D. Political Implications and Summary

8. Political Implications

8.1 Reasons for Political Actions

The analysis in the previous chapters highlights different insights and aspects as to why politicians should be interested in the investment portfolios of their citizens. Summarized, the reasons present themselves as follows:

Financial wealth grew substantially in recent years. Investment in stocks gained more attention either directly or via retirement plans.

Portfolios, which are highly diversified as the ones that follow the IAPM, are less risky and more profitable. Especially in the light of the financial crisis and the breakdown of the Lehman bank, politicians and investors became more sensitive for the risk of portfolios and the risk of single shares or bonds.

The latter aspect needs to be judged against the background that (at least according to the media) many investors put most of their money for their retirement on a single address – in this case the Lehman bank. Obviously, neither the advice of their banks nor the financial education of the investors comprises the portfolio view. Another aspect is that the subordinate characteristics of the certificates are not considered in the investment decision. Probably, personal incentives of the financial advisors contribute to disregard the personal situation of their customers.

For politicians, not only is the direct impact on their citizens important, but also the indirect impact via higher taxes and debts because of the need to save banks. As a result of the financial crisis, in Germany, for example, the regulation for banks changed in a way that they cannot buy any positions for their own portfolios without surveying the default risk of a position themselves. This means that banks cannot buy a bond, or share by solemnly trusting the estimation of creditworthiness of an external rating agency as it was usual at least in smaller banks before the regulation. The idea behind the regulation is a more critical look at the characteristics of a single investment. At the same time, a more comprehensive portfolio view is the goal: how does the single investment fit in the portfolio? Does it change the portfolio risk?

One comment to the emergence of the recent financial crisis even goes so far to attribute a massive contribution to the disregard of very old insights of the
capital market theory: the disregard of the CAPM with its rather simple truth that more return is only gained by more risk, and that diversification of assets is a solution (Horsch and Paul, 2009).

The macroeconomic analysis shows that portfolio similarity contributes to business cycle convergence via consumption. More correlated business cycles make it easier for the ECB to set their single interest rate to control inflation as their superior aim and to give similar impulses for the economies in the Eurozone simultaneously.

Although portfolio similarity is only one building block of business cycle convergence, this view has been neglected so far. A growing influence of financial aspects due to steadily growing financial wealth is expected.

The thoughts above can be summarized into a chain of arguments for politicians. The guiding line for political implications should be the following thoughts: the macroeconomic analysis indicates that portfolio similarity contributes to business cycle convergence. This is a positive development for the countries within the EMU and should be supported by politics. As the thought of business cycle convergence is usually not enough for investors to invest internationally, a second thought is that portfolio similarity is achieved if investors follow the IAPM. As the IAPM strategy brings more return and less risk, it will be more feasible and more advantageous for investors to follow this strategy.

For politicians, the following questions result: Why is an international investment strategy often not present in portfolios? How important is the comprehensive understanding of financial aspects in private portfolios? What are the consequences of investment and diversification? What can be done to pursue the goal of international diversification?

The aim of the following sections is to give an overview over approaches to support portfolio similarity, and to sensitive private investors for portfolio aspects. These points may differ across countries, and should therefore just give ideas how to approach the issue. As the main aspect of the dissertation is put on the general dependencies and the econometric background, a half-full policy strategy is provided.

The procedure is set up as follows:

The first step is to summarize the obstacles for a declining home bias and portfolio dissimilarity mentioned so far. In a second step, the ideas discussed to overcome these obstacles are classified. The third step combines the results of the econometric model with recently discussed policy actions.
8.2 Reasons for Portfolio Dissimilarity

In the theory part (part B), the main aspects of the reasons of dissimilar portfolios are already discussed. Complete similarity would be achieved if all investors would follow the same investment strategy. A benchmark or strategy is the optimal portfolio proportioning proposed by the IAPM. This means that ideally, all investors hold a world market portfolio and according to their risk aversion, a proportion of a riskless asset. The advantage is an ideally diversified portfolio which offers simultaneously returns which are above the currently held portfolios. Economically, it is not reasonable as to why the benchmark is not followed. Discussions of portfolio similarity always need to be judged against the background of benchmark choice.

Many investors exhibit a pronounced home bias; that means a home bias higher than the one suggested by the benchmark. Home bias and portfolio similarity, though not congruent, are closely related topics.

A quick summary acts as a reminder for the main aspects of deviation from the benchmark:

- Rational reasons for home bias do not deliver satisfying results in explaining home bias:
  - Not all risks are included in the measurement of home bias. Risks that are mainly local and not tradable are real property or human wealth (e.g. risk of unemployment or illness). Domestic non-financial risks should induce investors to diversify their financial risks even more broadly and internationally.
  - Home bias measurement does not consider the co-movement of stock markets, though empirically, a complete co-movement could not be observed.
  - Transaction costs cannot be a real obstacle because the observed turnover in markets is high.
- Behavioural finance offers explanation resulting from an individual perspective. The keywords of this topic are as follows:
  - Overconfidence, here: to overestimate ones abilities to judge financial developments.
  - Financial cognitive dissonance; not to learn from earlier mistakes and suppress bad experiences.
  - Theory of regret: not to admit that an investment decision in the past was not optimal and to take the consequences and sell the respective position because a new position is uncertain as well. Only if others, seemingly better informed investors sell, might an investor follow.
  - Prospect theory: less probable outcomes like gains are given more weight.
Interestingly, literature focuses on finding out the reasons for home bias and most often does not go the last step to find out the solutions to overcome it. Judged from the listed reasons for home bias, the real background for the reluctance of investors to invest abroad seems to be obvious: as the rational explanations – like neglecting certain kinds of risk such as human wealth risk or transaction costs – cannot be proved empirically; either private investors do not know about the advantages of international diversification, or the behavioural aspects are stronger as rational insights.

In some contributions, it is doubtful as to whether the investors – including institutional investors – fully understand the dimension of forgone returns through purely domestic investment, which is supported by empirical studies on institutional investors as well (Chan et al., 2005; Bluethgen et al., 2008; Coval and Moskowitz, 1999).

8.3 Solutions Discussed in Literature

What are the approaches discussed in the literature? The idea of Bluethgen et al. (2008) is that financial advisers use the results of affirmative studies to advise their clients accordingly. A further suggestion is a regulative or tax incentive for investment funds to invest internationally. A similar direction is taken by Van Nieuwerburgh and Veldkamp (2009) who come to the conclusion that home bias can be explained by the limited abilities of investors to learn about all details of investment. Most investors decide to generate informational asymmetries in concentrating on local stock. Although the authors do not draw policy conclusions, a consequence of their suggestion would be to educate investors accordingly. Foad (2008) stresses the positive impact of immigration on international diversification. The author wants politicians to take these – at least between high income countries – positive effects of labour mobility into account. Within the European Union32, labour mobility is not legally restricted. Because immigration is not a wide reaching instrument because of its small effect on portfolios and is very much depending on a personal financial status, this aspect is neglected in the further discussion.

A solution from the behavioural side is more tangible: Ricciardi and Simon (2000) advice to circumvent psychological and emotional snares by keeping record on own investment decisions including reasons for buying and selling. This leads to a higher control and discipline of oneself in combination with making up objective rules for trading. The goal of this record is to help the investor

32 Besides Norway all countries of the sample are members.
to evaluate own decisions and implement a long-term strategy. In general, a buy-and-hold strategy is superior with regard to performance as compared to high turnovers in the portfolio. One clear objective rule would be to implement the IAPM in the portfolio or buy indices or mutual funds representing the worldwide portfolio.

Put together, solutions can be divided into financial education, regulation and individual investment plans. The rather short summary shows that there is an unsatisfied need for the elaboration of policy solutions. Although the solutions do not go into details, a first judgement is appropriate.

The idea to educate investors and explaining risk and return characteristics of investment seems to be plausible. This would have the advantage to bring in a portfolio view into the investment decision, and an investor’s competence and responsibility for her or his money would be growingly congruent. Ideally, the cultivated knowledge finds its way to the personal investment record and results in a personal long-term investment strategy. In this case, the behavioural limitations could be overcome by giving oneself clear rules even for more difficult times. The disadvantage of this approach is the complexity of the topic and how to “teach” an investor. At the moment, there is nothing like an investor certificate to prove that the investor really understood what he or she is doing. A kind of proof would be examinations which in turn would lead to questions: Who would be responsible for the content? Who pays? Who has to be examined in which fields? At which point of time? How is examination organized? Probably, this plan would not be politically enforceable, too expensive, and would not correspond to the image of the mature consumer. Another solution start at the financial advisor’s side and is discussed in the next section.

8.4 Current Political Discussion of Solutions

An approach that is already in force in some European countries (e.g. Sweden) and planed for other countries (e.g. Germany) is to “teach” the investor by educational standards of the financial advisor or financial planer. This means that certain standards have to be fulfilled to be admitted as an advisor. This would solve some of the above problems: the explanations of the advisor are directed towards a certain product and a certain investor right before an investment. The explanation at hand of a certain product makes the advice less abstract and theoretical. The advisor understands what she or he sells because all advisors went through education measurements. As a consequence, he or she should be able to explain the investment to the customer, including risk and return issues. Timing, organisation and payment issues are solved. The intensiveness of the process depends on the knowledge and experience of the customer.
The issues that are not covered within the procedure above are the ethical standards. Only if a financial advisor considers the whole situation of the investor like time of retirement, personal goals, tax issues, portfolio view, and other investments and not only the certain product can a “good” in the sense of comprehensive advice be the result. Additionally, the advisor should have the ability to explain complex facts to the investor in an easy language. These ethical standards and comprehensive view are established on a voluntary base in many European countries through different organisations. Examples are EFICERT (European Financial Certification Organisation) (European Financial Certification Organisation, 2010) with currently members mainly from insurance unions, the EPFA (European Financial Planning Organisation) (European Financial Planning Organisation, 2010) with several universities, banks and insurances as members or the Financial Planning Standards Board (Financial Planning Standards Board, 2010). In most countries, as stated above, financial advisory is on volunteer levels. This could – but does not necessarily have to mean – that education of financial advisors and planners is on very different levels.

Partly, this issue can be offset by regulation – regulation in the sense that personal incentives of the advisor, e.g. provisions, should not play a predominant role in process of the advice, and that a comprehensive view on the investor is assured.

The researcher would like to have a closer look at the solution currently discussed in Germany to check whether it could be a possible solution and blueprint for other countries to promote international diversification in the portfolios of Europe. Basically, the policy solution discussed in Germany focuses on the financial advisor and primarily addresses the risk side. Ten theses have been formulated by the German ministry that is responsible for consumer protection to support the aim of a better quality of financial advisory for private investors. These theses can be outlined as follows (Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz, 2009):

1. The needs of investors have to be the background and reason for recommendations – not sales incentives.
2. The “average” investor is the benchmark for thoughts on how to achieve the first thesis although financial education for investors is desirable.
3. Financial advisory should follow structured lines. Coverage of the process depends on the situation (wishes of the investor, experiences, etc.).
4. Needs for living have first to be covered.
5. Recommendations for products for a financial investment should depend on the goal of the investment and the risk the investor is able to take.
6. A product sheet should inform about all costs and risks of a product.
7. Interest conflicts need to be articulated before the advisory, this means the advisor has to disclose whether she or he gets provision from the product placement.

8. The profession of an independent financial advisor or planner is established.

9. Financial planners needs to proof qualification and further training. Proof needs to be disclosed to the government.

10. Advisors need to take liability on their recommendations.

Interesting for the promotion of international diversification are the arguments that are specific to risk issues, including the comprehensive view on the investor. Risk issues are decisive because an IAPM-portfolio features low risk. Product specific themes are less important because there are several providers and products which include international diversification. Hence, these aspects, although important for consumer protection, are not directly linked to the guiding question here. In this respect, the postulations made in hypotheses numbers three, five, six, nine and ten are those that deserve a closer look.

The fifth hypothesis wants to make sure that investment strategies are made according to the situation the investor is in. This includes time dimensions as well as risk. In general, a risk adverse investor should not invest in shares in a short-term horizon. For longer periods, especially if the risk component is considered, it is safer to diversify risks. One has to keep in mind that shares are usually not considered as safe products but if one goes into this investment category, e.g. because of the returns, the diversified structure is safer.

The sixth hypothesis wants to achieve that the risks of a product can be understood by the customer. Banks in Germany already implemented the product information sheet after political pressure in the aftermath of the financial crisis. In the sense of the IAPM, internationally diversified investment should score well in risk and return categories if it is accompanied by the meanwhile mandatory protocol of the advisory process. The protocol is only for stock market investment and it should make sure that a comprehensive view on the investor is kept in mind (thesis number three).

Following thesis number nine, the certification of qualification, accomplishes the understanding complex financial products with the goal to transport the insights of the education to the customer, with a focus on risk issues.

The risk issue is further strengthened by the postulation of thesis number ten. Experience tells that punishment often works better as positive incentive. In this sense, the liability of the advisor strongly supports the risk issue.

Summarized in an ideal, a well-educated financial advisor should have a comprehensive view on an investor. If necessary, this comprehensive view is enforced by protocols and product information. Product information should...
enlighten the advantages of an internationally diversified portfolio in the sense of risk and return. If this investment strategy is ideally accompanied by a seriously taken measurement plan – what to do if certain events come into force such as a loss – a win-win situation should be a consequence. The advisor gains reputation, the investor gains from a higher financial income, the government from profits from well-off citizens, and the ECB transcends from a contribution to higher correlated business cycles. However, one should not forget that the risk advantage of the IAPM does not necessarily apply to all investment strategies. An investment into, for example, the savings account of a bank brings less risk – but less return as well.

One gap comes from those investors who feel competent and do not want any advice, but are not competent. A small security net comes from the regulation that usually for the first investment in a certain product type or risk type advice is mandatory. If the first advice is ensured, at least a certain level of information should be reached.

The flaw in this strategy is that the ideal world does not exist. Investors might disregard their own measurement plans, stock markets might react differently as in the past, investors do not follow pieces of advice, or shocks might distort business cycle convergence. The ideal world is still a good picture to start with and initiates the idea of diversification.

8.5 Target Group for Measurements

The improvement in financial planning aims at supporting international diversification and portfolio similarity. For which countries is the support of similarity important? Several groups can be listed:

Especially for those countries that have very dissimilar cycles as compared to other countries, it is important to support similarity. These countries should be careful not to strengthen negative impulses on correlation out of financial wealth. This is quite important for countries who want to join the EMU. They ideally already possess highly correlated cycles or their cycle converges with the EMU countries’ cycles.

For countries with relatively high financial wealth, on the one hand the development out of financial wealth is more important with regard to absolute size. On the other hand, for rich countries, the propensity to consume out of wealth might be smaller. Therefore, “relative” wealth needs to be assessed with regard to income: the higher the relation of financial wealth to income is, the higher I expect the effect on consumption.

The first two points should be seen in combination with dispersion of financial wealth. A country with highly dispersed financial wealth (often market-based
economies) will probably have a broader effect out of it on consumption. However, one cannot automatically conclude that portfolio similarity is not important for banking-based economies because the base of people buying stock seems to become broader. Therefore, this information is again only taken as additional information.

A third group might be deduced from the aspects just discussed: countries with small financial wealth probably show a higher propensity to consume out of wealth as rich countries. On the other hand, the influence out of financial wealth on consumption is probably too small at the moment to have great influence. For the (financial) future of those countries, they should still try to support diversification strategies.

To pick out countries according to the criteria listed, the criteria needs to be more specific. What are countries with dissimilar cycles? First of all, the final interest lies in GDP correlation and not in consumption correlation although consumption correlation is an important part of it. Second, a country perspective is taken. This means that GDP correlation coefficients of a country towards all other countries are taken into account. Third, there is the question about the size of the correlation coefficient to consider cycles as similar, or as Artis, Krolzig, and Toro (2004, p. 4) put it: [...] “question of how large correlations should be before we can talk of a European business cycle”. The European business cycle is interpreted as a correlation high enough to speak of similar cycles. Following the just mentioned study (Artis et al., 2004, p. 13), I use an average coefficient of 0.5 as a benchmark for the EMU countries.

The second question is the specification of criteria for Non-EMU-countries. First, only Non-EMU countries that want to join the monetary union are considered. Here, Non-EMU is defined as countries that were not members of the EMU before 2001. In the sample, this applies to the Slovak Republic, which joined in 2009. Greece joined at the beginning of 2001 and is considered as an EMU country. Countries in the sample that officially plan to join the EMU in the future are Bulgaria, Estonia, Hungary and Romania. For Denmark and Sweden, it is not clear if they would decide to join. Norway is not a member of the European Union and cannot join the EMU. The three mentioned Scandinavian countries are not considered in the analysis. For Non-EMU-countries, a benchmark of 0.5 seems to be too high as almost no country achieves this value on average. For those countries, a positive correlation with the EMU countries (average coefficient is above zero) is used as a threshold. Within the calculation of the average correlation coefficient, only the current EMU countries are taken into account because it is not clear in advance what the composition of the EMU looks like when the respective countries join.

The importance of financial wealth is considered to be “high” if it is at least one and a half as much as disposable income.
The tables below summarize the results and the criteria and classify countries.

Table 22: Data for Classification of Target Countries

<table>
<thead>
<tr>
<th>Average correlation coefficients within EMU countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT</td>
</tr>
<tr>
<td>0.6458</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average correlation coefficients of EMU candidates with EMU countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUL</td>
</tr>
<tr>
<td>0.5015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average Proportion of financial wealth / income</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOR</td>
</tr>
<tr>
<td>0.3169</td>
</tr>
</tbody>
</table>

| ESP | GER | AUT | POR | FRA | NET | ITA | BEL |
| 1.2816 | 1.3799 | 1.4030 | 1.5061 | 1.5155 | 2.2822 | 2.5264 | 2.9593 |

Database: Eurostat; own calculations

Table 23: Target Countries for Policy Implications

<table>
<thead>
<tr>
<th>Target countries for policy implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>criteria</td>
</tr>
<tr>
<td>countries with dissimilar cycles</td>
</tr>
<tr>
<td>– within EMU</td>
</tr>
<tr>
<td>– EMU candidates</td>
</tr>
<tr>
<td>high financial wealth</td>
</tr>
</tbody>
</table>

Information on financial system:
(m) = market based
(b) = banking based

Database: Eurostat; for financial system see Section 2.3.3; own compilation
The results do not come as a surprise. The financial wealth criterion is only fulfilled by EMU countries. These countries should have a closer look at their portfolios, especially the Netherlands because of their market-based system. Within the EMU, only Greece has a smaller correlation with the other countries as 0.5; the Greek correlation is even negative. For Greece, giving up the power over monetary policy was not optimal in the years of investigation. Among the candidate countries, only Bulgaria has correlation above 0.5; Hungary and the Slovak Republic exhibit negative correlations.

Then again, portfolio similarity is only a contribution to business cycle convergence. Other components of the business cycles, like income development, should be supported to achieve consumption correlation or trade linkages should be intensified. For the mentioned countries, especially those with negative correlation towards the EMU countries, mere portfolio similarity is not enough to pursue in order to achieve convergence of business cycles.

9. Summary

The motivation of the dissertation arises from the perspective of a member of the European Union. In an optimal currency area, business cycles are perfectly correlated. If business cycles are not highly correlated, different signs emanating from different countries might lead to inflation containment policies that are not optimal for all countries.

The main ambition of the dissertation is to contribute to the solution of the question as to whether private portfolio composition contributes to business cycle convergence. The possibility of a portfolio contribution to business cycle convergence has not been discussed in the literature so far. At first sight, the interdependence might not be intuitive. The logical chain of the interdependence is built up in seven hypotheses:

1. The consumption-wealth linkage exists.
2. The IAPM is a plausible investment strategy. It is likely that investors behave according to it; therefore, the optimal portfolio weights derived by the IAPM can act as a benchmark to measure home bias.
3. Portfolios in the sample became more similar.
4. A lower home bias is an influencing parameter for a higher similarity of portfolios.
5. A higher similarity of portfolios results in more similar returns out of this investment.
6. Similar investment contributes to consumption cycle convergence.
7. A convergence of consumption cycles contributes to business cycle convergence.
The hypotheses have been proved in the dissertation by different methods. A sample of 18 European countries was used for an empirical analysis of the hypotheses in a time range from 2001 till 2006. The following table summarizes in which sections the conclusion was drawn that the respective hypothesis is applicable. A more thorough summary can be found in the next sections.

Table 24: Summary of Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis No.</th>
<th>Short description</th>
<th>section</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>consumption-wealth linkage exists</td>
<td>2.3.2</td>
</tr>
<tr>
<td>2</td>
<td>IAPM is a plausible benchmark</td>
<td>4.7</td>
</tr>
<tr>
<td>3</td>
<td>portfolio similarity increases</td>
<td>5.2</td>
</tr>
<tr>
<td>4</td>
<td>lower home bias contributes to higher portfolio similarity</td>
<td>5.3</td>
</tr>
<tr>
<td>5</td>
<td>higher portfolio similarity leads to higher similarity of returns</td>
<td>5.3</td>
</tr>
<tr>
<td>6</td>
<td>similar investment contributes to consumption convergence</td>
<td>7.2.5.2</td>
</tr>
<tr>
<td>7</td>
<td>consumption convergence leads to GDP cycle convergence</td>
<td>7.2.5.2</td>
</tr>
</tbody>
</table>

9.1 Hypothesis 1

The consumption-wealth linkage investigates the influence of marginal changes in wealth on consumption. The main interest for the dissertation lies in financial wealth. Higher financial wealth provides a capital stock for (later) consumption and a source for income out of financial wealth. A literature review reveals that the impact of wealth on consumption is much smaller as the impact of income although which the latter is economically not negligible. A marginal increase of wealth leads to about two to four percent higher consumption. The higher aggregated impact of financial wealth is, the more wealth is dispersed in a country. A concentration of wealth means less consumption out of it because of decreasing utility functions.

Own empirical analysis finds out that the Eastern European countries show substantial private financial wealth growth rates, whereas wealth stays roughly the same in EMU countries. Stocks and bonds became more important on average in the countries of the sample. The proportion of bonds and shares in a private wealth portfolio amounts to roughly 42 % in 2006.

9.2 Hypothesis 2

To a certain proportion, financial wealth consists of stock market wealth or bonds. It can be observed that the proportion grew in recent years and it is ex-
pected that it will rise further. A reason for this expectation is because e.g. parts of retirement plans are increasingly invested in bonds and shares. Although the importance of these kinds of products rises, the development is not reflected in more sophisticated investment strategies.

The theoretical backgrounds of portfolio theory presented in the dissertation entail in the investment strategy offered by the Capital Asset Pricing Models (CAPM). The basic ideas of this model are that first of all, not only return expectations should be included in investment decisions but risk expectations as well. Risk can be minimized by not “betting on just one horse” but diversifying investment, e.g. over different branches and maturities. One step further goes the International Asset Pricing Model (IAPM) that recommends diversifying not only nationally but internationally. Country risks and implicitly concentration risks on branches or certain companies are reduced. Optimally all investors hold a portfolio that reflects the world market weights of a respective country. The risk aversion of an investor defines the proportion of a riskless asset in the portfolio, but still the “risky” part is diversified. It can be concluded that for this strategy the world economic development is the driving factor of risk. Theory, confirmed by empirical studies presented in the literature review, demonstrates that not only risk is reduced by following the IAPM, but return is higher than a single country strategy. The empirical study conducted in the dissertation confirmed the superiority of the IAPM on a broad country base and with a relatively new time series.

If the IAPM is a plausible investment strategy, it is a plausible starting point to measure home bias as well. Optimally, an investor holds only as much domestic assets in a portfolio as can be founded by the domestic world market weight. Home bias is the deviation of the actual weight from the optimal weight and is quite pronounced in many countries. So far many studies concentrated on a small number of countries or on institutional investors. Newer data from the IMF and Eurostat are available to give an indication for private portfolio holdings. Optimal weights are calculated by stock market data of the World Federation of Exchanges, representing many stock markets including the major ones. The data approximates optimal (world market) weights. The empirical analysis concludes that home bias is indeed declining for most countries. The exceptions are Eastern European countries that are still reluctant in investing abroad because their financial markets have just been opened.
9.3 Hypothesis 3

A reduced home bias does not automatically mean that portfolios are diversified well because the benchmark is not only the domestic market but the world market. This leads to the aspect that a decreasing home bias does not necessarily imply a higher portfolio similarity of two countries although these topics are closely related to each other. Why does portfolio similarity contribute to business cycle convergence and why is home bias not enough? If portfolios are very similar, their performances are very alike and similar returns and losses are generated. If the marginal propensity to consume resembles, the impact of portfolio wealth on consumption has the same characteristics. This general idea applies whether portfolio holders follow the IAPM or not. Home bias, on the other hand, often goes hand in hand with portfolio similarity as the results of the empirical analysis indicate. However, it does not necessarily mean that portfolios are similar.

Similarity is measured with a specialisation index that has been applied before to measure industrial structures. The specialisation index is calculated pair wise for 153 country-pairs. The index considers the similarity of the portfolios of two countries by taking differences between the portfolio weight of a certain country into country A and B. Empirically, it was assumed for the EMU countries that the Eurozone is considered as one country with regard to the closely integrated financial markets. The results being averaged over all country-pairs clearly show that portfolios become more similar in the time of investigation: the specialisation index declined from 1.36 in 2001 to 1.08 in 2007. The results differ between country-pairs within the EMU (called EMU2) and country-pairs which consist (partly) of countries outside the EMU (EMU1 or EMU0). Whereas the EMU2 pairs have a relatively high similarity at the beginning, EMU countries tend to broaden their investment outside the EMU and do not necessarily follow the same investment strategies. On the other hand, the EMU1 group invests more and more within the Eurozone and its index declines highly.

9.4 Hypothesis 4

Hypothesis 4 could have been endued with the question: why care about home bias if portfolio similarity is enough to explain its effect on consumption? The answer is the close relationship between these two aspects. As analysed above, a low home bias does not necessarily lead to portfolio similarity. Though not necessarily, empirically there are indications that the development of both aspects follows the same path. As simple as it sounds, if home bias decreases, investment must go “somewhere abroad”. This “somewhere” is probably not coincidentally
chosen. Topics such as international diversification gain more interest especially in the aftermath of the financial crisis – even in popular media. An investor is probably sensitised for portfolio allocation and thinks more carefully about diversification aspects.

9.5 Hypothesis 5

The basic idea of thesis five is that similar portfolios generate similar returns. If the marginal propensity to consume out of wealth is the same on a macroeconomic level, similar impacts on consumption can be expected. A dispersion of portfolio returns would indicate different effects on consumption out of financial wealth. Returns are calculated according to the data of the Datastream total return index. A drawback of this approach is that indices are used to approximate portfolio returns. This presumes that the aggregated portfolios of investors of country A in country B reflect the index composition of country B, otherwise returns do differ from the calculated one. As the portfolio composition within countries is not available, approximation is the best data available. Due to the high number of investors in a country the error is probably a minor one. The empirical analysis which opposes the averaged specialisation index of each country-pair to its difference in returns brings out that portfolios with a lower index have more similar returns indeed. The returns of the EMU2 pairs tend to be quite similar. Another trend is that portfolios become more similar over the years. It cannot be answered definitely whether the source of similarity derives mainly from an increased portfolio similarity or a general convergence of stock markets. Probably both developments make their contributions.

9.6 Hypothesis 6

The central points of the dissertation are hypotheses six and seven, the linkage of portfolios to consumption and business cycle convergence. This is an insight that is new to the literature. Consumption and GDP are deflated and de-trended by a Hodrick-Prescott filter to distinguish the difference between the trend component and the cycle component of the business or consumption cycle. The resulting time series are correlated in a moving time-window of five years to cancel extraordinary developments. A first positive indication for both hypotheses is conducted by opposing the specialisation index and consumption correlation or business cycle correlation respectively.

For further research, an econometric model is used to underpin the hypotheses in a more formal way. The 153 country-pairs are taken separately to uphold
as much information as possible and to demonstrate the general linkage of portfolio and consumption. The chosen model is a fixed effects model, because the fixed effects model is a panel data model designed for a rather small time period (here: 2001 till 2006) and a clearly bigger number of units (here: country-pairs). Another reason for the choice of fixed estimation is that it allows for different constants, that is different initiating levels of consumption or GDP correlation of the different country-pairs. On the other hand, fixed effect estimation implies that the slopes of the correlation coefficients are the same; that means all country-pairs react identically towards a change of the regressors. The appropriateness of the fixed effects estimation is validated by the Hausman tests. In some estimations, a random effect model is implemented because it is more efficient and the Hausman test shows its consistency. Both, disposable income and financial wealth, are included on top of the portfolio similarity to get a more complete picture on consumption. To integrate financial wealth, the differences between two country-pairs are taken: The more similar financial wealth and disposable income per head are in two countries, the more similar should be effect on consumption. The usual data diagnostics are conducted and the problematic data attributes, serial correlation and heteroscedasticity is accounted for by correcting standard errors.

The results of the econometric model turned out as expected for the whole sample and the EMU1 country-pairs: A lower specialisation index (that means, a higher similarity of portfolios) means increased consumption correlation; lower differences in disposable income and financial wealth shows a positive effect on consumption correlation as well. For the EMU1 pairs it is expected that especially income similarity will contribute to consumption convergence in the future. Interestingly, the countries within the EMU income and financial wealth did not prove to be significant. A reason might be because these countries are quite homogenous. Portfolio similarity, on the other hand, was highly significant in the EMU2 pairs. To conclude, portfolio similarity is important to all country groups in the sample.

9.7 Hypothesis 7

The final part of the chain is to show that consumption synchronisation is the channel for business cycle synchronisation. The method used for this estimation is a two-stage least-square approach (2SLS), using the results of the consumption estimation above as an instrumental variable for consumption. Two-stage least-squares is not used as an instrumental variable approach as it is generally used. Instrumental variables are necessary if one of the regressors is correlated with the
error term, which is not applicable here. Here the approach is used to filter the effect on GDP via consumption, which is in turn influenced by portfolio similarity, financial wealth and income. The correlation of the endogenous variables with the error term is not a necessary precondition to use an instrumental variable approach though a sufficient precondition. The 2SLS approach requires that the instrumented variable, consumption correlation, is not correlated with its instruments, namely, the three variables portfolio similarity, financial wealth and income. Statistical tests indicate that this precondition of uncorrelatedness is not fulfilled. For these reasons, the instrumental variables are instrumented by their own lags to a maximum of two lags to achieve satisfactory statistical characteristics. For the country-pairs that are within the EMU the adapted equation with lags does not bring statistically significant results. It cannot be excluded that within the EMU the variables do not contribute to business cycle convergence in the time of investigation, although this transmission channel is economically intuitive. Reasons for the impact on EMU2 country-pairs might be the already predominating similar level of the variables and the high level of business cycle correlation. For the other country-pairs and the overall sample the general coherence of portfolio similarity and business cycle convergence is confirmed. This insight is important as leverage points for political actions and focuses especially for the countries outside the EMU that consider joining the monetary union. For country-pairs whose cycles are on a lower level of correlation a higher impact of the investigated variables is expected.

Hypothesis number seven closes and proves the chain to the main statement of the dissertation and novel insight: Similar portfolios contribute via a convergence of consumption cycles to a convergence of business cycles.

9.8 Outlook

The topic of portfolio similarity deserves a closer look in some respects either because of the lack of data or because of the focus of the dissertation wherein some topics have not been covered by the dissertation. Some suggestions for further research are as follows:

The role of dispersion of financial wealth in combination with the financial system needs to be analyzed in more details. So far data is missing to judge on the distribution of stock market wealth. The dispersion of wealth might be a driving factor for its impact on consumption.

An open question that is closely related to the topic of wealth distribution is the question of the financial system. If the financial system influences ECB monetary policy after some years of EMU experience went by has not been answered yet.
For the Eastern European countries comprehensive and comparative studies on the consumption-wealth linkage are missing. In a growing EMU it is important to understand how new members react to changes in wealth.

The role of portfolio similarity in the event of shocks needs to be answered. Will portfolios act as a cushion if e.g. output shocks occur? Is portfolio similarity a key for risk smoothing?

The latter topic is probably related to the question, if financial wealth and portfolio similarity lead to smaller amplitudes in business cycles. Smaller amplitudes are desirable for politicians because political pressure in a recession might be less and would save money that did not need to be repaid in growth periods.

The model could be enlarged by introducing behavioural aspects into the equation to be able to forecast investment behaviour more accurately instead of using a rational benchmark.

Finally, political implications to support the responsible handling of financial topics, especially international diversification need to be elaborated.

It is desirable to analyse with a longer timeframe whether the general relationship between portfolio similarity, consumption and GDP correlation is still valid in the future, especially after the financial crisis that portfolio strategies might change and political measurements to steer investment flows might be a consequence for portfolio allocation.

In this context it is reiterated that it is a general issue of econometrics that firstly, the economical reality is reduced on statistical time series; secondly, the past is expected to forecast the future. The first issue can be partly addressed by enlarging models with potential candidate variables. Although it will never happen in practice that all influencing factors are included (otherwise it would not be a model), the gap is made smaller. The second issue is more severe: Several crises illustrated that the past does not just contain information about the future.

As most econometric work the dissertation is to be understood as an explanation of the past and a good indication (though not soothsaying) for the developments in the future. This does not mean that the results are not justifiable: it is more important for the interpretation of the results that the insights gained by the dissertation are not only econometrically founded but economically rational and explainable as well. The econometric background in this sense confirms plausible thoughts of interdependences between financial wealth aspects, income and consumption and business cycle correlation.