Country risk in Greece, Spain and Turkey: Measurement and Policy Implications – an Application of the Fink Country Scoring Model

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Abstract - Rising public deficits and debt levels, uneven growth and productivity and growing mistrust in official data in the Southern periphery of the Euro zone put downward pressure on the euro and confront policy makers with ambitious challenges. We examine the present situation in detail and apply the adapted Fink Country Scoring Model to assess and project the country risk of Greece, Spain and Turkey to compare factors of risk in and outside the Euro zone. Based on this purely economic model, we provide a less subjective, alternative view to country ratings by rating agencies. We find that Greece and Spain have envisaged pronounced worsening in their country risk throughout the past decade, while Turkey's assessment improved. The projections indicate recovery for Spain, stabilization at a lower level for Greece and current account deficits increasing risk for Turkey. On a country-by-country basis, we derive economic policy implications and suggest restructuring with regard to budgetary consolidation, debt reduction, stimulation of competitiveness and enhanced transparency.

Key words: Country risk; debt burden; rating; scoring model; Southern Europe

I. Introduction

The excessive accumulation of sovereign debt in individual member states bears a major threat for the stability of the entire EMU and therefore imposes severe challenges on European policy makers. Years of profligate fiscal policy have pushed Greece on the edge of bankruptcy. The latter has been fended off by bailout measures from the side of the EU, but the fiscal woes are far from over yet, since Portugal, Spain and Italy show comparable deficiencies. A collapse of one of the two latter economies would clearly go beyond the scope of the EU's rescue capacities. Internal triggers for the Greek crisis can be found in persistent fiscal mismanagement. Previous governments tried to raise the income of Greek households by borrowing instead of stimulating the economy. No fiscal consolidation was implemented even in years of high growth [1]. Spain's economy on the other hand did not deteriorate due to budget deficits and an accumulation of public debt. Mainly structural problems and a large private indebtedness turned out to be crucial points [2]. Common features of the Southern European economies that contributed to the rapid loss of competitiveness within the EMU include the loss of

monetary and exchange rate policy as well as the lack of standards for the external sector within the Maastricht Criteria. Turkey faces low external debt, but a widening current account gap and the fact that single years of extraordinary high growth are followed by recessions, which means that the economy somewhat stagnates in real terms over large periods [3].

Given this setting, the need for reliable country risk analyses becomes evident. According to Taffler and Abassi "Country risk analysis (…) seeks to identify in advance those countries which will be unable to meet their commitments on external debt" [4]. In this paper, we are solely dealing with sovereigns, which bear a higher degree of risk due to the lack of legal enforceability of debt repayment. Eaton, Gersovitz and Stiglitz [5] find that the threat of sanctions and the threat of losing their reputation as reliable creditor mainly induce sovereigns to meet their obligations. Within the EU however, the latter seems to be the more effective incentive, as the EU mostly did not succeed in sanctioning members' violations. Motivated by these considerations, the paper's objective is to develop an expressive country rating model that is able to anticipate such developments and moreover offers the possibility to derive suitable countermeasures.

Methodologically, we use an adapted version of the Fink Country Scoring Model [6-8], which we apply first on Greece and Spain to identify the core of recent woes and second on Turkey to draw comparisons and distinguish between risk profiles within and outside the Euro zone. Our contribution to existing literature is twofold. First, we adapt the basic model by including the services sector and capital flows to take country-specific characteristics into account. Second, we solely concentrate on "hard macroeconomic facts" to avoid biases resulting from political influences and ensure a high degree of objectivity. We keep the number of ratios within a limited margin on purpose to enhance the expressiveness of the model. A suchlike approach could serve as a "European alternative" to the large rating agencies.

The Fink Country Scoring Model [6-8] is based on key ratios derived from macroeconomic indicators. Earlier papers of Taffler and Abassi [4], Feder and Uy [9] and Vij [10] have already investigated determining variables of country risk in greater detail. Ciarlone and Trebeschi [11] scrutinized a sample of emerging economies to identify macroeconomic variables suitable for the predictions of debt crises. The assessment covers first, the period from 2001 to 2011 to analyze how factors of risk have developed throughout the past decade and second, provides an outlook for 2012 to 2016. The aforementioned period includes the integration into the Euro zone for Greece and Spain, which caused rising risk in the subsequent years and the 2001 crisis in Turkey as well as the subsequent recovery. Thereby we do not create forecasts like in In't Veld et al. [12], but – more formalized than the warning mechanism of the European Commission [13] – a projection to map future developments assuming unchanged policies.

Our results are twofold: we find that risk increased for Greece and Spain throughout the past decade and particularly confirm Greece as hotspot. Projections

indicate a slight recovery, though. Turkey's risk on the other hand decreased from 2001 onwards, but the projections show a negative outlook if no countermeasures are taken on current account deficits. The results highlight the necessity of ameliorating the expressiveness of country risk analyses. Our model adds a practice-oriented contribution that might serve as a basis for politicians on a national and on a European level and for existing and future investors. It is aimed at giving early warning signals for future crises to combat deficiencies (such as current account imbalances, debt burden and inflation risk) in time and to give relevant indications for the current crisis as well.

The paper proceeds as follows. A description of the operating principles of the model as well of the applied data and its origin is conducted in chapter 2. Chapter 3 to 5 focus on the empirical results of the risk assessment. Chapter 6 contains a systematic comparison. Chapter 7 gives economic policy implications and Chapter 8 finally, is intended to summarize the main findings and provides a conclusion to answer the prompted research issues.

II. Methodology

As opposed to rating agencies' country risk models, which introduce a certain dose of subjectivity by including, among others, political factors, we provide an alternative view by just relying on objective, economic indicators. The Fink Country Scoring Model [6-8] is aimed at assessing the economic risk according to a selection of key ratios, which are derived from macroeconomic factors (see Table 1). The latter are grouped into five subcategories (i.e. economic power, economic stability, debt burden, transfer quota, capital flows) to facilitate the interpretation, as this aggregation allows the calculation of sub-ratings. As regards the processed ratios, the model has been subject to modifications repeatedly. For previous applications see for example Fink et al. [14], Fink et al. [15], Fink, Haiss and Paripovic [16], Fink, Haiss and Paripovic [17] and Paripovic [18]. We use a version adapted for capital flows and services as in Paripovic [18] to take country-specific characteristics into account. In order to conduct reliable comparisons, the ratios are transformed to a common rating scale by individual assessment functions. The latter assign scores from zero to 100 to each ratio. A score of 100 points indicates the lowest possible country risk and vice versa. Borrowing from Fuchs [19] and Paripovic [18], one 100-point threshold and *two* zero-point thresholds were implemented for the assessment of the inflation rate and the capital flow ratios by applying two functions. The scrutinized time frame contains on the one hand a retrospective analysis for the period between 2001 and 2011 to illustrate how the ratios have developed over time and on the other hand we employ projection to provide an outlook for 2012 to 2016, assuming unchanged policies. More specifically, the model is not intended to conduct forecasts or predictions, but to give signals. Therefore, in the original version the last observed rates of change are extrapolated into the future to demonstrate the sustainability of the current path of development.

However, given the exceptional circumstances of 2010, we use an average of the last five observed growth rates for the projections of real change in GDP, change in population, change in exports of goods and services, change in imports of goods and services and change in FDI liabilities, portfolio investment (PI) liabilities and credit to GDP in this paper to smooth the misleading effects. The projected current account deficit is derived from the projected exports and imports and the projected gross debt is adjusted for the projected current account deficit [14]. Moreover, the projections for the effected debt service are based on the following assumptions. First, an average maturity of eight years was assumed and second, 8% of the projected current account balances were taken for the calculation of interest payments.

Most indicators were taken from the Eurostat database [20]. For data on external debt, the Joint External Debt Hub of BIS, IMF, OECD and World Bank was used [21], whereas figures on foreign exchange reserves, FDI liabilities, PI liabilities and domestic credit to the private sector originate from the IFS database of the IMF [22].

III. Country risk of Greece

The country that witnessed the most pronounced surge in country risk is Greece, whose score bottomed out at 14 points in 2009. In 2010 and 2011 the scores rose again and projections are expected to level off, resulting in a score of 17 points in 2016 (see Fig. 1). This concerning performance can mainly be attributed to the vast deterioration of debt burden and the constantly weakening export power.

Major slumps in GDP growth and decreasing export/import ratios from an already low level were opposed to favourable GDP per capita values. The latter is the only ratio that had a persistently positive impact on the economic power, exhibiting an upward trend from 2001 (EUR 13,395.39) to 2008 (EUR 20,777.90). Projections show diminishing figures for GDP per capita through 2016, which will lower the score to 96. In contrast to the aforementioned ratio, real GDP growth showed a volatile performance. After peaking at 6.44% in 2003, a major slowdown took it to a negative rate of -6.27% in 2010 and furthermore to -8.24% in 2011, while projections map a slowdown to -2.51%. The export/import ratio fluctuated as well and will positively influence Greece's rating in the near future, since projections show an increase to 90.55% in 2016, which will positively affect the country's current account balance and possibly also the budget balance (see Table 2, Fig. 2).

The assessment of Greece's economic stability was mainly fuelled by moderate inflation, which partly compensated deteriorating budget and current account balances. Inflation mostly remained below 4% and was finally slashed to 1.35% in 2009 before it peaked at 4.70% in 2010. The budget deficit on the other hand mostly exceeded the -5% of GDP threshold and even peaked at -15.59% in 2009. Vast expenditure cuts lowered it to -10.35% in 2010 and further to -9.11% in 2011. Also,

the current account balance was assigned zero points as of 2006 and will furthermore put increasing pressure on external debt, as projections signal a widening gap resulting in a deficit of -12.72% in 2016 (see Table 2, Fig. 3).

The category of debt burden, which is being assigned a high weight of 41%, is mainly responsible for the rapidly slumping Greek rating. Weak export performance coupled with fast growing external debt and rudimentary foreign exchange reserves to imports ratios as of 2004 have triggered a massive decline from 44 points in 2001 to zero points in 2009. The projections depict continuously deteriorating ratios amounting to 144.17% (external debt to GDP), 483.93% (external debt to exports), 97.93% (debt service ratio) and 0.03% (foreign exchange reserves to imports) in 2016 (see Table 2, Fig. 4).

Among the assessed countries, Greece is the only one that registered scores significantly above zero in single years. As of 2011 however, low export momentum will be opposed to considerable interest rates and therefore the interest rate/growth rate of exports ratio will not account for positive scores through 2016 (see Fig. 5).

Comparably high scores could be mapped for the capital flow ratios. The scores for FDI liabilities to GDP rose constantly until a preliminary peak of 81 points in 2007. After 2011 however, the ratio is projected to decline gradually to 34 points in 2016. Credit to GDP showed a positive development only at the beginning of the examined period, climbing to 60.32% (99 points) in 2002. As of this point however, ever rising ratios have put the assessment on a downward trajectory, resulting in a score of 3 points in 2011. According to the projections, this development will persist and the ratio will surpass the upper threshold for a positive assessment of 120% in 2012. The PI liabilities to GDP ratio already accounted for excessive figures as of 2003 (see Table 2, Fig. 6).

IV. Country risk of Spain

Spain's initially positive country risk appraisal mostly displayed high scores throughout the entire ex-post period. Nevertheless, gradual deterioration and a severe slump in 2008, when the Spanish economy was severely hit by the global downturn, took the rating down to a low of 40 points. As of 2009 however, we map a recovery that is projected to persist through 2016 (see Fig. 7).

Spain's economic power was most positively influenced by high GDP per capita figures, which exceeded the threshold of EUR 20,000 as of 2005. As opposed to this, the remarkable real growth rates came to a sudden halt after the real estate bubble bursted in 2008 and turned into a major factor of risk with negative rates being recorded between 2008 and 2011. Even though projections illustrate growth rates close to 0%, this still represents a sobering figure compared to pre-crisis rates. The export/import ratio amounted to more than 90% in the first four years, before a gradual reduction took it down to 80.77% in 2007. The rebound in 2009 was recorded because imports plunged even more than exports, but in 2010 and 2011 remarkable export growth rates were achieved again. Through 2016 the ratio will

further improve to 116.18% due to the positive development of the goods account (see Table 3, Fig. 8).

From 2001 to 2007 economic stability was being assigned 55 points on average, before the score plunged to 21 points in 2008. The ratio that initially had the most positive impact on economic stability was the one relating budget balance to GDP. Gradual improvements as of the beginning of the last decade resulted even in considerable surpluses in 2006 and 2007. This favourable development was however followed by exploding deficits, which soared to -11.18% in 2009, -9.36% in 2010 and -8.59% in 2011. The current account balance to GDP ratio was not rated high, but remained within limited margins mostly. Projections imply a decrease that will even turn into a surplus by 2015. Finally, inflation rates fluctuating between 3% and 4% were recorded up to 2009, when deflation of -0.24% was mapped (see Table 3, Fig. 9).

Even though Spain experienced an increase of its debt burden, the overall risk stemming from this category can be defined as considerably less alarming than the one of Greece. After temporary increases, external debt in relation to GDP and to exports amount to 23.97% and 78.54% in 2011, which is approximately equal to the values of 2001. Also, the debt service ratio rose to 40.85% in 2009, but then dropped to 30.54% in 2011 again (see Table 5). Only the plummeting foreign exchange reserves have put significant downward pressure on Spain's rating, since the foreign exchange reserves/imports ratio was rated with zero points continuously from 2004 to 2010 (see Fig. 10). Projections however are stable, amounting to 64 points in 2016.

Throughout the entire ex-post period, Spain did not succeed in covering its interest expenses by a sufficient degree of growth in exports. Consequently zero points have been assigned continuously and the projections do not indicate a reverse trend (see Fig. 11).

Spain's capital flows show a negative development as of the beginning of the assessed period. Constantly rising FDI liabilities to GDP ratios triggered decreasing scores from 88 in 2001 to 69 in 2011. The other two ratios of this category were on a steady rise as well and were consequently rated with zero points as of 2004. According to the projections, FDI liabilities and credit to GDP will continue to increase. Consequently, the score for FDI liabilities to GDP will decline to 53 points. The probably most concerning development showed the credit to GDP ratio that amounted to 205.40% in 2010 and is projected to skyrocket to 254.52% in 2016. PI liabilities to GDP on the other hand are expected to decline to 71.33%, which is however not enough to achieve positive scores (see Table 3, Fig. 12).

V. Country risk of Turkey

Turkey's country risk exhibited a more favourable development than Greece and Spain during the entire ex-post period. After the crisis of 2001 its rating rose to 71 in 2005 and then gradually decreased to 65 in 2011, which can be interpreted as a very low level of risk compared to Spain (46 points) and Greece (22 points). Nevertheless, unsustainable developments can be monitored as well.

The projections therefore show a substantial decline through 2016, which can mainly be attributed to the concerning performance of Turkey's current account (see Fig. 13).

GDP per capita accounts for solid scores and therefore its scores have been rising gradually to 82 in 2011. The other two ratios of this category however, depict a less positive development throughout the ex-post period. While economic growth in absolute terms outperforms the other two countries, real growth is very volatile and has even turned negative in single years. The export/import ratio shows a distinct downward development from a very solid ratio of 112.95% in 2001 to 71.94% in 2011. Projections indicate a persisting downward rally that will even result in a ratio below 60% in 2016 (see Table 4, Fig. 14).

As opposed to a large number of Euro zone members, Turkey exhibited continuously high scores for its budget deficit. The latter gradually decreased from 2001 onwards and even turned positive in 2006. In spite of a renewed spike of -6.97% in 2009, budgetary discipline remained high resulting in a moderate deficit of -1.36% (61 points in 2011). On the other hand Turkey's economic stability was more negatively affected by low scores for inflation rate and current account deficit. The former remained high and fluctuated between 6% and 11% throughout the past five years. The latter's performance is even more concerning, since it soared to a high of -10.21% in 2011. If this development persisted, the ratio would further drop substantially to -33.57% by 2016 (see Table 4, Fig. 15).

As opposed to the assessment of economic stability, Turkey mostly receives maximum scores for the debt burden ratios and consequently the country's risk of default can be classified as very low. The latter statement holds for the figures of the ex-post period, the outlook has to be examined cautiously, though. While external debt to GDP and to exports account for maximum scores in 2011 with low ratios of 0.86% and 3.67% respectively and the debt service ratio amounts to solid 12.53% as well, the projections illustrate a different picture. As we outlined in the methodology section, the Fink Country Scoring Model takes the projected current account deficits into account for the projected external debt ratios, which explains the steep drop from 2012 to 2016. Nevertheless, the figures remain above those of Greece (see Table 4, Fig. 16).

Except for 2004 and 2005, interest rates exceed export growth rates by far throughout the entire ex-post and projection period and therefore the ratio is repeatedly being assigned zero points (see Fig. 17).

The assessment of Turkey's capital flows shows the following results. FDI liabilities and PI liabilities to GDP both depict a positive development throughout the ex-post period. The former constantly increased from 10.25% in 2001 to 19.53% in 2011 (98 points). The latter fluctuated and amounts to 15.23% (81 points) in 2011. The projections show further increases beyond the threshold for the assignment of 100 points and therefore the scores will decline slightly through 2016. Credit to GDP augmented to 47.80% in 2011 and will further rise at an annual rate of 14.26% leading to diminishing scores throughout the following five years (see Table 4, Fig. 18).

VI. Comparison

Prior to the comparison of the results, it has to be noted that the comparably weak performances of EU-15 members might be unexpected, despite present economic woes. This can simply be explained by the high weight of 41% that the model assigns to the category of debt burden. A comparable tendency could already be monitored in Fink et al. [14] for the assessment of the entire Euro zone.

The economic power of all three countries is on a downward trajectory, even though Spain and Greece show signs of recovery. Turkey's scores are comparably volatile due to the real change to GDP ratio that ranges between minimum and maximum scores. Spain exhibited higher scores than Greece and Turkey, mainly triggered by steady maximum scores for GDP per capita and increasing export/import ratios. As opposed to this, Turkey's imports continuously exceeded exports. Moreover, outstanding growth rates in absolute terms are hampered by high inflation. Greece's scores for real change in GDP rallied down to zero as well, but higher GDP per capita and a slow recovery of exports/imports positively influence the scores for economic power on the other hand. Projections however indicate a distinct recovery for Spain, slight improvements for Greece and diminishing scores for Turkey.

Turkey's economic stability shows a concerning development, which can mainly be attributed to high inflation and a widening current account deficit. The latter is also a substantial factor of risk for Greece. Inflation on the other hand was rather moderate in the Hellenic Republic, unlike the vast budget deficit, which is very low in Turkey. The small budget deficit is also the reason why Turkey faces a more positive outlook in terms of economic stability than the Greece, whereas Spain outperforms both of the aforementioned countries, mainly due to a narrowing current account gap, which is projected to turn positive by 2015. On the budgetary side however, it is remarkable to observe that the considerable budget surplus in 2007 turned into a large-scale deficit of -11.18% of GDP within solely two years.

Greece's debt burden experienced a vast deterioration plummeting from a score of 44 in 2001 to zero in 2009. After having reached the bottom, it slightly recovered to 13 points in 2011. Greece accumulated a high amount of external debt, rising from 80.56 billion euro in 2001 to a peak of 187.32 billion euro in 2010 and according to the projections, external debt might even amount to 273.17 billion euro in 2016. Foreign exchange reserves to imports slumped as well and consequently all determining ratios accounted for zero points in 2009, which not going to change significantly through 2016. Therefore Greece can be identified as hotspot that is facing imminent danger of default, assuming unchanged policies. Spain accounted for more sound assessments, mainly because external debt increased

comparably modestly to 274.91 billion euro in 2011. Nevertheless, slight deteriorations of the debt service ratio and continuous zero-point assessments of the foreign exchange reserves to imports ratio as of 2004 have triggered a decline as well. Turkey's external indebtedness throughout the ex-post period has been very low resulting in mostly maximum scores. The projections however, show a negative development that will take the scores below those of Spain throughout the following five years.

In our analysis transfer quota are solely determined by the interest rate/growth rate of exports ratio. Greece's development is highly volatile. Due to high export growth rates in single years of the assessment, the maximum score was assigned in 2004, whereas from 2001 to 2003, in 2006 and as of 2009, interest rates were not covered by a sufficient degree of export growth. Turkey scored 58 and 27 in 2004 and 2005 respectively and Spain only achieved positive scores in one single year. According to the projections, the external debt burden of all three countries might not be sustainable because low export growth will be opposed to higher interest rates.

Projections show a particularly negative outlook for Spain, whose scores will decline to 18 points in 2016. By comparing the individual capital flow ratios, it becomes visible that FDI liabilities to GDP is the only one that has accounted for high scores throughout the entire observed period for all countries. PI liabilities have risen rapidly to excessive levels in Greece and Spain and consequently put a damper on the overall assessment. Credit to GDP has had a comparable impact in Spain and is expected to soar to 254.52% in 2016. As opposed to this, in Greece and Turkey, credit to GDP accounted for higher scores throughout the ex-post period, although projections indicate unsustainable increases as well.

A crucial point for the explanation of the dropping ratings are the persistent inflation differentials within the EMU member states. The application of the Fink Country Scoring Model [6-8] results in mostly sound scores for the inflation rates of Greece and Spain. It however, does not take into account the impact of differentials. Both countries have mostly exhibited rates above EU-average, which however are not excessive per se. It can be argued that high inflation is coupled with high growth rates, since low real interest rates result in low borrowing costs and favourable real investment conditions. Nevertheless, in the long-term, the effect of real appreciation triggered by the cumulative effect of persistent inflation rates prevails and manifests in higher prices and wages and therefore decreasing competitiveness in relation to low-inflation countries [23].

VII. Policy implications

Greece's strength lies in comparably sound scores for economic power and capital flows. The latter however, are opposed to weak economic stability and dramatically deteriorating debt burden. Countermeasures should be targeted at curbing the skyrocketing budget deficits and external debt burden to avoid imminent default. First and foremost the bloated public sector must be the starting point of profound reforms to reduce public expenditure. Additional income sources might be tapped by increasing tax rates and slashing widespread tax evasion. Expenditure cuts should however be prioritized because they are first more effective in the correction of fiscal imbalances, second more credible and third more likely to boost growth [24]. A further concerning development, which also added to the vast accumulation of external debt, is the steady widening of the current account balance. The projected surge to -12.72% of GDP in 2016 signals the immediate need of boosting exports and reduce the dependence on imports. Primarily the performance of the goods account that accounted for considerable deficits continuously must be upgraded by measures stimulating competitiveness. Sustainable FDI might act as a driver. However, forthcoming austerity measures are likely to make Greece a less attractive investment environment.

Spain primarily envisages structural problems after the country has been hit particularly rough by the economic woes in 2008 and 2009. Outstanding pre-crisis growth rates were mainly built on the ballooning real estate sector, whose meltdown now imposes severe challenges on Spain. Policy makers must therefore promote growth of alternative sectors to foster exports and avoid further deterioration of the current account balance. The accumulation of external debt remained within tolerable margins so far, although projections indicate rising ratios relating external debt to GDP and to exports. The budget balance however, which exploded from considerable surpluses in 2006 and 2007 to a deficit of -11.18% in 2009, represents an urgent call for expenditure cuts to avoid a collapse as in Greece. Moreover, given its large size, a struggling Spanish economy would result in unpredictable consequences for the entire Euro zone. Unlike Portugal that managed to decrease the large portion of short-term external debt, the Spanish figure remained above 10% and should be observed cautiously. Most imminently however, measures targeted at curbing PI liabilities and domestic credit need to be implemented. Especially the latter has been fuelled by a large volume of credit for the housing sector by the saving banks (cajas) and is projected to rally towards 254.52% in 2016. To avoid a further increase of risk, stemming from a bulk of non-performing loans, lending must be limited and enhanced supervision of rapidly expanding banks is indispensable [25].

As regards the ex-post period, Turkey outperforms the other two assessed countries with overall scores of well above 60 points. The country's main strength in comparison to Greece and Spain is its fiscal discipline. Budget deficits remain very low and external indebtedness is on solid ground. Nevertheless, Turkey's outlook is severely affected by the development of its current account. In line with the European Commission [26-27] we thus see a rising vulnerability to a sudden loss of investor confidence and capital flow reversals and other `global financial shocks`. Despite booming industries, the export of goods has been outweighed by imports for

the past ten years consecutively. Even though the services account has been positive continuously, its surpluses were too small to counter the deficits of the goods account. Turkey relies comparatively stronger on short-term capital, while foreign direct investment is comparatively lower and significant inflationary pressures remain. Policy makers are therefore advised to reduce the country's dependence on goods imports on the one hand and stimulate services on the other hand. The increasing spreading of the current account is triggered by high consumer spending on imports, which is reflected in the development of the credit to GDP ratio that has been on a steady rise as well. In addition to the aforementioned measures, further increases should be countered to avoid a development as in Spain. Lastly, inflation remains high and threatens economic growth, even though the tremendous rates at the beginning of the past decade have been curbed successfully. Given that about half of Turkey's total trade and 75% of FDI inflows into Turkey originate from the EU this is important for both sides.

Conclusion

The rationale for this paper was to assess the economic risk of Greece, Spain and Turkey. We employed the Fink Country Scoring Model [6-8], adapted for capital flows and services as in Paripovic [18] and find that the three countries have shown adverse developments throughout the past decade. The spike in country risk 2008 and 2009, as well as the renewed upward trend as of 2010 are a common feature of the scrutinized countries.

Nevertheless, they can be subdivided in two groups. Greece and Spain have exhibited increasing country risk throughout the past decade, but show signs of recovery (Spain) and stabilization at a lower level (Greece). Turkey's rating improved throughout the ex-post period, but projections indicate a more negative outlook.

Greece's development throughout the observed period was coined by a massive increase of its external debt burden, which has been partly fuelled by continuous current account deficits. A lack of fiscal transparency has furthermore paved the way for the skyrocketing budget deficit, which peaked at -15.59% of GDP in 2009. Low economic stability was opposed to more favourable developments of the country's capital flows. Projections indicate further rising debt burden and weak economic stability. Countermeasures should therefore comprise credible fiscal adjustment without harming the country's business environment, enhanced transparency and the promotion of goods exports to release pressure on the external indebtedness originating from the feeble current account.

Spain's rating declined from 60 points in 2001 to 46 points in 2011. Nevertheless, its scores mostly exceeded those of its Southern European peers. Economic power was rated rather high and was only hampered most recently due to negative real growth rates. Simultaneously, economic stability was slashed in 2008 and 2009 as a result of budgetary and current account imbalances. It is therefore clearly visible that the country has been hit particularly harshly by the global downturn. Capital flows have been rated low as well. As opposed to this however, external indebtedness, which represents a major factor of risk for the other assessed countries, can still be defined as sound. Projections imply only a renewed recovery, mainly triggered by boosting exports and their positive effect on the current account. Policy measures must primarily focus on restructuring measures to find alternative sectors (other than the real estate sector) to accelerate economic growth as well as on expenditure cuts to contain the budget deficit. Moreover, domestic lending needs to be curbed to avoid a large volume of bad loans.

Turkey's economic risk can be classified as rather low throughout the ex-post period. The scores range between 60 in 2001 and 65 in 2001. This was mainly triggered by the solid performance of the country's debt burden, while economic power and economic stability mostly ranked below Greece and Spain. Nevertheless, the model reveals an unsustainable development of the current account, which is mainly responsible for the worsening projections. Since the sustainability of a country's current account implies that a government's incentive to default on its international debt is low and vice versa, it is a highly relevant factor of risk assessment [28]. Even though, credit to GDP has not reached to excessive levels of Spain yet, policy makers are advised to counter this trend. Finally, inflation still remains an issue of concern. Indeed, it has been brought down drastically in the first years of the past decade, but even lower levels would be needed to counter the volatile real growth and stabilize the country's risk assessment.

Apart from the aforementioned factors of risk, the rating of all countries is exacerbated by high interest rate/growth rate of exports ratios, indicating that external indebtedness is not sustainable in the long-term, and by rising levels of PI liabilities. For Greece and Spain persistent above EU-average inflation rates can partly be held responsible for the slipping competitiveness.

The results for the scrutinized countries underline the functionality of our model. Given the dominant position of the three large rating agencies, our objective was to present a model that could be the basis for a European antipole targeted at defusing "speculation from outside". Our own contribution first lies in the inclusion of the services sector and capital flows to take country-specific characteristics into account and receive more fine-grained results. Moreover, the sole use of macroeconomic ratios avoids the degree of subjectivity that is being introduced via the inclusion of political factors. This does not mean that we doubt the latter's relevancy. However, due to recent developments, we recognize the necessity of credible risk analyses based on hard facts. Consequently, we offer an approach that is suitable for gauging the sustainability of current policies (e.g. current account, debt burden, growth, inflationary risks). Furthermore, the model does not only give warning signals, but provides a sound groundwork to shape countermeasures and reforms as well.

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V. Appendix A - Tables

TABLE 1

KEY RATIOS, WEIGHTS AND ASSESSMENT RANGES

Key ratio	Weight μ	0-point border	100-point border
Economic power			
GDP per capita	0.04	< 0	> € 20,000
Real change in GDP	0.05	< -2%	> 6%
Exports to imports	0.10	< 60%	> 120%
Economic stability			
Inflation rate	0.05	> -2% but <= 0%	
		> 0% but <= 15%	
Budget balance to GDP	0.06	< -5%	> 1%
Current account balance to GDP	0.05	< -10%	> 5%
Debt burden			
External debt to GDP	0.05	> 90%	< 10%
External debt to exports	0.10	> 250%	< 50%
Debt service ratio	0.20	> 90%	< 10%
FX reserves to imports	0.06	< 5%	> 25%
Transfer quota			
Interest rate to growth rate of exports	0.08	> 1	< 0.5
Capital flows			
FDI liabilities to GDP	0.04	> 0% but <= 20%	
		> 20% but <= 100%	
PI liabilities to GDP	0.06	> 0% but <= 5%	
		> 5% but <= 60%	
Credit to GDP	0.06	>0% but <= 60%	
		> 60% but <= 120%	

TABLE 2

KEY RATIOS – GREECE

GREECE	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Copyright: Gerhard Fink and Gerhard Fenz, EuropaInstitut, WU-Wien 2001																	
Economic power																	
GDP per capita	Mill EUR	13395,39	14278,34	15661,32	16781,30	17423,26	18768,45	19943,70	20777,90	20572,11	20098,84	19017,52	18481,62	17960,82	17454,70	16962,84	16484,84
Real change in GDP	%	2,41	2,93	6,44	4,29	0,69	4,74	3,55	0,31	-1,88	-6,27	-8,24	-2,51	-2,51	-2,51	-2,51	-2,51
Export to import of goods / services	%	72,02	72,41	74,37	79,76	77,99	69,25	66,21	66,71	70,03	75,25	79,35	81,40	83,55	85,78	88,11	90,55
Economic stability																	
Inflation rate	%	3,66	3,91	3,44	3,03	3,49	3,31	2,99	4,23	1,35	4,70	3,12	3,12	3,12	3,12	3,12	3,12
Budget balance to GDP	%	-4,47	-4,77	-5,65	-7,52	-5,22	-5,80	-6,50	-9,82	-15,59	-10,35	-9,10	-9,10	-9,10	-9,10	-9,10	-9,10
Current account balance to GDP	%	-10,18	-9,00	-8,82	-7,77	-9,07	-12,93	-15,31	-16,10	-11,70	-10,16	-10,14	-10,64	-11,15	-11,67	-12,20	-12,72
Debt burden																	
External debt to GDP	%	51,31	53,17	56,54	67,01	75,09	73,89	79,34	82,38	94,72	82,37	72,98	85,49	98,84	113,05	128,16	144,17
External debt to export of goods / services	%	226,28	264,33	300,00	315,07	346,81	346,08	362,20	355,98	518,70	410,62	321,66	357,22	391,31	423,85	454,75	483,93
Debt service ratio	%	42,67	47,66	58,96	57,81	64,94	67,29	73,33	73,31	93,90	76,69	65,17	72,34	79,22	85,78	92,02	97,93
FX reserves to imports	%	10,82	15,41	6,05	0,96	0,42	0,41	0,40	0,12	0,19	0,11	0,03	0,03	0,03	0,03	0,03	0,03
Transfer quota																	
Interest rate to growth rate of exports	%	8,93	-0,66	1,09	0,29	0,90	1,04	0,71	0,74	-0,28	1,12	1,34	2,96	2,90	2,84	2,78	2,72
Capital flows																	
FDI liabilities to GDP	%	10,80	9,47	10,31	11,29	12,82	15,01	16,23	11,76	12,62	11,53	9,86	9,16	8,52	7,92	7,36	6,84
PI liabilities to GDP	%	48,68	51,99	61,47	74,68	88,75	93,05	106,13	89,72	102,99	70,39	37,95	33,07	28,81	25,11	21,88	19,06
Credit to GDP	%	56,77	60,32	64,05	70,01	79,44	84,99	93,93	97,37	93,90	115,78	117,98	126,43	135,49	145,19	155,59	166,74

Source of raw data: BIS, IMF, OECD, World Bank (2012), Eurostat (2012), IMF (2012)

TABLE 3

KEY RATIOS – SPAIN

| SPAIN | | Copyright: Gerhard Fink and Gerhard Fenz, EuropaInstitut, WU-Wien 2001 | | | | | | | | | | | | | | | |

	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Economic power																	
GDP per capita	Mill EUR	16815,17	17804,15	18796,98	19865,27	21126,81	22521,64	23682,51	24023,59	22868,43	22806,76	23041,28	22620,32	22207,05	21801,34	21403,03	21012,00
Real change in GDP	%	5,04	3,42	4,15	4,25	4,55	4,66	3,90	-0,81	-3,42	-1,92	-1,63	-0,78	-0,78	-0,78	-0,78	-0,78
Export to import of goods / services	%	92,54	93,45	92,57	87,29	83,46	81,03	80,77	82,94	94,00	93,52	98,27	101,61	105,06	108,64	112,34	116,18
Economic stability																	
Inflation rate	%	2,82	3,60	3,10	3,06	3,38	3,56	2,85	4,13	-0,24	2,04	3,06	3,06	3,06	3,06	3,06	3,06
Budget balance to GDP	%	-0,53	-0,21	-0,35	-0,11	1,27	2,37	1,92	-4,50	-11,18	-9,36	-8,59	-8,59	-8,59	-8,59	-8,59	-8,59
Current account balance to GDP	%	-4,14	-3,59	-3,44	-5,22	-6,98	-8,30	-9,31	-8,75	-4,02	-3,78	-2,99	-2,20	-1,26	-0,16	1,14	2,65
Debt burden																	
External debt to GDP	%	26,32	22,22	20,55	23,12	22,67	21,10	18,09	20,73	27,70	26,72	23,97	26,36	27,83	28,21	27,28	24,84
External debt to export of goods / services	%	92,58	81,72	78,33	89,07	88,01	79,79	66,61	77,56	115,07	97,58	78,54	81,56	81,31	77,81	71,07	61,10
Debt service ratio	%	31,64	29,67	27,14	29,42	32,18	36,36	39,17	39,87	40,85	33,94	30,54	30,58	30,03	28,91	27,21	24,93
FX reserves to imports	%	12,96	12,57	5,41	2,66	2,21	1,96	1,66	1,89	2,61	2,67	5,01	4,91	4,83	4,75	4,69	4,63
Transfer quota																	
Interest rate to growth rate of exports	%	2,63	7,99	5,07	2,78	2,77	2,00	3,84	-651,20	-1,77	1,89	2,47	5,30	5,18	5,19	5,37	5,80
Capital flows																	
FDI liabilities to GDP	%	29,55	33,62	34,34	35,56	35,85	35,56	37,79	38,90	41,88	44,75	45,15	47,37	49,70	52,15	54,72	57,41
PI liabilities to GDP	%	48,93	49,70	53,90	66,86	80,10	97,87	103,21	88,06	101,91	91,57	82,15	79,86	77,64	75,47	73,37	71,33
Credit to GDP	%	101,14	105,71	113,17	124,85	145,65	166,98	187,82	202,75	211,74	213,96	205,40	214,40	223,79	233,60	243,83	254,52

Source of raw data: BIS, IMF, OECD, World Bank (2012), Eurostat (2012), IMF (2012)

TABLE 4

Key ratios – Turkey

TURKEY																	

Copyright: Gerhard Fink and Gerhard Fenz, EuropaInstitut, WU-Wien 2001

	Unit	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Economic power																	
GDP per capita	Mill EUR	3209,21	3536,32	3845,93	4450,20	5403,39	5780,92	6772,45	7063,35	6157,26	7584,93	7531,87	7387,77	7246,42	7107,78	6971,79	6838,40
Real change in GDP	%	-52,08	-23,98	-12,03	6,54	13,75	-0,85	3,52	-4,35	-16,88	15,11	-5,24	-1,57	-1,57	-1,57	-1,57	-1,57
Export to import of goods / services	%	112,95	102,85	95,98	90,20	85,56	81,37	81,24	83,39	94,92	78,78	71,94	69,20	66,56	64,02	61,59	59,24
Economic stability																	
Inflation rate	%	56,84	46,95	25,30	10,04	8,13	9,28	8,76	10,44	6,25	8,58	6,47	6,47	6,47	6,47	6,47	6,47
Budget balance to GDP	%	-23,93	-10,20	-8,96	-4,44	-1,17	0,75	-1,52	-2,79	-6,97	-2,61	-1,36	-1,36	-1,36	-1,36	-1,36	-1,36
Current account balance to GDP	%	0,41	-1,36	-2,80	-3,97	-4,91	-6,44	-6,25	-5,92	-2,61	-6,70	-10,21	-13,30	-17,06	-21,59	-27,04	-33,57
Debt burden																	
External debt to GDP	%	11,57	12,52	9,26	8,08	3,40	1,29	-0,63	0,31	1,25	0,35	0,86	14,18	31,46	53,55	81,45	116,31
External debt to export of goods / services	%	44,48	52,74	39,99	34,55	15,53	5,72	-2,80	1,28	5,38	1,64	3,67	55,14	112,17	175,04	244,05	319,52
Debt service ratio	%	25,59	25,11	21,50	17,71	17,22	16,08	14,96	14,14	15,96	13,93	12,53	21,36	31,35	42,56	55,02	68,81
FX reserves to imports	%	36,09	40,24	37,37	29,53	40,08	36,79	35,65	32,83	40,73	37,54	31,12	27,42	24,14	21,23	18,65	16,38
Transfer quota																	
Interest rate to growth rate of exports	%	9,99	13,32	2,18	0,71	0,87	1,40	1,79	1,54	-1,26	1,06	1,22	1,31	1,14	1,05	1,01	0,98
Capital flows																	
FDI liabilities to GDP	%	10,25	7,36	9,90	9,00	15,62	17,23	22,18	11,58	22,67	25,30	19,53	22,09	24,98	28,25	31,95	36,13
PI liabilities to GDP	%	12,87	9,36	8,86	10,68	15,91	15,29	17,36	9,92	14,37	16,10	15,23	15,91	16,62	17,35	18,13	18,93
Credit to GDP	%	13,33	12,03	13,92	16,72	23,43	25,18	30,69	28,92	36,63	42,65	47,80	54,62	62,41	71,32	81,49	93,11

Source of raw data: BIS, IMF, OECD, World Bank (2012), Eurostat (2012), IMF (2012)
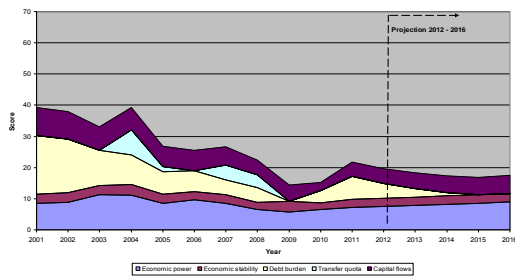
VI. Appendix B - Figures

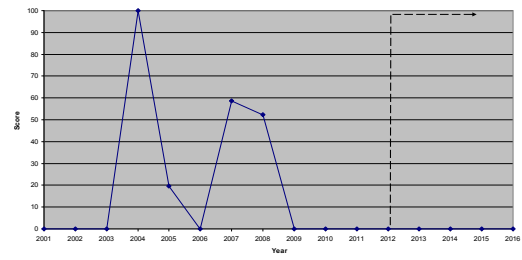Fig. 1. Overall risk assessment, Greece, 2001 – 2016

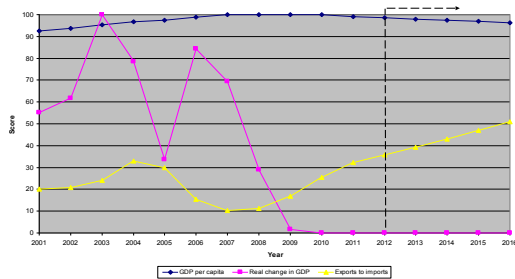Fig. 2. Economic power, Greece, 2001 – 2016

Fig. 3. Economic stability, Greece, 2001 – 2016

Fig. 4. Debt burden, Greece, 2001 – 2016

Fig. 5. Transfer quota, Greece, 2001 – 2016

Fig. 6. Capital flows, Greece, 2001 – 2016

Fig. 7. Overall risk assessment, Spain, 2001 – 2016
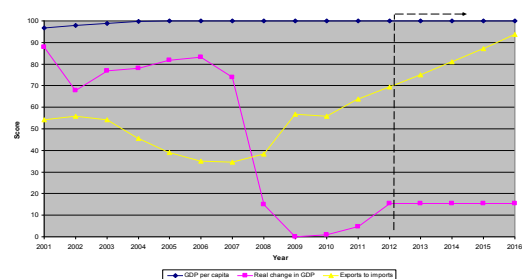
Fig. 8. Economic power, Spain, 2001 – 2016.
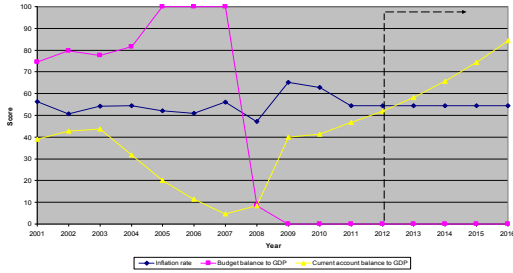
Fig. 9. Economic stability, Spain, 2001 – 2016
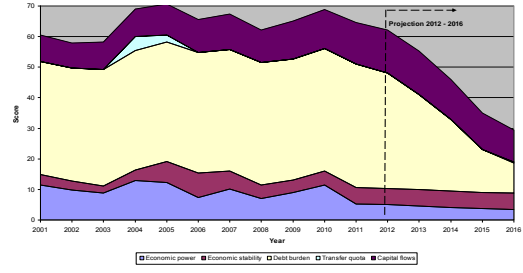
Fig. 13. Overall risk assessment, Turkey, 2001 – 2016
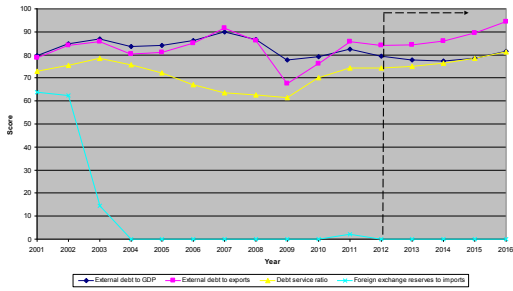
Fig. 10. Debt burden, Spain, 2001 – 2016
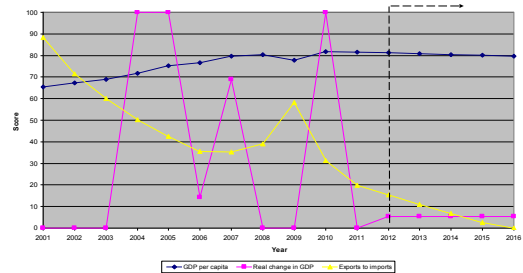
Fig. 14. Economic power, Turkey, 2001 – 2016
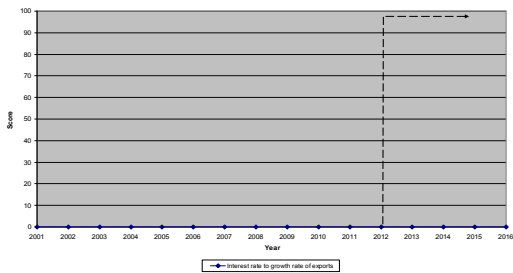
Fig. 11. Transfer quota, Spain, 2001 – 2016
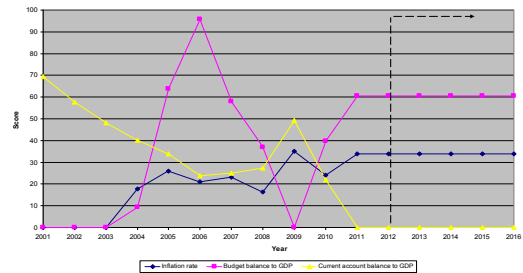
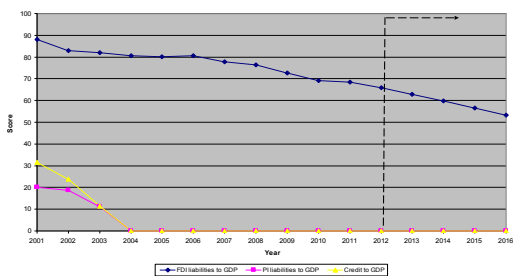Fig. 15. Economic stability, Turkey, 2001 – 2016

Fig. 12. Capital flows, Spain, 2001 – 2016

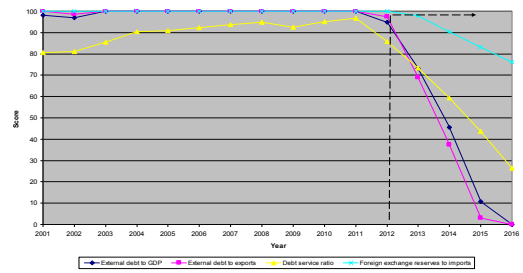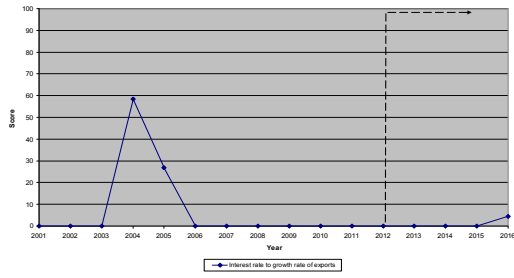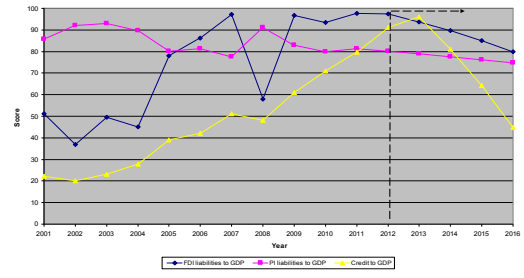Fig. 16. Debt burden, Turkey, 2001 – 2016

Fig. 17 ransfer quota, Turkey, 2001 – 2016

Fig. 18 Capital flows, Turkey, 2001 – 2016