

Economic Country Risks Emanating from Austria's International Exposure

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Austria's special role as one of the leading investors in Eastern and Southeastern European growth markets increasingly raises questions on the risk capacity of Austria's foreign portfolio. Using selected macroeconomic indicators, this article assesses the economic country risk attached to Austria's external assets. A scoring model facilitates the calculation of individual country risks, which are linked to detailed regional data from the external statistics of the Oesterreichische Nationalbank (OeNB), thus enabling us to draw conclusions on the regional and functional risk structure of Austrian international investment. This reveals that, in capital-weighted terms, the developed and leading financial markets of Europe and the U.S.A. have a far stronger influence on total risk than that of the 12 EU entrants since 2004 (EU-12) or the Eastern and Southeastern European countries. Despite its intensive investment in Eastern Europe, Austria's international risk largely stems from securities holdings in developed industrialized countries. The EU-12 account for no more than a fifth of capital-weighted risk, while the region of Eastern and Southeastern Europe represents just a tenth of total exposure. Nevertheless, some growth markets, such as Hungary, Poland, the Czech Republic or Russia, already have more impact on Austria's total risk than some Western European markets. The projection up to 2009 suggests a leveling off in the total risk presented by Austria's external assets. A generally stable development in the EU-27 is somewhat offset by a more unfavorable risk environment in some European growth markets and in the U.S.A.

JEL classification: F36, G11, G15, G32

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Given the upsurge in international financial investment over the past two decades, country risk analyses have become an indispensable component of comprehensive risk management. They can be regarded as an important supplement to individual credit quality assessments of potential borrowers. International investors rely heavily on country risk analyses when planning their regional investment strategy. Banks employ them as an aid in structuring their foreign exposure, setting credit terms, and defining regional country lending limits. Financial investors either base their investment decisions on internal rating models or fall back on the services of commercial rating agencies

Notably for major banks, internal rating models have become far more important in recent years, mainly reflecting the implementation of the new Basel Capital Accord (Basel II), because the now mandatory rating of the borrower with the help of internal models offers greater flexibility than the standardized approach, and hence competitive advantages.²

However, the credit ratings by established commercial agencies – particularly Standard & Poor's, Moody's and Fitch – have been playing a crucial signaling role in the international financial markets for a long time and they have been influencing the refinancing conditions for both public and private bor-

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² *Moreover, notably banks active in the European markets, which are dominated by small and medium enterprises, have no choice other than to apply internal ratings since external ratings focus mainly on large corporations (Walchup 2006).*

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rowers considerably. Although rating agencies have come in for criticism in the wake of the recent subprime crisis – for which they were deemed partly responsible – the persistent increase in the information asymmetries between borrowers and lenders consequent on globalization will continue to form a key commercial justification for these institutions in the future. Independent ratings will remain highly important as an instrument for reducing uncertainties in lender/borrower relations (Büschgen and Everling 2007).

In contrast to the issuer ratings assigned by the large agencies, this study does not relate the term country risk to the sovereign power, but to a country's overall macroeconomic situation. It seeks to assess the economic risks of those countries and regions that bear relevance as targets for Austrian financial investment, looking especially at the Eastern and Southeastern European growth regions. The analysis is confined exclusively to economic risks. Political, legal or institutional aspects of country risks, which are also meaningful in the context of a comprehensive country risk analysis, have been deliberately left out of consideration.

The key assumption of this study is a significant connection between the macroeconomic situation of the borrower's country of residence and the probability of default on the corresponding financial claim. Crisis symptoms in the real economy, such as recessions or rapid currency depreciations, hence generally reduce the likelihood of repayment, no matter which economic sector is liable or what

type of financial instrument is involved. The object of analysis is thus the general economic environment as the key determinant for the repayment capacity and willingness of foreign debtors.² It goes without saying that analyses from this macroeconomic perspective do not compete in any way with individual risk assessments of borrowers, but rather form a supplement to them.

Section 1 explains the model and the risk factors, while section 2 elucidates the model results. Conclusions are presented in section 3.

1 Theoretical Explanations

1.1 Scoring Methods in Country Risk Analysis

Scoring models are among the most popular tools in the field of country risk analysis (Krämer-Eis 1998; Lichtlen 1997). They are based on selected criteria that appear suitable for systematically explaining an economy's risk situation. These factors are weighted and compressed to a synthetic risk measure, the rating. Like other rating procedures, e.g. discriminant analysis or regression models, scoring methods must meet some basic requirements as summarized in table 1.

Table 1

Requirements for Rating Systems

Target measure PD (Probability of Default) can be depicted
Completeness of all information relevant to credit assessment
Objectivity
Acceptance by the user
Consistency with recognized theories and methods

Source: OeNB (2004).

² *Repayment willingness is lacking if borrowers no longer meet their repayment obligations although they would be financially able to do so. Since such conduct would seriously impair their reputation in the capital markets, rational borrowers would only choose this strategy if the cost of losing their reputation is outweighed by that of the repayment. Related to the payment conduct of sovereign states, such a situation is only conceivable in actual crisis scenarios. Repayment capacity and repayment willingness are therefore generally closely related (Blüml and Neus 2004).*

A key advantage of the scoring method is the high degree of transparency that allows us to readily reconstruct the scores and draw intertemporal comparisons. Scoring models have hence become widely popular. They are applied in pure form or in combination with other rating procedures in numerous country risk analyses – including those by the Economist Intelligence Unit (EIU) of Euromoney or by BERI (Business Environment Risk Intelligence) in the form of the Foreland Index (Maltritz, 2006).

Scoring methods are not undisputed, however. The subjective selection and weighting of the influencing factors are particularly subject to criticism. In reality, even when every effort is made to ensure objectivity within the scoring method, subjective influences cannot be totally ruled out. However, since other methods of analysis unavoidably rely on assumptions too, the criticism of a lack of neutrality should be seen in perspective. Even econometric methods are affected by the subjective specifications of the model design.

1.2 Selection and Weighting of Risk Factors

The scoring applied in this study comprises six risk factors in the domestic

economy and three in the external sector, weighted as shown in table 2. These established factors for assessing the macroeconomic situation in a given economy are found in many methods of country risk analysis. This selection is underpinned by empirical studies which demonstrate a high correlation between some indicators⁴ and the credit rating by both Standard & Poor's and Moody's (Will, 2001).

The factors listed in table 2 are appraised within a set interval and are entered in the model in accordance with their specific fixed weighting. This results in a risk coefficient that permits comparisons across different countries or regions.

$$K = DI(Ek_{DI}, Fk_{DI}) + PI(Ek_{PI}, Fk_{PI}) + SI(L, D) \quad (1)$$

K = Austria's total external financial assets

DI = Direct investment assets

Ek_{DI} = Direct investment equity,

Fk_{DI} = Corporate loans

PI = Portfolio investment,

Ek_{PI} = Stocks and mutual fund shares,

Fk_{PI} = Debt securities

SI = Other investment,

L = Credit claims

D = Currency and deposits

Table 2

Scoring Model Factors

Domestic Economy	%	External Sector	%
Income per capita at PPP ¹	20	Current account in % of GDP	10
Real GDP growth	10	Net external liabilities in % of GDP	10
Consumer prices	10	International liquidity (Currency reserves in % of imports)	10
Budget deficit	10		
Government debt	10		
Unemployment rate	10		
Total	70	Total	30

Source: Author's model assumptions.

¹ Per capita income at purchasing power parity (PPP).

⁴ GDP per capita, government debt ratio, rate of inflation. In contrast, no clear link could be found for either real growth or the fiscal balance.

$$R_{global} = \sum_{j=1}^N R_i \quad R_{global}, R_i = \{0..1\} \quad (2)$$

R_{global} = Global risk coefficient on country $j=1 \dots N$, R_i = Risk situation in the investment region i

$$R_{global} = \sum_{j=1}^N \sum_{i=1}^n (F_i \cdot g_i) \cdot \frac{k_j}{K} \quad \sum_i g_i = 1 \quad (3)$$

F_i = Risk factor i , g_i = Weighting of factor i , k_j = Austrian financial assets in country j

$$R_{global(DI)} = \sum_{j=1}^N \sum_{i=1}^n (F_i \cdot g_i) \cdot \frac{DI_j}{DI} \quad (4)$$

$R_{global(DI)}$ = Global risk coefficient from direct investment

DI_j = Claims from direct investment in the region j

The capital weighting is performed with the aid of detailed regional data from the OeNB's external statistics. In this context, the term financial assets covers direct investment assets, portfolio investment (securities) and other investment, essentially loans and deposits (equation 1) in line with the standards laid down in the Balance of Payments Manual, 5th edition (IMF, 1993). The total global risk is made up of the risks of nine different investment regions⁵ (equation 2). Likewise, the global risk can be presented as the sum of the capital-weighted risks of those countries to which the relevant regions belong and which are destinations for significant Austrian financial assets⁶ (equation 3). Moreover, this information structure enables us to assess the risk of individual investment instruments (equation 4).

The key challenge in the application of scoring models lies in selecting the

exogenous variables as well as in fixing the weightings. We require plausible, justifiable assumptions, which convey as true a picture as possible of the functional relations between the determinants and the macroeconomic risk environment. The risk coefficients have no explanatory power in absolute terms, but should only be interpreted within a cross-country or time series comparison. Used within the model, however, they allow us to make a quantitative assessment of the relative risks of individual investment regions or target countries.

Another requirement in selecting the criteria is that the overlap between two or more risk factors should be kept to a minimum. Indicators that supplement each other with marginal added information result in amplification effects and thus lead inadvertently to an overweighting.

1.3 Theoretical Foundations of the Risk Factors

In this study, the macroeconomic risk situation is reflected by nine measures. Each appraisal function ranges from a best case scenario (minimum risk of default) to a worst case scenario (maximum risk). We use linear relations for all factors but one (GDP per capita at PPP)⁷.

Where values fall outside of these intervals, the functional value is equivalent to the nearest limit. A government debt of 140% of GDP is therefore not deemed to present a higher risk than one of 120%, since the latter is already equated with the highest risk of default. The objective in fixing the interval limits was to fully cover the em-

⁵ Western Europe, specifically the euro area, U.S.A., the 12 countries which entered the EU since 2004, Eastern and Southeastern Europe, Asia, Latin America, Africa, offshore areas, other countries. See also table 9 in the annex.

⁶ We examined 67 countries, representing coverage of more than 90% of total capital.

⁷ GDP per capita at purchasing power parity (PPP).

Table 3

Assessment Intervals in the Model

Risk factor	Minimum risk	Maximum risk	Unit
GDP per capita at PPP	30.000	5.000	EUR
Real GDP growth	8	0	% p.a.
Inflation/deflation	C	15/-2	% p.a.
Budget deficit	C	10	% of GDP
Government debt	C	120	% of GDP
Unemployment rate	C	15	% p.a.
Current account deficit	C	10	% of GDP
Net external liabilities	C	120	% of GDP
International liquidity	25	0	Currency reserves in % of imports

Source: Author's model assumptions.

pirically observed data range. Provided this requirement is met, the actual limits that are fixed are of secondary importance for the assessment results. An expansion/contraction of the interval would have no impact on the result but would simply show up in a consistent shift.

GDP per capita May be seen as a measure of an economy's level of social and economic development. In the model it should be understood as a level-indicating parameter, which – relative to the other indicators – reflects the degree of prosperity in the medium- to long term. Compared to the rate of inflation, real growth or the rate of unemployment, GDP per capita remains significantly more stable over time. In view of globalization, prosperous countries are particularly reliant on investor confidence owing to their comparatively high dependency on financing through the international capital markets. If a highly-developed industrialized country fails to meet its financial obligations, it suffers higher economic costs than countries with weaker economic performance. Economic policies hence tend to be risk averse, geared to avoiding a default on payment at all events. At the same time, the govern-

ment in a developed economy has a larger tax base to draw on in the event of an impending liquidity crisis. All in all, the increased significance of these components gives reason to overweight them relative to the remaining factors.

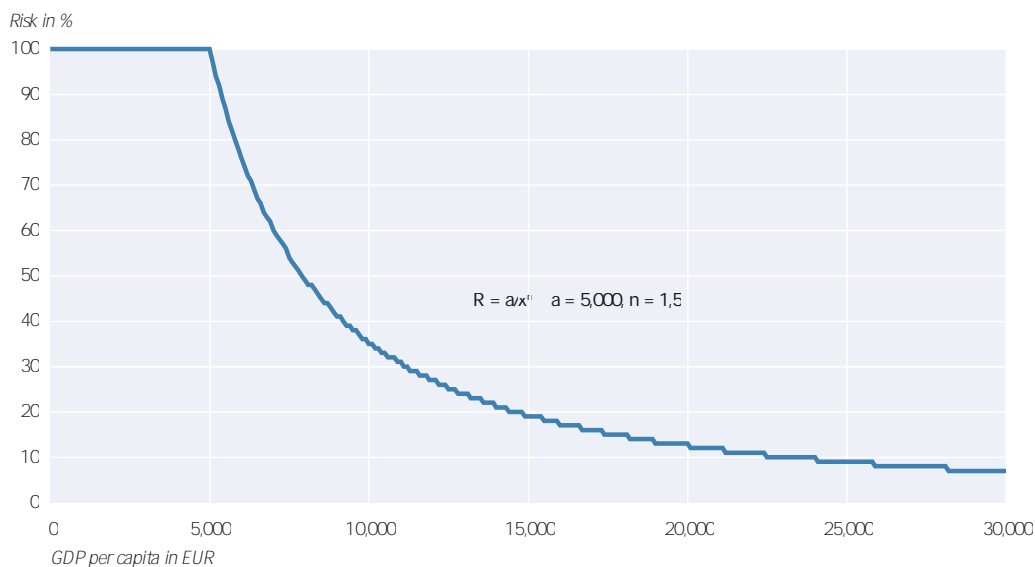
Since, at the edges of the intervals, a linear valuation function overvalues marginal differences in income, we applied an exponential function. High-level differences in income – between around EUR 25,000 and EUR 30,000 – accordingly have clearly less impact on risk than those between EUR 5,000 and EUR 10,000. This function curve also supports the view that marginal capital productivity decreases when GDP increases (Fink, 1993b).

The threshold value for the maximum risk was set at GDP per capita of EUR 5,000. Lower values do not add to the risk. At values exceeding EUR 30,000, this component may be deemed risk-free. In line with economic reality, the income elasticity of risk is comparatively high at around EUR 10,000.

Real economic growth It is quite evident that only expanding economies are creditworthy, since only they can efficiently deploy the capital and repay it with interest. Rapid growth rates point to prevailing brisk economic ac-

Chart 1

Valuation Function for GDP per Capita



Source: OeNB.

tivity, but do not necessarily imply sustained higher prosperity too, since growth markets actually often experience high population growth

Rate of inflation Moderate constant consumer price rises – e.g. in line with the monetary policy target of the ECB of under, but close to 2% p.a. – should be seen as accepted and in no way detrimental to the economy. Given the central function of money as a means of exchange and store of value, the counterproductive effect of higher inflation appears equally indisputable.

The model includes an assessment range of 0% to 15% for inflation, with linear interpolation, implying that a rate of inflation of 15% represents the worst scenario. We can assume that any price rises above that level would have no additional negative impact on the rating. A deflation scenario is also equated with the worst-case scenario. The threshold value of deflation was fixed at –2% p.a. to exclude marginal rates of deflation that fall within statistical tolerance.

Deficit ratio and government debt A sustainable federal budget is often seen a vital indicator of an economy's creditworthiness. However, the literature disputes the precise definition of sustainability. An established approach is the reasoning that, given a constant deficit ratio and stable economic growth, consolidated gross debt converges to a marginal level. The convergence criteria laid down in the Treaty of Maastricht are based on this relationship (Fink, 1993a).

Unemployment rate Under-employment undoubtedly generates macroeconomic costs in the form of lost economic performance and higher social welfare expenses. Allowing for a certain level of hard-core unemployment that is generally unavoidable for frictional and structural reasons, the model defines full employment as a jobless rate of 3% at maximum. The highest risk is marked by the threshold level of 15%.

Current account deficit Sustainable current account deficits signal weak in-

ternational competitiveness, since the import of foreign goods and services cannot be offset by exports. The main risk potential of a current account deficit is that a loss of confidence could trigger a sudden outflow of capital and attendant currency depreciation. The model sets the threshold value for the highest risk level at a deficit of 10% of GDP.

Net external liabilities The International Investment Position (IIP), which reflects external financial assets minus external financial liabilities, can be regarded as an economy's long-term capital reserve. It is affected by the capital transactions booked in the balance of payments statistics on the one hand, and on the other by the wealth effects from currency rates and securities prices, write-downs and other accounting measures. As the IIP is a far more stable measure than the financial account balance, it can be considered as a longer-term structural indicator. Especially in industrialized countries (with the exception of the U.S.A.), net external liabilities remained virtually stable over the past decade (IMF, 2005). Net external debt should be looked at critically, not just because of the aforementioned loss of confidence among investors, but also in view of adverse wealth effects from the ensuing outflows abroad.⁸ Seen in combination with the current account balance, net external debt therefore gives a good picture of an economy's external financial status.

International Liquidity The resources readily available to a country for in-

tervention in the event of undesirable movements in its own currency can be gauged from the level of currency reserves. These are often seen in relation to imports to establish the extent of international liquidity. Currency reserves equivalent to the amount spent on imports in three months are deemed a feasible indicator of adequate credit quality (Fink, 1993a). Given the global importance of the euro and the U.S. dollar, the liquidity risk on those currencies was excluded ex ante.

2 Empirical Findings

2.1 Rating Countries and Regions⁹

We can calculate the non-capital-weighted rating of selected investment regions on the basis of individual country assessments. Revised data on the IIP from the OeNB's external statistics are available for the period from 1996 to 2006, while the year 2007 is based on provisional data. A projection for 2008 and 2009 is based on current economic forecasts¹⁰ and assumes the investment structure of 2007.¹¹

2.1.1 Western Europe and the U.S.A. Show By Far the Most Stable Economic Environment

Table 4 presents the credit quality of Austria's main investment regions. The risk coefficient, which can range between 0 and 1, is allocated to five different rating classes. The ranking of the regions matches expectations. Over the period from 2000 to 2006, both Western Europe, including the euro area, and the U.S.A., which share almost the same risk coefficients, show good or

⁸ In exceptional cases, countries with net external liabilities nonetheless earn net investment income, e.g. the U.S.A. See also the discussion on "dark matter" (e.g. Higgins et al., 2006).

⁹ The demarcation of the investment regions can be found in table 9 in the annex.

¹⁰ Eurostat, European Commission (Spring 2008), OECD, national forecasting institutions.

¹¹ The structure of the financial assets changes slowly over time, even though the U.S. real estate crisis is likely to have prompted certain portfolio shifts in 2008 and 2009.

Table 4

Rating Results for Individual Regions

Regions	Risk coefficient	Credit quality
Average 2000 to 2006		
Western Europe	23%	1
Euro area	24%	1
U.S.A.	27%	2
Offshore areas ¹	27%	2
Asia	31%	3
EU -12	36%	3
Eastern and Southeastern Europe	39%	3
Latin America	42%	4
Africa	42%	4
Total risk, capital-weighted	27%	2

Source: Model results

Note: Rating intervals: < 26 = 1, 26-30 = 2, 31-40 = 3, 41-50 = 4, > 50 = 5

¹ The aggregate "offshore" comprises those financial markets that are located beyond the (fiscal) jurisdiction of their respective country and that are generally subject to considerably lighter regulation. In view of the negligible influence of the local economy on international investment activity in offshore markets, it does not seem expedient to assess the economy of offshore areas in line with the model. In fact, these financial markets should be assessed on the basis of the economic areas in which offshore financial assets are invested. Their ratings are therefore derived from the arithmetic mean of the U.S.A., Western Europe and Asia, since we can safely assume that most of the funds allocated to offshore markets are invested in these major investment regions.

very good credit quality. With a risk coefficient of 31%, Asia is in the middle range, while the Eastern and Southeastern European countries and the EU entrants since 2004 can be assigned to a significantly higher risk class.

Assessments for Western Europe have generally been positive since the mid-1990s, even though a noticeable increase in risk was seen in 2000 and the following years (chart 2). This risk can mainly be attributed to the marked slowdown in euro area growth as well as a deterioration in labor market conditions, notably in Germany.

The U.S.A.'s risk situation developed very favorably up to the end of the 1990s thanks to brisk growth, moderate consumer prices and a tight fiscal policy. However, the bursting of the New Economy bubble, several accounting scandals at listed companies and the

terrorist attacks of September 11, 2001, precipitated a crisis of confidence in the U.S. economy, causing a plunge in growth (2002: +0.8%, real). Subsequently, wider current account and budget deficits were the main risk-driving factors. Owing to the real estate crisis, the economic forecasts for the U.S.A. for 2008 and 2009 suggest a strong increase in risk, largely because of the poor outlook for economic growth and the widening budget deficit.

The risk situation in Asia is mainly hallmarked by the 1998 crisis. Likewise, the Argentina crisis between 1998 and 2002, and its repercussions for the entire region, clearly marks Latin America's risk evolution.

The risk assessment for Africa is flattered by the model's restriction to countries, mainly in North Africa, which are actually the target of Austrian investment. The assessment would otherwise have been considerably less positive.

2.1.2 Strong Positive Trend in Risk Development of EU -12

The risk environment of the EU-12 has seen a continued and marked improvement since the mid-1990s (chart 3).

The determining factor was the in some cases dramatic reduction in inflation. In 1996, some of Austria's main target countries were still reporting two-digit rates of inflation, such as Hungary or Poland with 23.5% and 15% respectively. Price developments in the Czech Republic were also unstable at +10%. The situation had markedly improved when these countries joined the EU in 2004 (Romania and Bulgaria 2007). The risk contribution of per capita income has been slightly declining too. Moreover, the rapid growth since 2001 has had a positive impact. Nonetheless, the labor market

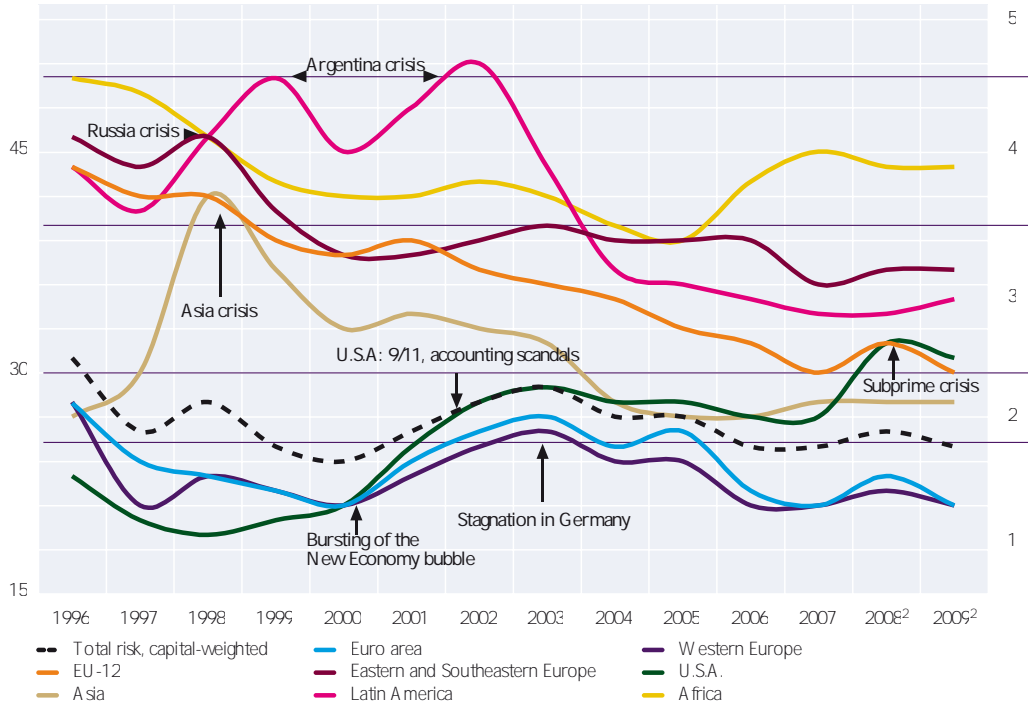
Chart 2

Risk of Selected Investment Regions¹

Non-capital-weighted

Risk coefficient in %

Risk class



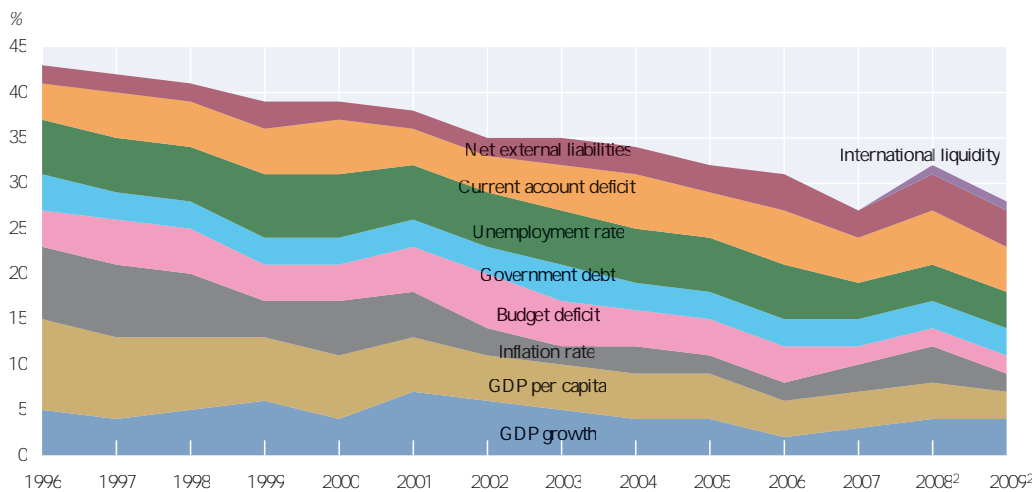
Source: OeNB.

¹ Solely comprises countries in which Austria holds financial assets

² Projection

Chart 3

Risk Factors of the EU-12¹



Source: OeNB.

¹ Bulgaria, Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

² Projection

and the large current account deficit represent persistent risk factors. Current forecasts for 2008 suggest that growth and inflation developments will adversely affect the risk environment. All things considered, however, this region has decisively cast off its status as a high-risk investment target, proving that Austrian companies' exposure to it at an early stage was the right decision from the start.

2.2 Austria's Capital-Weighted International Risk Position

2.2.1 Austrian Financial Assets Concentrated in Developed Industrialized Countries

The combination of investment volumes and the risk situation of individual countries illustrates the paramount importance of western industrialized countries as target areas for Austrian investment (chart 4). While most of these countries score positively as expected, the outcome for Greece and Portugal is comparatively poor. Although they belong to the euro area, their ratings over the period from 2000

to 2006 are no more than average and, as a result of feeble growth, fiscal deficits and unfavorable current account developments, have not shown any upward tendency in the recent period. In line with expectations, the results for Italy and Spain in the comparison across the euro area are also weak. Germany (risk coefficient: 23%) was by far the most important investment region for Austrian investors at end-2007 (almost EUR 120 billion) but was not included in this chart for the sake of proportionate scaling.

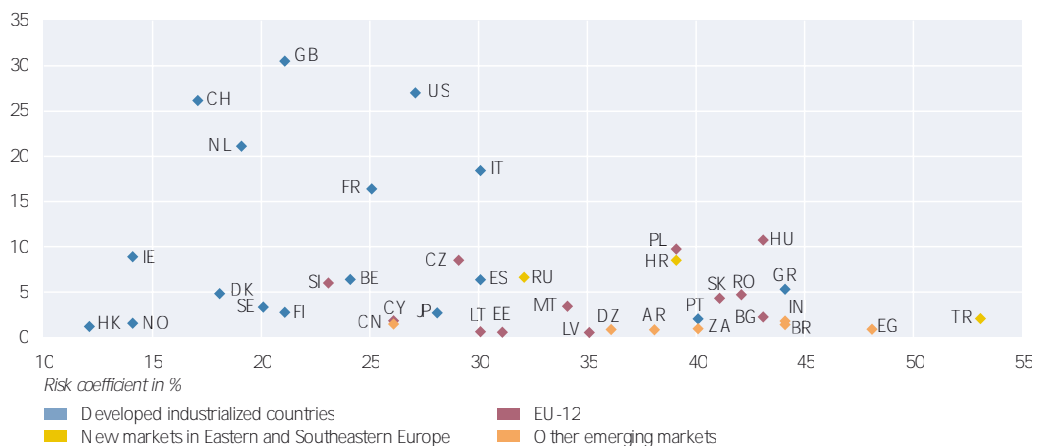
In the EU-12 comparison, Slovenia and Cyprus show a relatively high credit quality, but play a secondary role in terms of investment volumes, whereas Hungary presents a particularly high risk with a coefficient of 43%. Besides low GDP per capita, this reflects a persistently large current account deficit of around 8% of GDP, high net liabilities (2006: 106% of GDP) and a pronounced budget deficit (2006: 9.2% of GDP). Bulgaria (risk coefficient: 43%) and Romania (42%) are also assigned a comparatively weak score. Table 1 in

Chart 4

Risk and Investment Volumes in Individual Target Countries by Stage of Development, 2000-2006

excluding Germany

EUR billion



Source: OeNB.

the annex presents a comprehensive overview of the rating for all investment targets relevant to Austria

The results of the country scoring may now be linked to the detailed regional OeNB data on Austrian external assets, enabling us to establish how seriously the identified macroeconomic risk in individual countries impacts on aggregate Austrian external financial assets. Table 8 in the annex sets out investment volumes and the functional structure of major Austrian investment regions

2.2.2 Increasing Exposure to Eastern Europe Has No Major Impact on Austria's Total Risk

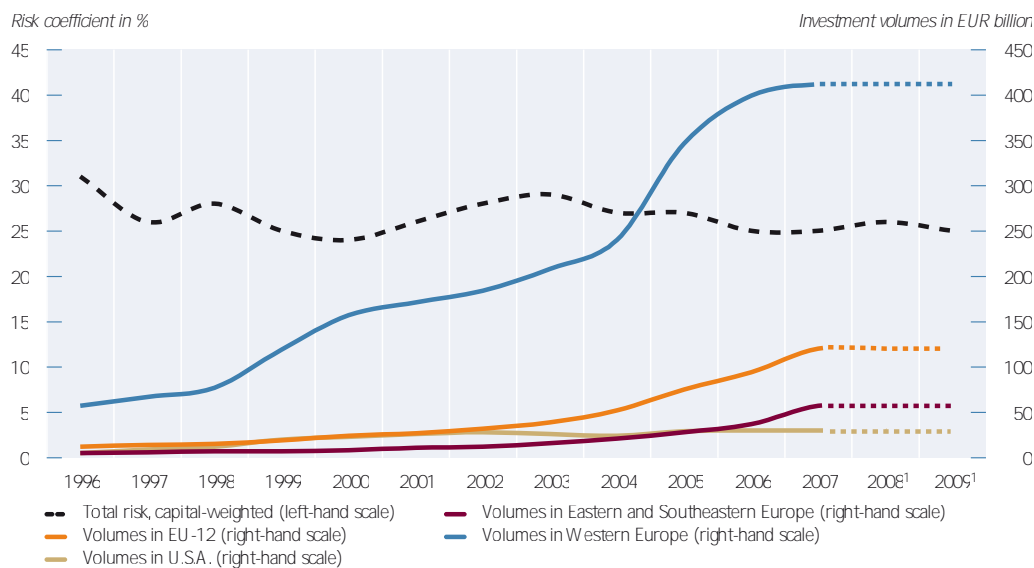
Throughout the entire period under review, from 1996 to 2007, and in the projection up to 2009, Austria's macroeconomic risk remains stable within a corridor from 25% to 30%, equivalent to moderate risk (chart 5). The risk environment displayed a slightly positive trend up to the end of the 1990s, be-

fore a noticeable increase in risk was observed as of 2001, primarily reflecting the economic slowdown in the U.S.A. and in the euro area. Total risk has been gradually easing since 2003, however.

Looked at ex ante, the increasing exposure of Austrian companies to Eastern Europe would suggest a stronger risk expansion, since this region – as shown above – presents markedly higher macroeconomic risks than Western Europe. However, the impressive dynamic development of Austrian external financial assets – which at around EUR 700 billion are now five times higher than in 1996 – all in all did not have an adverse impact on international risk. This can be mainly attributed to the strong growth in assets in Western Europe too, which indeed started from a far higher level. In contrast, the Eastern European growth areas – measured on the financial assets invested there – still have too little weight in the total portfolio to make a significant differ-

Chart 5

Total Risk and Financial Assets in Selected Regions



Source: OeNB

¹ Projection.

ence to total risk. Moreover, the evolution of risks in the EU-12 is consistently positive (chart 2).

The rapid growth in assets in Western Europe results from the marked differences in the investment structure across regions, showing a considerable overhang in securities. The stock market boom since 2003 boosted growth in this segment specifically. In contrast, the lack of well-developed securities markets prompted investors to take holdings in Eastern Europe through loans and direct investment, which could not yield comparable returns

2.2.3 Western Europe Accounts for Half of Total Exposure, the EU-12 for a Fifth

A breakdown of Austria's capital-weighted total risk by regional contributions reveals a strongly Europe-dominated profile (chart 6).

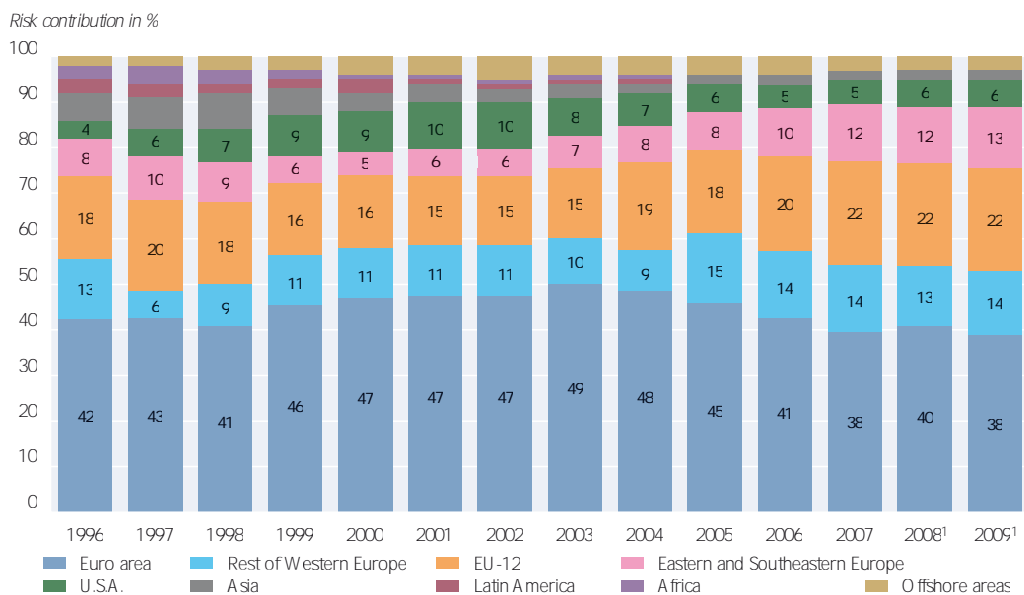
As a result of the large investment volumes, Western European countries

with stable macroeconomic conditions account for more than half of Austria's exposure. The EU-12 contribute around a fifth of the total risk. A similarly large share can be expected for the years 2008 and 2009. As a consequence, the risk contribution from this region has edged up only slightly since the end of the 1990s, implying that Austrian investors' significant exposure to these countries is in no way excessively high risk. The risk contribution of Eastern and Southeastern European countries has also increased since 2002 and, at 13%, will be well ahead of that of the U.S.A. by as soon as 2009. Judging by current forecasts, a difficult external environment and rising inflation are likely to nudge up the risk contribution of Eastern and Southeastern Europe in the years 2008 and 2009.

Aside from during the crisis period 1997 to 1999, Asia has continually represented a risk contribution of less than 5%. Investments in Latin America and

Chart 6

Capital-Weighted Risk Structure by Selected Regions



Source: OeNB.

¹ Projection.

point to a slight deterioration in the risk outlook up to 2009

2.2.6 Direct Investment Exposure
Mainly to Eastern Europe,
Securities Exposure Mainly to
Germany and the U.S.A.

The predominance of European growth markets is also apparent in the area of foreign direct investment (chart 9).

Among the top ten target areas are five growth markets – Hungary, the Czech Republic, Poland, Slovakia and Romania – which together represent a third of total risk. This highlights that, besides lending direct investment is Austria's main financial instrument for opening Eastern and Southeastern European growth markets. Nonetheless, at more than EUR 80 billion at the end of 2007, Western Europe accounts for the lion's share of Austrian wealth from FDI holdings. Just under EUR 40 billion is held in the EU-12

and around EUR 20 billion in Eastern and Southeastern Europe.

It should be noted that no significant FDI interests are found in growth markets outside of Europe, once again underlining the extremely high concentration of Austrian direct investors in nearby countries.

Chart 10 presents the regional risk distribution of the main components of external assets, i.e. securities.

Between 2000 and 2006, Germany accounted for around a third of total capital-weighted risk from foreign securities holdings (table 2 in the annex). The risk concentration is especially high in debt securities, but the Frankfurt stock exchange is also of key importance for Austrian investors. Germany contributes nearly a quarter of the total capital-weighted risk from stocks and mutual fund shares.

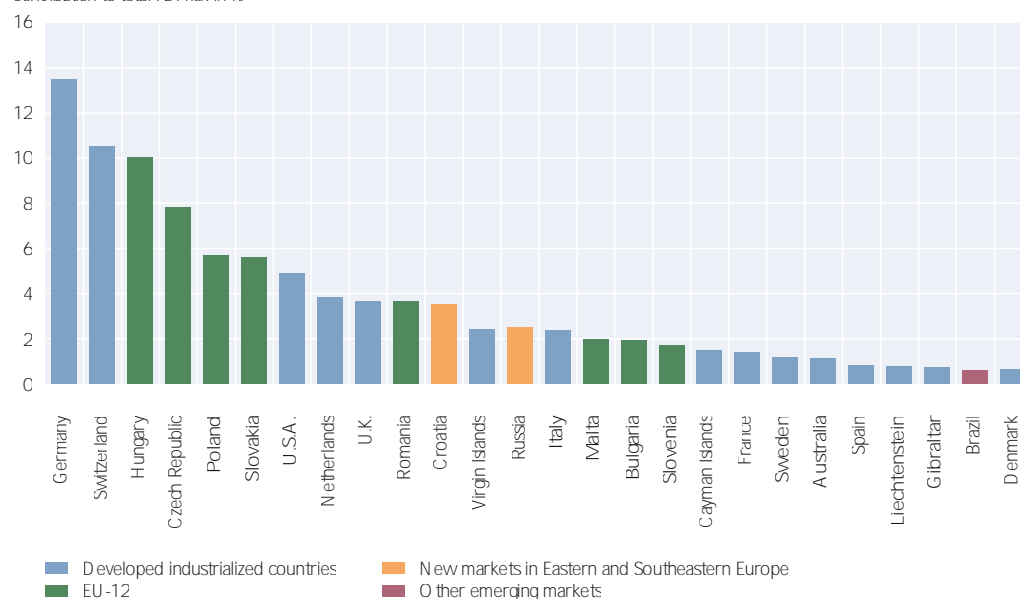
For Austrian investors, the U.S. securities markets, where a fifth of the

Chart 9

Austria's Capital-Weighted Risk from FDI¹ by Countries and Stage of Development

Average 2000-2006

Contribution to total FDI risk in %



Source: Authors' calculations.

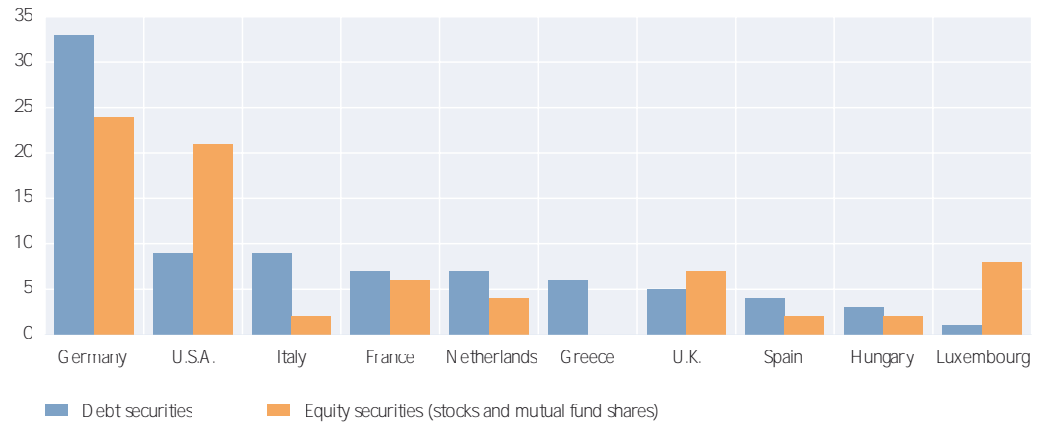
¹ Includes FDI held by special purpose vehicles (SPVs).

Chart 10

Austria's Capital-Weighted Risk from Debt Securities and Equity Securities

Average 2000-2006

Individual contribution to total securities risk in %



Source: OeNB.

Chart 11

Austria's Capital-Weighted Risk Structure by Instrument



Source: OeNB.

¹ Projection.

total risk from equity securities is concentrated, is naturally of exceptional importance too. Measured by capital-weighted risk, Austria's top ten target regions for securities investment are almost all developed industrialized countries

Chart 11 shows the significance of individual investment instruments for Austria's foreign portfolio. Given the increasing trend toward securitization, the share of loans in long-term investment, and hence in the risk structure, is shrinking in favor of securities and

direct investment. The combined risk contribution of these latter instruments increased from one-third in 1996 to more than 60% in 2007. The share of loans, like that of deposits, each contracted over the same period from one-third to around one-fifth of total risk.

2.3 Discussion of Results

The scoring model used in this study consistently fulfills its key purpose of providing signals on the macroeconomic risk development in selected countries and investment regions. All in all, these results neatly match the *ex ante* expectation of a regional risk structure, in which highly developed industrialized countries are deemed to be far less sensitive to macroeconomic crises than developing or growth regions. Prominent crisis developments in the past are duly and timely reflected in the model results. We can thus derive a fairly accurate selection of the determinants and their weighting. The decision to overweight domestic risk factors is consistent with the view that domestic and structural policies hold the key to a stable risk environment (Borio and Packer, 2004). Undesirable trends in the external sector, such as ballooning current account deficits or excessive external debt, which are commonly triggered by regional currency crises, are thus a symptom rather than a cause of a high level of crisis vulnerability. First and foremost, past economic mistakes such as socio-economic and structural weaknesses, which are reflected in, say, higher rates of inflation or unemployment, seem to be the key factors behind an unfavorable risk development. Alternative calculations, which take external factors more heavily into account, give a far less accurate reflection of the actual *ex post* risk evolution in the regions under review than the model set-up used in this study.

In interpreting the results we should bear in mind that the applied method is geared solely to direct risks. Nonetheless, since globalization is rapidly increasing, we should also consider the knock-on effects when assessing the total impact of a regional economic crisis on Austria. An economic crisis in the U.S.A. would have relatively few direct consequences for Austria, but its spill-over effects on the U.S.A.'s main economic partners, such as Germany, would be formidable. Conversely, we could expect a crisis in Eastern European growth markets to have a much stronger direct impact, whereas its knock-on effects would probably be contained because of these countries' relatively moderate degree of globalization.

3 Conclusions

All in all, Austria's international financial investment runs a moderate macroeconomic country risk. This is true for the entire review period from 1996 to 2007 and – judging by projections of the regional and functional investment structure and current forecast data – should apply up to 2009, despite a cloudier economic outlook in some Eastern European countries or the U.S.A. Debt securities held in Western European developed industrialized countries and in the U.S.A. will remain the principal determinant of Austria's international risk. For all investment instruments (direct investment, securities, loans and deposits) Germany continues to be the dominant target region for Austrian financial investors.

Taking the marginal level seen in the mid-1990s as the starting point, the Austrian economy has vastly expanded its exposure to Eastern Europe. Nonetheless, measured by investment volumes, neither the 12 EU entrants since 2004 nor the Eastern and Southeastern

European growth markets, carry sufficient weight in the country portfolio to bear a significant influence on Austria's total risk arising from international investments. Moreover, the risk situation of the EU-12 has steadily improved over the entire review period. Individual growth markets, such as Poland, Hungary or Croatia, indeed already number among the ten main financial target areas, giving them a stronger influence on Austria's total risk than some financial markets in Western Europe. In addition, the forecasts for 2008 and 2009 suggest a continued high-risk environment in Hungary and Croatia.

The risk concentration in the credit segment is clearly higher than in all financial assets on average. Austrian banks' stronger investment focus on the EU-12 and Eastern and Southeastern European countries in recent years

automatically resulted in a higher risk exposure than in the comparatively well-diversified securities business. It follows that a certain concentration risk in these growth markets should not be denied. In view of their strong orientation toward Eastern Europe, Austria's direct investors likewise face heightened risks. Their exposure expanded rapidly in recent years, both in the EU-12 and in Eastern and Southeastern Europe, with the total level at end-2007 already twice as high as in the euro area.

Besides Asia, which represents a risk contribution of around 5%, other regions, such as Latin America or Africa, are virtually negligible for Austria's international exposure because of the extremely small investment volumes.

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Annex

Table 1

Rating Results for Individual Countries

		2006				2000 to 2006		2007 to 2009	
Rank	Country	Risk coefficient	Credit quality	Rank	Country	Risk coefficient	Credit quality	Risk coefficient	Credit quality
1	Hongkong (HK)	6%	1	1	Luxembourg (LU)	9%	1	11%	1
2	Luxembourg (LU)	8%	1	2	Hongkong (HK)	12%	1	6%	1
3	Denmark (DK)	13%	1	3	Norway (NO)	14%	1	12%	1
4	Ireland (IE)	14%	1	4	Ireland (IE)	14%	1	20%	1
5	Netherlands (NL)	14%	1	5	Switzerland (CH)	17%	1	14%	1
6	Switzerland (CH)	14%	1	6	Denmark (DK)	18%	1	14%	1
7	Norway (NO)	15%	1	7	Netherlands (NL)	19%	1	14%	1
8	Finland (FI)	15%	1	8	Sweden (SE)	20%	1	17%	1
9	Sweden (SE)	18%	1	9	United Kingdom (GB)	21%	1	25%	1
10	Slovenia (SI)	18%	1	10	Finland (FI)	21%	1	15%	1
11	Austria (AT)	20%	1	11	Austria (AT)	22%	1	18%	1
12	Czech Republic (CZ)	22%	1	12	Slovenia (SI)	23%	1	20%	1
13	Belgium (BE)	22%	1	13	Belgium (BE)	24%	1	22%	1
14	Germany (DE)	23%	1	14	France (FR)	25%	1	27%	2
15	Cyprus (CY)	24%	1	15	China (CN)	26%	2	27%	2
16	Japan (JP)	24%	1	16	Germany (DE)	26%	2	21%	1
17	United Kingdom (GB)	25%	1	17	Cyprus (CY)	26%	2	24%	1
18	China (CN)	25%	1	18	U.S.A. (US)	27%	2	30%	2
19	France (FR)	26%	2	19	Japan (JP)	28%	2	25%	1
20	Argentina (AR)	26%	2	20	Czech Republic (CZ)	29%	2	22%	1
21	U.S.A. (US)	27%	2	21	Spain (ES)	30%	2	33%	3
22	Lithuania (LT)	28%	2	22	Italy (IT)	30%	2	29%	2
23	Italy (IT)	30%	2	23	Lithuania (LT)	30%	2	31%	3
24	Russia (RU)	31%	3	24	Estonia (EE)	31%	3	36%	3
25	Estonia (EE)	31%	3	25	Russia (RU)	32%	3	30%	2
26	Slovakia (SK)	31%	3	26	Malta (MT)	34%	3	26%	2
27	Spain (ES)	32%	3	27	Latvia (LV)	35%	3	39%	3
28	Malta (MT)	32%	3	28	Argentina (AR)	38%	3	27%	2
29	Poland (PL)	32%	3	29	Poland (PL)	39%	3	28%	2
30	Latvia (LV)	33%	3	30	Croatia (HR)	39%	3	37%	3
31	Romania (RO)	34%	3	31	Portugal (PT)	40%	3	41%	4
32	Greece (GR)	35%	3	32	Algeria (AL)	41%	4	40%	3
33	Bulgaria (BU)	38%	3	33	Slovakia (SK)	41%	4	23%	1
34	Brazil (BR)	38%	3	34	Romania (RO)	42%	4	35%	3
35	Indonesia (IN)	39%	3	35	Hungary (HU)	43%	4	45%	4
36	Algeria (AL)	39%	3	36	Bulgaria (BU)	43%	4	35%	3
37	Croatia (HR)	39%	3	37	Greece (GR)	43%	4	35%	3
38	South Africa (ZA)	43%	4	38	Brazil (BR)	44%	4	37%	3
39	Portugal (POR)	44%	4	39	Indonesia (IN)	44%	4	41%	4
40	Turkey (TR)	45%	4	40	South Africa (ZA)	46%	4	40%	3
41	Hungary (HU)	46%	4	41	Egypt (EG)	47%	4	40%	3
42	Egypt (EG)	46%	4	42	Turkey (TR)	53%	5	41%	4

Source: Model results

Note: Rating intervals: <26 = 1, 26-30 = 2, 31-40 = 3, 41-50 = 4, >50 = 5

Table 2

Rating Results for Individual Investment Regions

		2006				2000 to 2006		2007 to 2009	
Rank	Target region	Risk coefficient	Credit quality	Rank	Target region	Risk coefficient	Credit quality	Risk coefficient	Credit quality
1	Western Europe	21%	1	1	Western Europe	23%	1	21%	1
2	Euro area	22%	1	2	Euro area	24%	1	22%	1
3	<i>Total risk, capital-weighted</i>	25%	1	3	<i>Total risk, capital-weighted</i>	27%	2	25%	1
4	Offshore areas	25%	1	4	U.S.A.	27%	2	30%	2
5	Asia	27%	2	5	Offshore areas	27%	2	26%	2
6	U.S.A.	27%	2	6	Asia	31%	3	28%	2
7	EU-12	32%	3	7	EU-12	36%	3	31%	3
8	Latin America	35%	3	8	Eastern and Southeastern Europe	39%	3	37%	3
9	Eastern and Southeastern Europe	39%	3	9	Latin America	42%	4	34%	3
10	Africa	44%	4	10	Africa	45%	4	40%	3

Source: Model results.

Note: Rating intervals: <26 = 1, 26-30 = 2, 31-40 = 3, 41-50 = 4, >50 = 5

Table 3

Capital-Weighted Risk Contribution in the Securities Segment

Rank	Target region	2006	2007	2008	2009	2000 to 2006
%						
1	Western Europe	67	68	65	65	70
	<i>of which euro area</i>	55	55	56	57	62
2	U.S.A.	9	10	11	11	11
3	EU-12	9	9	9	9	6
4	Eastern and Southeastern Europe	3	4	4	4	2
5	Asia	2	2	2	2	2

Rank	Target country	2006	2007	2008	2009	2000 to 2006
%						
1	Germany	23	21	21	19	29
2	U.S.A.	9	9	10	11	11
3	Italy	7	8	8	8	7
4	France	8	8	8	8	6
5	Netherlands	4	4	4	4	6
6	United Kingdom	6	6	5	6	5
7	Greece	5	5	5	5	4
8	Spain	5	5	5	5	3
9	Cayman Islands	3	3	3	4	4
10	Poland	3	2	2	2	2

Source: Model results.

Note: 2007: Preliminary data; 2008 to 2009: Projection.

Table 4

Capital-Weighted Risk Contribution in the Debt Securities Segment

Rank	Target region	2006	2007	2008	2009	2000 to 2006
%						
1	Western Europe	77	75	76	77	80
	of which euro area	70	67	70	69	72
2	U.S.A.	8	9	10	11	9
3	EU -12	13	11	11	11	7
4	Eastern and Southeastern Europe	2	2	2	1	2
5	Asia	0	0	0	0	0
Rank	Target country	2006	2007	2008	2009	2000 to 2006
%						
1	Germany	26	24	23	21	33
2	U.S.A.	8	9	10	11	9
3	Italy	9	10	10	10	9
4	France	9	9	9	9	7
5	Netherlands	5	5	5	5	7
6	Greece	6	7	6	7	6
7	United Kingdom	6	6	6	6	5
8	Spain	6	6	6	7	4
9	Hungary	5	5	4	4	3
10	Belgium	2	1	1	2	2

Source: Model results.

Note: 2007: Preliminary data; 2008 to 2009: Projection.

Table 5

Capital-Weighted Risk Contribution in the Stocks and Mutual Fund Shares Segment

Rank	Target region	2006	2007	2008	2009	2000 to 2006
%						
1	Western Europe	57	60	60	63	61
	of which euro area	45	48	49	51	50
2	U.S.A.	14	12	13	14	21
3	Asia	6	6	5	5	5
4	EU -12	4	3	3	3	4
5	Eastern and Southeastern Europe	8	9	8	2	3
Rank	Target country	2006	2007	2008	2009	2000 to 2006
%						
1	Germany	18	19	18	17	24
2	U.S.A.	14	12	13	14	21
3	Luxembourg	9	10	13	13	8
4	United Kingdom	8	7	7	7	7
5	France	6	6	6	7	6
6	Japan	3	2	2	2	4
7	Netherlands	2	2	2	2	4
8	Switzerland	3	3	3	4	3
9	Cayman Islands	3	5	4	5	3
10	Ireland	4	4	5	6	2

Source: Model results.

Note: 2007: Preliminary data; 2008 to 2009: Projection.

Table 6

Capital-Weighted Risk Contribution in the Direct Investment Segment

Rank	Target region	2006	2007	2008	2009	2000 to 2006
%						
1	Western Europe	52	45	44	44	41
	<i>of which euro area</i>	15	13	12	12	23
2	EU -12	29	29	29	28	37
3	Eastern and Southeastern Europe	10	19	18	19	8
4	U.S.A.	3	2	2	2	5
5	Asia	1	1	1	1	1
Rank	Target country	2006	2007	2008	2009	2000 to 2006
%						
1	Germany	6	6	6	6	14
2	Switzerland	26	20	22	27	11
3	Hungary	7	8	7	9	10
4	Czech Republic	5	4	5	5	8
5	Poland	4	3	3	4	6
6	Slovakia	3	2	2	3	6
7	U.S.A.	3	2	3	3	5
8	Netherlands	3	2	2	3	4
9	United Kingdom	4	3	3	3	4
10	Romania	9	8	8	10	4

Source: Model results.

Note: 2007: Preliminary data; 2008 to 2009: Projection.

Table 7

Capital-Weighted Risk Contribution in the Credit Segment

Rank	Target region	2006	2007	2008	2009	2000 to 2006
%						
1	Western Europe	38	40	40	40	37
	<i>of which euro area</i>	11	9	9	9	8
2	EU -12	33	32	32	31	27
3	Eastern and Southeastern Europe	17	19	18	19	16
4	Asia	3	2	2	2	5
5	U.S.A.	5	4	4	4	8
Rank	Target country	2006	2007	2008	2009	2000 to 2006
%						
1	Germany	18	17	17	19	14
2	Poland	6	5	5	6	8
3	U.S.A.	5	4	4	5	8
4	Croatia	9	11	11	10	8
5	United Kingdom	3	4	4	5	6
6	Hungary	7	7	6	8	6
7	Russia	2	2	2	3	5
8	Czech Republic	4	4	4	5	4
9	Switzerland	4	4	4	6	4
10	Italy	3	3	3	4	4

Source: Model results.

Note: 2007: Preliminary data; 2008 to 2009: Projection.

Table 8

Austria's Financial Assets by Selected Regions

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
<i>EUR billion</i>												
Western Europe	57	67	77	119	157	171	184	208	240	346	399	412
Portfolio investment	17	25	34	65	86	89	107	124	146	177	194	202
Direct investment	5	6	8	10	13	14	18	18	21	82	84	84
Other investment	34	36	35	44	58	68	59	66	73	87	121	126
Euro area	43	52	63	97	127	134	145	166	192	239	282	301
Portfolio investment	15	21	29	56	75	76	91	107	127	154	169	177
Direct investment	4	5	5	6	10	11	13	14	15	20	22	25
Other investment	24	26	28	34	42	47	40	45	50	65	91	99
EU-12	12	14	15	19	24	27	32	39	52	75	94	120
Portfolio investment	1	1	2	2	3	3	4	6	9	14	18	17
Direct investment	3	4	4	5	8	10	13	14	16	26	31	38
Other investment	8	9	10	11	13	13	15	20	27	34	45	64
Eastern and Southeastern Europe	5	6	7	7	8	11	12	16	21	28	37	57
Portfolio investment	0	1	1	1	1	1	1	2	2	4	5	6
Direct investment	0	0	0	1	1	2	2	3	4	7	9	21
Other investment	5	6	6	6	6	8	9	12	15	18	23	31
U.S.A.	5	9	12	20	23	26	28	26	24	29	30	30
Portfolio investment	2	5	7	11	16	17	16	16	17	20	21	22
Direct investment	0	1	1	1	2	3	3	2	2	3	3	3
Other investment	2	3	5	8	5	7	10	8	5	6	6	5
Asia	7	7	6	7	7	7	7	7	7	10	11	11
Portfolio investment	1	1	1	3	3	2	2	2	2	4	5	5
Direct investment	0	0	0	0	0	0	1	1	1	1	1	1
Other investment	6	6	5	4	4	4	4	5	5	5	5	5

Source: OeNB.

Note: 2007: Preliminary data.

Table 9

Demarcation of Investment Regions

Region	Constituent Countries
Euro area	Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain
Western Europe	Euro area, Denmark, U.K., Iceland, Norway, Sweden, Switzerland
EU-12	Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia
U.S.A.	
Eastern and Southeastern Europe	Albania, Belarus, Bosnia and Herzegovina, Croatia, Russia, Serbia (including Montenegro), Ukraine, Turkey
Asia	China, Hongkong, India, Indonesia, Japan, Kuwait, Philippines, Saudi Arabia, South Korea, Taiwan, Thailand, United Arab Emirates
Latin America	Argentina, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay
Africa	Algeria, Egypt, South Africa
Offshore areas	Cayman Islands, Jersey, Gibraltar, Liechtenstein, Virgin Islands
Others	Australia, Canada

Source: Author's model assumptions.