficits and appeared less prone to European coordinated efforts. Is this negative assessment justified?

It is widely assumed that a common currency makes it desirable to have also a common fiscal policy (and some go even so far as saying as the euro needs to be backed up by a political union).<sup>8</sup> However, this is not a foregone conclusion if one accepts that fiscal policy can also be a source of shocks. There are a variety of reasons why fiscal policy could be destabilizing in the context of the current crisis: policy makers do not have full control over the outcome, at times the effect of a certain measure (e.g. a tax reform) is quite different from what is anticipated; or, as in the current situation, the economic forecasts underlying fiscal policy might turn out to be wrong. Finally, the large difference between temporary and permanent fiscal shocks means that for the effectiveness of the fiscal policy measures it is of crucial importance that measures are believed by private agents not to become permanent. However, the latter is not always the case.<sup>9</sup>

It is thus assumed that fiscal policy represents a source of shocks. The key question then is whether a higher correlation of these shocks (presumably because of tighter cooperation) is desirable. The simple model used by Belke and Gros (2009)<sup>10</sup> which was designed for “normal” economic times just serves to illustrate a general idea, which should hold up in more sophisticated models as well. Our main result is that in general it might be better to have independent national fiscal policies that are not coordinated (or at least not correlated) under EMU, because this leads to risk diversification: the variance of a sum of shocks is lower the lower the covariance among the individual components.

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<sup>8</sup> For a survey on the first issue see, for instance, De Grauwe, P. (2005), *Economics of Monetary Union*, 6th ed. (Oxford University Press, Oxford)., and Gandolfo, G. (2001), *International Finance and Open-economy Macroeconomics*, Springer, Berlin-Heidelberg. For an introduction into the second aspect see Gros, D., Thygesen, N. (1998), *European Monetary Integration*, Addison Wesley Longman, New York.

<sup>9</sup> European Commission (2009), *op. cit.* .

<sup>10</sup> See Belke, A., Gros, D. (2009), *On the Benefits of Fiscal Policy Coordination in a Currency Union: A Note*, in: *Empirica*, Vol. 36/1, pp. 45-49.

The argument that independent national fiscal policies are preferable because of risk diversification is not new and was already documented in the risk sharing literature by Sørensen, Yosha, van Wincoop and many others.<sup>11</sup> Our analytical results suggest that the calls for fiscal policy coordination in ordinary times that are often repeated might be misguided. More fiscal policy coordination is also likely to lead to more correlated fiscal policy shocks and this might increase actual output variability. This result even holds if it is backed by a more complicated variant of the model used here developed by Belke and Gros (2008) who formally disentangle the discretionary component from the endogenous components (i.e. income dependent) of fiscal policies in a monetary union.<sup>12</sup>

However, this conclusion is driven by our simple model structure and holds primarily as long no other large shocks emerge. However, in the case of the current economic crisis it is reasonable to proceed on the assumption that an exogenous shock to demand has hit the euro area countries significantly. With interest rates converging to zero, this negative shock has significant external effects which should ideally be internalized by a coordinated effort of national fiscal policies. However, this way of reasoning decisively hinges on the existence and significance of a liquidity trap in the euro area economies. In case of the latter, the spillovers of fiscal policy are of course positive because the interest rate does not react. Hence, in the Nash equilibrium, the fiscal stimulus initiated by the euro area countries is sub-optimally low.

But the existence of a liquidity trap cannot be taken for granted. As the saying goes, for instance the German economy currently is on the ropes of a liquidity trap. Fearfully, the economic agents are hoarding their cash. Monetary policy, i.e. lower interest rates, is ineffective in this precarious situation. Is the government not able to do otherwise by enacting counter-cyclical fiscal policy measures? As is well-known, John Maynard Keynes described with the notion of a liquidity trap a scenario in which an increasing money supply is not able to lower bond yields. However, actual data do not correspond with this view. The recent interest cuts by the ECB have de facto lowered the returns of government bonds awfully well. Accordingly, the current yield of outstanding German government bonds has fallen to historical lows. Hence, there is no a priori argument – at least from the German perspective - that fiscal policy is in need because monetary policy is helpless.

## **2.2 Efficacy of fiscal policy: results from vector-autoregression exercises**

Mountford and Uhlig<sup>13</sup>, for instance, have analyzed three types of policy scenarios: a deficit-financed spending increase, a balanced budget spending increase (financed with

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<sup>11</sup> See, for instance, Asdrubali, P., Sørensen, B.E., and O. Yosha, 1996, Channels of Interstate Risk-sharing: US 1963-1990, *Quarterly Journal of Economics*, vol.144, pp. 1081-1110. and Sørensen, B. and O. Yosha, 1998, International Risk Sharing and European Monetary Unification, *Journal of International Economics*, Vol. 45, pp. 211-238.

<sup>12</sup> Belke, A., Gros, D. (2008), Is a Unified Macroeconomic Policy Necessarily Better for a Common Currency Area?, forthcoming in: *European Journal of Political Economy*.

<sup>13</sup> Mountford, A., Uhlig, H., op. cit.

higher taxes) and a deficit financed tax cut, in which revenues decrease but government spending stays unchanged. Although the best fiscal policy for stimulating the economy appears to be deficit-financed tax cuts, they impressively point out that this should not be read as endorsing them. They only highlight that unanticipated deficit-financed tax cuts work as a (short-lived) stimulus to the economy, not that they are sensible. Also international institutions like the IMF speak against general tax cuts and in favor of an increase of the direct government expenditures.<sup>14</sup> In sum, also the expenditure part of the recent German stimulus package is not backed by the Mountford and Uhlig<sup>7</sup> study.

As always, there are other studies available, some of them claiming that fiscal policy is more effective since private consumption is stimulated via a “crowding in” effect.<sup>15</sup> Some also doubt that the results gained by Mountford and Uhlig can be transferred one-to-one to exceptional situations like the current crisis, in which many consumers, above all in the US, are credit constrained and just the latter pay little taxes already now. Hence, it is argued that it is plausible to assume that firms and consumers will use tax cuts first of all to clear up their balance sheet. However, Daniel Gros shows in his contribution in this volume that this kind of argument is applicable only to a few EU countries, namely UK and Spain. Seen on the whole, thus, it appears that Germany’s Finance Minister Mr. Steinbrück was not too mistaken with his long-lasting reluctance vis-à-vis the demands for extensive deficit spending earlier in 2007/2008. But waiting with fiscal stimulus packages (of course, with the option to still conduct them later on) can also be valuable simply due to the existence of uncertainty. But of what type?

### **2.3 Model uncertainty and forecast uncertainty**

Issing<sup>16</sup>, for instance, distinguishing three broad categories of uncertainty, going from the more common to the more complex and “Knightian” ones, acknowledges that the uncertainty factors faced by those responsible for macroeconomic policy are myriad and interdependent. They are created by, for instance, competition between different theoretical models or structural change. The latter type of model uncertainty has gained a new dimension in the wake of the current crisis. Some analysts fail to appreciate that the appropriate macroeconomic models currently do suit neither for the purpose of forecasting nor for evaluating policy measures.

None of the relevant macro models has foreseen and predicted the financial crisis of 2007/08, inter alia because these kinds of models do not at all contain the actually decisive variables like venturesomeness and credit growth. Hence, model based policy consulting does by large not appear to be able to answer the question of how to fight the

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<sup>14</sup> Spilimbergo, A., Symansky, S., Blanchard, O.J., Cottarelli, C. (2008), Fiscal Policy for the Crisis, IMF, International Monetary Fund, Staff Position Note, SPN/08/01, December 29, Washington/DC.

<sup>15</sup> Monacelli, T., Perotti, R. (2008), Fiscal Policy, Wealth Effects, and Markups, NBER Working Paper No. 14584, National Bureau of Economic Research, Cambridge/MA .

<sup>16</sup> Issing, O. (2002), Monetary Policy in a World of Uncertainty, Fondation Banque de France Centre d’Etudes Prospectives et d’Informations Internationales CEPII Université Aix-Marseille IDE, Paris, 9 December (<http://www.banque-france.fr/gb/fondatio/telechar/issing.pdf>).

fallout of the crisis, the question that had it stumped. Starting from this background it is either a remarkable irony of history or a clear but probably unintended case in favor of the Lucas critique<sup>17</sup> that those institutions which still forecast a deep enduring international crisis are those which demand fiscal stimulus packages the most pressingly and see them going into effect by now.

A great bulk of the aforementioned macroeconomic models *cannot be applied under the current circumstances* and business cycle forecasts are currently afflicted with a still rather high degree of uncertainty. This is not at least due to the vagueness of the extent and the effects of the worldwide reactions of economic policy to the crisis. The estimations of German growth are all within the negative spectrum. However, their range has been unusually high. While some “only” come up with a contraction in the amount of 0.5 percent, some others do not exclude a minus four any more. At present, the only reliable fact is that aggregate demand appears to be still weak these days.

## **2 The option value of waiting in times of uncertainty - a guideline for fiscal policy in times of crisis?**

### **3.1 Even higher debt levels after fiscal package deals: the option value of waiting I**

It has increasingly often been argued in the recent weeks that, in spite of all imponderabilities enacting large economic stimulus packages is justified since governments should at least try to stabilize the economy; at the very least it could do no damage. However, this way of arguing is not overall consistent. If such kind of measures are enacted today, for instance in the shape of deficit financed tax reductions, future additional programmes become even more expensive because the level of public debt will then be higher, although these programmes might be needed even more pressingly. And in reality, German government debt is heavily increasing these days. Already Germany's new borrowing in 2009 will not be kept on the Maastricht level any more. Even worse, the promise of an all-embracing tax reform after the federal elections will probably not be kept any more.

Each tax cut included in the stimulus package II lowers the leeway for future tax reforms, since tax cuts cannot be planned without an eye on government debt. Thus, the most effective prerequisite of future tax cuts is Germany's strict compliance with the Maastricht criteria. Therefore, the German government should now provide for a quick (basic law) statutory anchored debt brake in the federalism reform II. A prototype example of immense future costs of self-defeating deficit financed fiscal packages is Japan where the different fiscal policy measures in the 1990s have led to a massive increase of public debt which will burden the Japanese citizens still over decades and lets

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<sup>17</sup> Lucas, R.E. (1976). Econometric policy evaluation: A critique. In Brunner, K. and Meltzer, A.H. (Eds.), *The Phillips Curve and Labour Markets*, in: *Journal of Monetary Economics*(Suppl.), pp. 19–46.

current fiscal policy measures become much too expensive in terms of costs of repayment.<sup>18</sup>

Especially in times of high uncertainty it thus makes sense to wait somewhat with the implementation of expansionary policy measures such as tax cuts and expenditure programmes until the fog of the forecast uncertainty will have lifted and it will have become clear how large the economic crash really is. However, in extreme times like those today business cycle forecasts are not of much help. They do represent a good deal of speculation let alone their ability to serve as a sound quantitative basis for the adequate dosage of counter-cyclical fiscal policy packages. In order to avoid becoming an amplifier of the crisis itself, a government should, at least temporarily, follow the Knightian approach to uncertainty and rely more than usually upon qualitative analyses.

Hence, the German government deserves support for its approach lasting until January 12<sup>th</sup>, to gain more evidence about the effects of the already initiated steps and of the automatic stabilizers for the time being. However, this wait-and-see attitude has not precluded working on plans of a contingency budget („Eventualhaushalt“) already now with longer term expenditure programmes in the areas of infrastructure, research, education and family issues. This still grants the option to act quickly as the crisis and the awareness thereof was becoming even more intense. However, it had to be laid down how the expectable large budget deficits after overcoming the crisis are to be compensated by additional government savings. Until today, it is not clear how credible this is. Anyway, with an eye on the option value of waiting, the German Grand Coalition was well advised until the end-of-year 2008 to keep dry its bolt for the crisis year 2009. If one believed the pessimists among the forecasters at that time, the German government would have been in need of it.<sup>19</sup> Hence, from the perspective of the option value of waiting under uncertainty and assuming that uncertainty was still high and the package was not large and effective enough, the German government *killed its option too early* on January 12<sup>th</sup>, 2009.

### **3.2 Investment, consumption and uncertainty - the option value of waiting II**

Pressure on the European governments to increase spending or to cut taxes is growing as mid-term growth prospects for the euro area worsen. The arguments for a further cut in interest rates and a large fiscal stimulus seem compelling: inflation is now clearly below the ceiling set by the ECB itself and demand is so weak that there is no danger of fiscal policy induced pressure on prices emerging in the near future. Moreover, some argue that especially for Germany there is ample room for fiscal manoeuvre. However, this view is misguided since already 2009 an estimated budget deficit beyond the Maastricht limit of

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<sup>18</sup> See Kenneth Rogoff at the AEA 2009 Meeting. American Economic Association (2009), Proceedings of the Annual AEA Meeting in San Francisco, [http://www.vanderbilt.edu/AEA/Annual\\_Meeting/index.htm](http://www.vanderbilt.edu/AEA/Annual_Meeting/index.htm).

<sup>19</sup> Claessens, S., Kose, M.A. Terrones, M.E., op. cit., and Deutsches Institut für Wirtschaftsforschung (2009), Wochenbericht, Nr. 1-2/2009, Vol. 76, Januar 7th, Berlin.

three percent is not out of the range. Finally, amid the uncertainty over the size of real effects of the financial crisis, the euro area economy is arguably in need of some stabilization. But how large is uncertainty at the moment really?

### **How large is uncertainty at the turn-of-year 2008/09?**

However, a closer look at the economic effects of uncertainty suggests that this might be a poor strategy around the change-of-year 2008/09 - especially because uncertainty in the markets is still extraordinarily high, though on its way down. In the case of Germany, the relevant type of financial and economic uncertainty is traded via the VDAX which delivers the implicit 45 day-ahead volatility of German stock futures (DAX) in percent. High empirical realizations point to a still restless and irregular market, low empirical realizations lets one expect a further stock market performance without strong price fluctuations. Hence, the VDAX is frequently called the "barometer of fear".

The actual figures reveal a positive structural break in the data since August 25<sup>th</sup>, 2008, which still matters up to now (Figure 1). The VDAX jumped over four fold after the dramatic collapse of Lehman's in September 2008. But it has fallen back by 50 percent over the last couple of weeks as both economic and political uncertainty has receded. Alternative measures of uncertainty such as the implied volatility on the S&P 100 which is commonly known as the financial "fear factor" have also fallen<sup>20</sup>. This is even true with respect to the frequency of the use of the expression "uncertain" in the press.<sup>21</sup> .

However, in the same way as business cycle forecasts are currently afflicted with a still rather high degree of uncertainty, indicators of financial fears are reliable early business cycle indicators. Hence, it appears definitely too early to argue that (a) Germany has recently shifted to a less pronounced uncertainty regime since all actors have become aware of the potentially huge dimensions of the crisis and (b) one should have agreed only three months ago with analysts like Paul Krugman<sup>22</sup> who are warning that a dire recession is brewing.

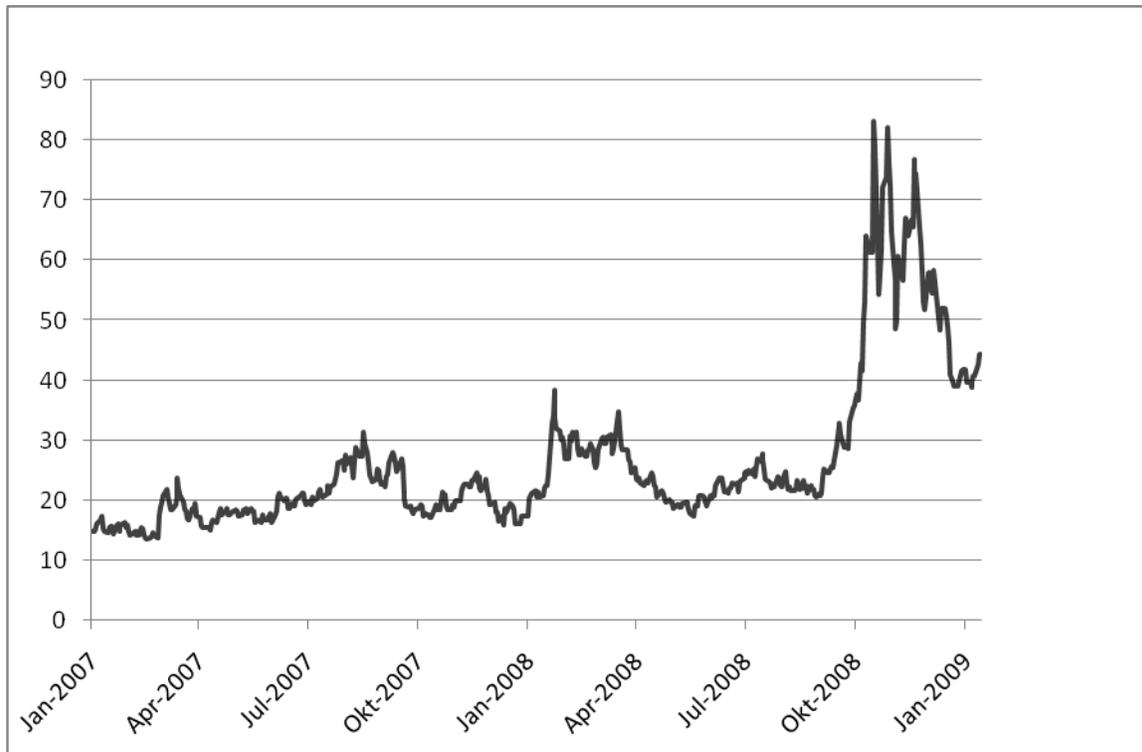
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<sup>20</sup> See Bloem, N., Floetotto, M. (2009), op. cit.

<sup>21</sup> See Alexopoulos, M., Cohen, J. (2008), Uncertainty and the credit crisis, VoxEU, December 23, <http://www.voxeu.org/index.php?q=node/2732>, claim that uncertainty shocks have a swift, strong and durable impact on economic activity. Assessing expectations of average citizens in Main Street through the use of keywords in main newspapers indicates a modest decline of uncertainty since October 2008, suggesting that "the worst may be behind us".

<sup>22</sup> Krugman, P. (2009), Ideas for Obama, New York Times, Opinion, January 11.

Figure 1 - "Barometer of fear": the DAX volatility index (VDAX) 2007-2009



Source: Thomson Financial Datastream.

An important implication of the model of the option value of waiting is that only the current short-term uncertainty has an impact on the decision to wait. Future uncertainty does not enter the decision under risk neutrality. If one takes a fixed period, for instance one year, the likelihood that investment will be postponed to the end of that period depends only on the uncertainty during that period and not on future uncertainty. This implies that *even short spikes* in uncertainty can have a strong impact on investment. This simple model view abstracts from risk aversion. However, Belke and Gros<sup>23</sup> show that the basic conclusion that even a temporary increase in uncertainty can make a postponement of investment optimal is robust to the introduction of risk-adjusted discount factors.

Skeptics to this approach might argue that there are *two effects* working in the opposite direction which are relevant in the current situation. On the one hand, there is a still extraordinarily high economic and financial uncertainty which increases the "play" area of weak reaction of macroeconomic variables to changes in macroeconomic policy. On the other hand it has become increasingly clear in the last weeks that the bad realization becomes more and more probable and the increasing deviation from the fifty-

<sup>23</sup> See Belke, A., Gros, D. (2001), Real Impacts of Intra-European Exchange Rate Variability: A Case for EMU?, in: Open Economies Review, Vol. 12/3, pp. 231-264.

fifty probability assessment diminishes the “play area“. This means that the two effects currently run against each other and the net effect is not clear by now. However, we have shed much more light on this issue in Figure 1 by means of a look at current prices at which financial uncertainty is traded these days and stated that it is still tremendous. Hence, I feel legitimized to argue that one disposes of a high uncertainty threshold to trigger on the option argument. Equally, evidence of an “option value of waiting” for monetary and fiscal policy should emerge since we still find ourselves in a period of extraordinary uncertainty.

To deal with the influence of uncertainty on economic decisions, economists have developed the concept of the "*option value of waiting under uncertainty*"<sup>24</sup>. This formalizes a common-sense rule: if a decision involves some *sunk costs*, or any other element of *irreversibility*, it makes sense to wait until the uncertainty has been resolved. The temptation to postpone investment decisions is particularly strong when the uncertainty is likely to be resolved in the near future (as, for instance, by fiscal packages!). This conclusion appears to be independent of the assessment of uncertainty as a stochastic or a Knightian phenomenon. Why talking about “Knightian uncertainty”? Because Keynes is back, at least according to many scholars, and the sense and nonsense of counter-cyclical fiscal packages in times of uncertainty have to be discussed from the Keynesian perspective as well.

While the academic profession, among others Dixit and Pindyck<sup>25</sup>, has made tremendous progress in analyzing risk and uncertainty in well-defined stochastic economies, the “Knightian uncertainty” that confronts monetary policy and sometimes markets is of an altogether different dimension. It was US economist Frank Knight (1885 – 1972) who, in his book *Risk, Uncertainty and Profit*, built his analysis on the distinction between risk and uncertainty<sup>26</sup>: “Uncertainty must be taken in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated. (...) It will appear that a *measurable* uncertainty, or “risk” proper (...) is so far different from an *unmeasurable* one that it is not in effect an uncertainty at all.”

Knight speaks of no less than the failure of the concept of probability calculus. In his seminal work “General Theory of Employment, Interest and Money”, John Maynard Keynes (1883-1946) takes a very similar stance:<sup>27</sup> “[Most of our decisions] to do something positive (...) can only be taken as a result of animal spirit (...) and not as the outcome of a weighted average of quantitative benefits multiplied by quantitative probabilities.” In fact, Knight argues that the difficulty of the forecasting process extends far beyond the impossibility of applying mathematical propositions to forecasting the future. *A priori* reasoning, Knight insisted, cannot eliminate indeterminateness from the

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<sup>24</sup> Dixit, A., Pindyck, R.S. (1994). *Investment under Uncertainty*. Princeton, NY.

<sup>25</sup> See Dixit, A., Pindyck, R.S., op. cit.

<sup>26</sup> See Knight, F. (1964, 1921), *Risk, Uncertainty and Profit*, New York: Century Press.

<sup>27</sup> Keynes, J. M. (1936), *The General Theory of Employment, Interest and Money*, New York: Harcourt, Brace.

future. In the end, he considered reliance on the frequency of past occurrences extremely hazardous.<sup>28</sup> This assessment fits extremely well with the current situation and would a fortiori lead to the same assessment of the (non-) usefulness of macro stimulus packages of a magnitude below a certain threshold in the current crisis according to the concept of option value of waiting under uncertainty.

### **‘Option value of waiting’ for the government - a first assessment**

It is clear that any decision to increase government spending and/or to lower taxes involves some *sunk costs*, or any other element of *irreversibility*. First, it takes time to pass the fiscal measures through the national Parliaments and for the economy to respond.<sup>29</sup> As a result, once decided, the fiscal policy measures can rarely be adjusted to the changing economic circumstances. Second, there are always some *political constraints*: it tends to be much easier for governments to ease fiscal policy than to tighten it, from the perspective of political economy a reversal is incredible, the package is package-deal specific and once the measure is taken it tends to become irreversible.

A third important aspect is the following. Germany as it stands now, i.e. after having decided on the second fiscal package, will have consolidated its debt not earlier than sometime around 2020. Anyway, *consolidation* will not be a pleasant enterprise since Germany will have to cope with the economic consequences of demographic change. And the ongoing weakness of the stock markets will almost certainly not quicken Germany’s political pace towards a stronger adoption of private pension schemes. Hence, the process of debt accumulation by expenditure programmes is most probably *asymmetric* and, thus, can be regarded as at least partly irreversible. However, the option value of waiting in times of uncertainty is not limited to the government but also extends to private agents.

### **‘Option value of waiting’ for private agents**

You can imagine *businesses* assessing investment projects that would be slightly profitable under current circumstances, even more profitable if the uncertainty were favorably resolved, and loss making if not. Such a business would lose little (in terms of forgone profits) if it delayed the decision. Once the uncertainty had been resolved, it would still have the option to proceed if that was to its advantage. An analogous argument applies to the *consumers* which might delay their decisions to buy, for instance, a durable consumer good in times of high uncertainty (of being employed at all and/or whether there will be in the near future, meaning that it is worthwhile to postpone consumption and to wait for even lower prices). According to some other simple models,

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<sup>28</sup> See Belke, A. Polleit, T. (2009), Monetary Economics of Global Financial Markets, Springer, forthcoming.

<sup>29</sup> See Buti M. (2001), The Economic Downturn and Budgetary Policy in Europe, Mimeo.

uncertainty which cannot be hedged raises the variability of revenues and induces the investors to apply a higher discount rate on (expected) future revenues.<sup>30</sup>

At the start of the financial (subprime) crisis it was argued that it would not have any appreciable direct consequences for the European economy since Europe having extended its trade with emerging markets significantly has probably de-coupled from the US in terms of the business cycle. However, as time has gone by, it was recognized that the indirect effects could be substantial if the crisis lasted longer than expected, or if it led to a disruption of the banking sector and some branches like the car industry, i.e. to wider regional financial and economic instability. A long and deep recession cannot be excluded a priori. Such an outcome cannot be ruled out. This explains why the financial crisis weighs so heavily on many apparently unrelated decisions. This uncertainty is likely to be completely resolved in the medium run, perhaps not in a matter of months, as some analysts maintain, but certainly in a matter of one or two years. However, while it remains, one would expect demand - especially investment demand - to remain quite weak in the near future.

#### **‘Option value of waiting’ for the fiscal authority – a deeper analysis**

So should a government then not try to stimulate demand with a fiscal shock, as for instance a deficit-financed spending increase, a balanced budget spending increase (financed with higher taxes) and a deficit financed tax cut in times of large financial and economic uncertainty? A first argument against this approach would be that the concept of the "option value of waiting" applies to a government just as much as it applies to everyone else. A deep recession which has the potential to turn into a depression may be averted, or it may be relatively short and have little durable effect on important macroeconomic variables as, e.g., the labor market. Hence, if the government triggers another fiscal policy shock within the next months, it risks having to reverse its decision almost immediately if the crisis turns out to be relatively short-lived or – if financed by inflation - in order to avoid blowing up the next asset price bubble.<sup>31</sup> The government should thus trigger a positive fiscal policy shock only if it is convinced that such a shock *will make sense even if the uncertainty about the length and the duration of the crisis is favorably resolved.*

In the context of the financial crisis of 2007/08 and the potential 2009 depression, *a fiscal policy shock as an insurance against a bad outcome does not make sense* since (1) fiscal policy shocks are not effective if uncertainty is large, (2) the government itself disposes of an option value of waiting with fiscal policy shocks; if, for instance the

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<sup>30</sup> For simplicity, discounting issues and risk aversion are ignored here (on this see Belke, A., and D. Gros, 2001, op. cit.) so that decisions can be based only on expected values. The same assumption is used also by Dixit, A. (1989), Entry and Exit Decisions under Uncertainty, *Journal of Political Economy*, 97, pp 620-638.

<sup>31</sup> Belke, A., Orth, W., Setzer, R. (2008), Sowing the Seeds of the Subprime Crisis - Does Global Liquidity Matter for Housing and other Asset Prices?, in: *International Economics and Economic Policy*, Vol. 5(4), S. 403-424.

government shocks ‘today’, it kills this option to shock in the future (although this option might be very valuable in times of high uncertainty), and (3) frequent fiscal policy changes by a government induce additional uncertainty which tends to aggravate the current weakness of investment and consumer goods demand.

Seen on the whole, thus, the above analysis has a clear bearing on the current discussion about the crisis management of the world’s leading fiscal authorities with respect to the US-driven financial and economic crisis. If, in times of high uncertainty about the risks finally faced by firms, households and the economy as a whole, the government triggers fiscal policy shocks in a stepwise fashion, it does not induce more than a straw fire on the stock markets and the whole economy for some days but does certainly not induce a sustainable move towards more investment and consumption demand which is so urgently needed to prevent a world recession.<sup>32</sup>

Seen on the whole, thus, and starting with the above mentioned irreversibilities which are specific to fiscal policy large uncertainty also generates an option value of waiting for the fiscal authorities, i.e. the government. The pleas of the majority of speakers at this year’s AEA Conference 2009 in San Francisco in favor of significant increases of government expenditure do not appear to be any contradiction to this assessment because they nearly exclusively refer to the much more flexible US economy.<sup>33</sup> Applying this argument to continental Europe is certainly not admissible. Newspapers worldwide reported in the wake of the AEA Meeting that many US economists interpreted a large but arguably transitory increase of direct government expenditures as the most important insurance against a “Great Depression II” However real options theory teaches us that, at least in Europe, *a cut in taxes or an increase in expenditures as an insurance against a bad outcome does not make sense*, just as little as a cut in central bank interest rates makes is useful for this purpose.

### **The band of inaction - uncertainty renders the macro-economy less sensitive to macro policies**

The models of decision-making under uncertainty also have a second implication. All decisions involve some transaction costs - whether they are about investment, about hiring and firing or about bureaucratic sclerosis in general. The latter are especially important in continental Europe (although Germany has made some progress in lowering labor market rigidities in the last years due to the Hartz reforms). This implies that businesses facing only a small change in prices may not respond immediately. There is always a band of inaction - a price range within which it does not pay to change course. The size of this band of inaction increases as uncertainty increases. And, given the still prevalent structural rigidities in the euro area economy, uncertainties probably affect

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<sup>32</sup> For a general discussion of interest rate decisions in an uncertain environment see Begg, D., F. Canova, de Grauwe, P., Fatás, A., and P. Lane (2002): *Surviving the Slowdown*, Monitoring the European Central Bank 4, Centre for Economic Policy Research (CEPR), London.

<sup>33</sup> See American Economic Association (2009), op. cit.

decision-making in Europe more than they do in the US. Hence, one should not be tapped in the currently quite popular fallacy that Keynesian demand stimulation will be successful in Europe only because it appears to work in the US. Due to the extraordinarily high degree of uncertainty, real world investment, employment and consumption may appear less sensitive to changes in the fiscal policy stance compared to the prediction of the majority of models of fiscal policy transmission.

Instead, for instance the increasingly apparent debt problems in the euro area suggest that the government *should stay its hand*. But *if the government is not convinced of this*, it should avoid shocking a little today, because that would not be a sensible compromise in times of still high uncertainty; in fact, it would just waste an option without helping the economy. Instead, one could make the case for a stronger fiscal policy response. As the Germans say, "Klotzen nicht Kleckern": if you are going to hit it, hit it hard. That might be correct in principle, but policy makers would need to (re-)act fast. Any additional economic stimulus has to be implemented quickly. Dithering over different directions of policy might actually make things worse by adding uncertainty.<sup>34</sup>

However, common sense would tell us that acting according to the motto "it's now or never for expansionary policy" is not really an option, at least in the case of Germany, simply because it might be too late for such a large stimulus. Now that uncertainty is gradually falling back, growth should start to rebound and a large stimulus will no longer be needed. Firms will probably begin to hire and invest again to make up for lost waiting time. Abstracting from real option theory under uncertainty, one should advise against a large stimulus anyway – mainly with an eye on too high and unsustainable debt levels. Moreover, abstaining from over-expansionary fiscal policies in interplay with monetary policy which inflates the economy in order to push down real debt avoids sowing the seeds of the next asset price bubble and the subsequent crisis.

The government is just painfully caught between the conflicting alternatives "to react quickly" or "to wait with fiscal stimuli". The above analysis has shown that the specific way out should depend on the magnitude of the planned package, on the estimated degree of uncertainty prevailing and on the credibility of later consolidation.

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<sup>34</sup> See Caballero, R.J. (2008), Normalcy is Just a Few Bold Policy Steps Away, December 17, MIT, mimeo.