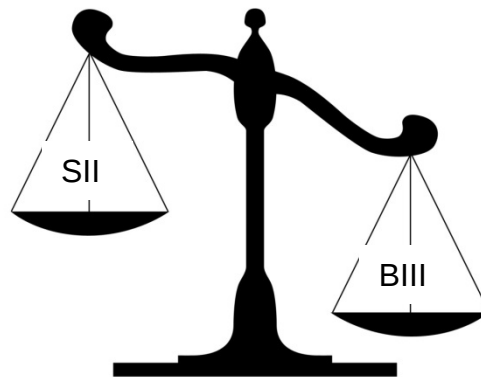


Basel III versus Solvency II – An Analysis of Regulatory Consistency under the New Capital Standards

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1. Introduction

- Significant reforms of the European regulatory frameworks for the financial sector
 - Insurance sector: Solvency II (becoming effective in 2016)
 - Banking sector: Basel III (introduced stepwise until 2019)
- Primary goal of the regulatory authorities: Stability of the financial markets through adequate and **consistent** capital standards

“(...) the BCBS, IOSCO, and IAIS should work together to develop common crosssectoral standards where appropriate so that similar rules and standards are applied to similar activities, thereby reducing opportunities for regulatory arbitrage and contributing to a more stable financial system.”

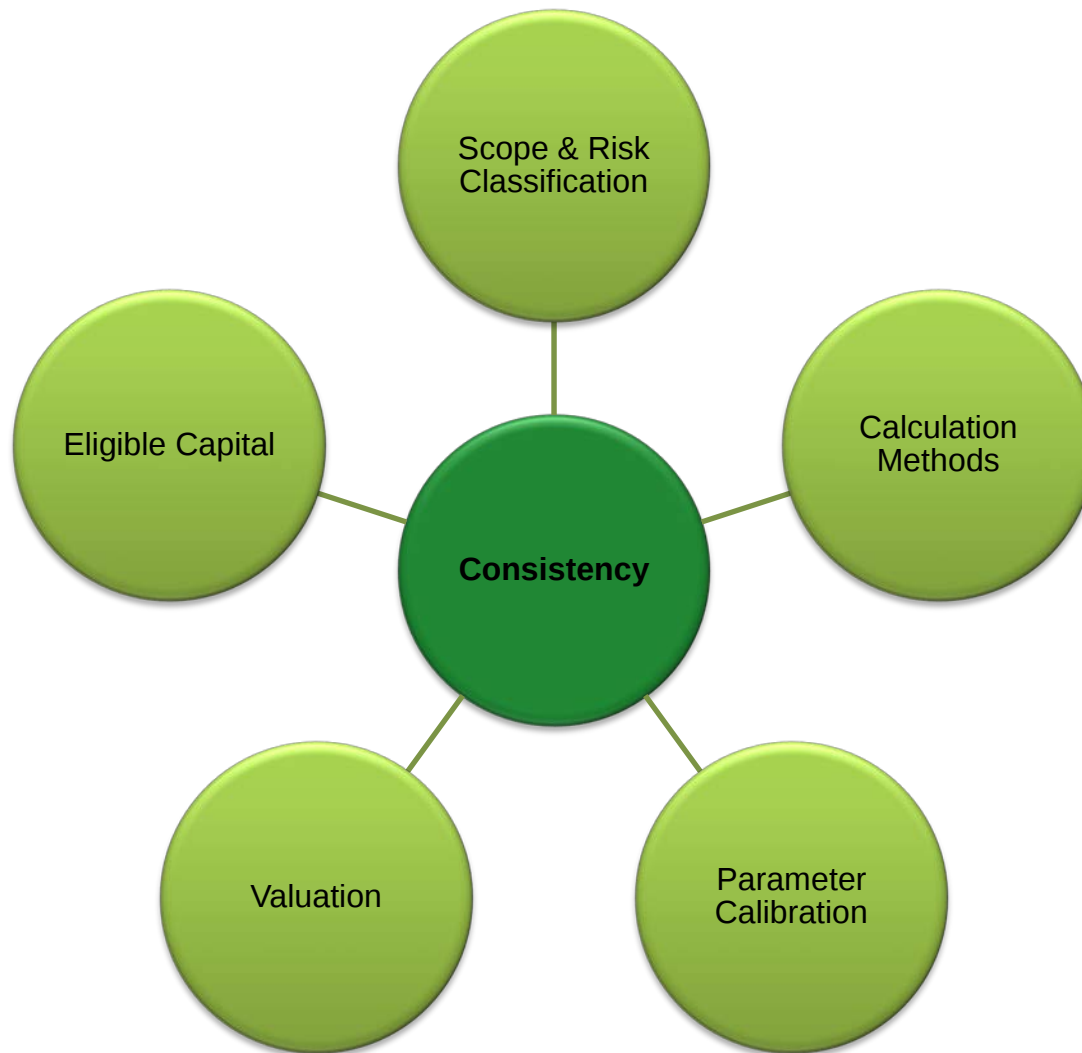
(see BCBS, 2010)

- Cross-sectoral regulatory consistency refers to the comparability of the rules for the banking and insurance sectors and as a result comparable capital charges for the **same** risks
- Banks and insurers are exposed to different types of risks and their overall risk situations differ
 - The total capital charges may be different
- However: Banks and insurers invest into the same asset classes
 - Both industries are exposed to market and credit risks
 - Different capital charges for the same type and amount of risk may lead to regulatory arbitrage

1. Introduction

- Research Question: Are the Basel III and Solvency II capital standards for market and credit risks consistent?
- Focus on the standard approaches
- Theoretical comparison and numerical analysis
- Consideration of the current and forthcoming version of the Third Basel Accord

2. Theoretical Analysis



2. Theoretical Analysis

	Basel III	Basel III*	Solvency II
Scope	Assets	Assets	Assets + liabilities
Risk Categorization	Market risk module: Assets in the TB; 4 submodules Credit risk module: Assets in the BB; Differentiation between 13 types of claims	Market risk module: Assets in the TB; 7 submodules Credit risk module: Assets in the BB; Differentiation between 11 types of claims	Market risk modules: Most asset classes; 6 submodules Credit risk module: Only a few asset classes
Risk Measure	TB: 99.0% VaR BB: 99.9% VaR	TB: 97.5% ES BB: 99.9% VaR	99.5% VaR
Capital Requirements for Individual Risks	Market risk: Product of AV and certain factors; individual and general charges Credit risk: Product of AV and risk weight	Market risk: Risk-weighted sensitivities Credit risk: Product of AV and risk weight	Market risk: Loss in basic own funds (assets – liabilities) due to predefined shocks → Consideration of liabilities Credit risk: Complex formulas
Aggregation Methods	Addition of all charges → No diversification effects	Within market risk submodules: Square-root formulas; Apart from that: Addition → Diversification effects only at some aggregation levels	Square-root formulas → Diversification effects within and between risk categories
Final Capital Charges	Addition of various capital buffers	Addition of various capital buffers	Reduction by the loss absorbing capacities of deferred taxes and technical provisions

2. Theoretical Analysis

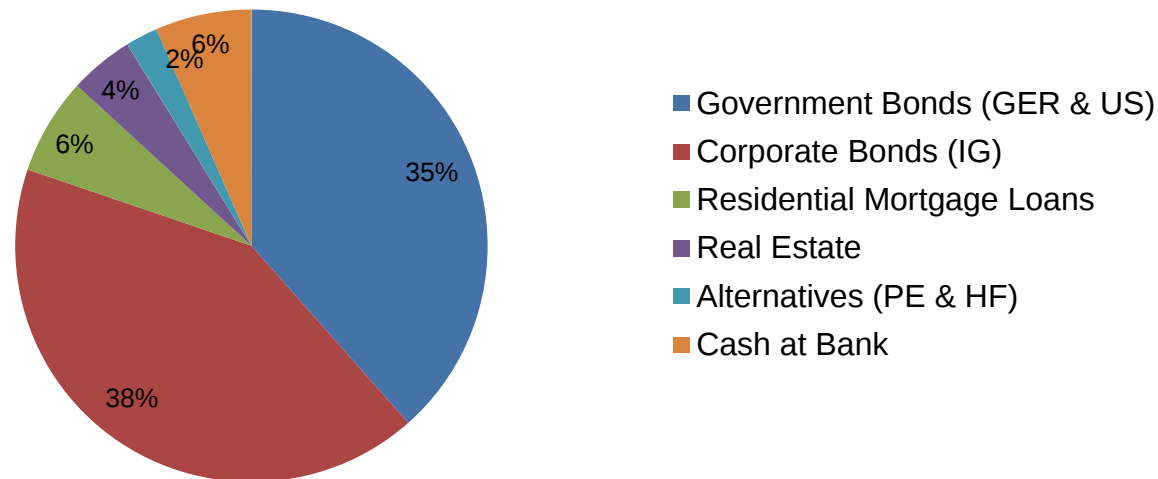
	Basel III	Basel III*	Solvency II
Parameter Setting	• Similar rank orders of asset classes, e.g. low (high) charges for government bonds (equities and alternatives) • Some discrepancies, e.g. with regard to residential mortgage loans • Different degrees of differentiation		
Valuation	TB: Fair value BB: Fair value or amortized cost	TB: Fair value BB: Fair value or amortized cost	Economic valuation of all assets and liabilities → «Economic balance sheet»
Eligible Capital	Direct calculation (sum of eligible instruments); 2 main Tiers, only balance sheet positions; Tier 1: $(6\% + 2.5\% + a\% + b\%)$ of total RWA (a,b: size of the countercyclical and GSIB buffers) → Between 81% and 87% of the total capital requirements	Direct calculation (sum of eligible instruments); 2 main Tiers, only balance sheet positions; Tier 1: $(6\% + 2.5\% + a\% + b\%)$ of total RWA (a,b: size of the countercyclical and GSIB buffers) → Between 81% and 87% of the total capital requirements	Indirect calculation (difference of assets and liabilities) 3 Tiers; certain off-balance sheet are accepted Tier 1: 50% of the solvency capital requirements

- Substantial differences in the design of the capital standards
- Examination of the effects of these discrepancies on the final capital charges by means of the numerical analysis

3. Numerical Analysis

Stylized Balance Sheet

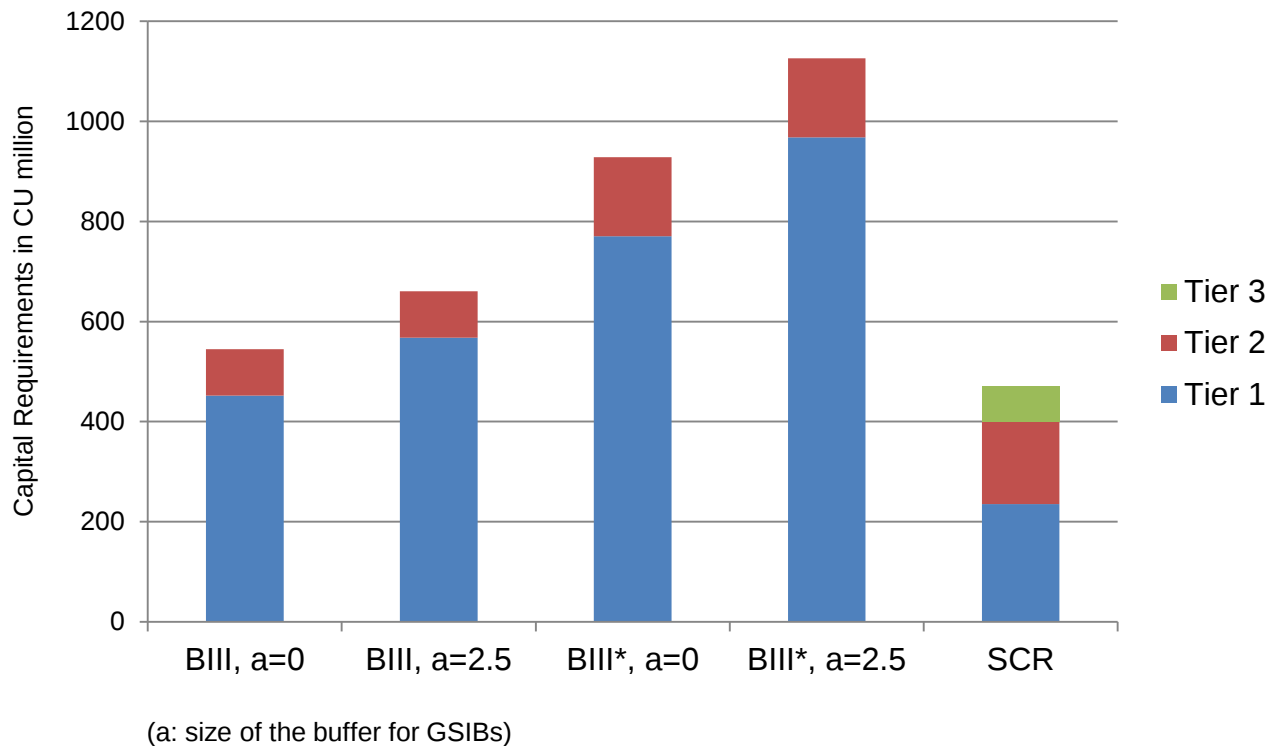
- Derivation of a stylized European life insurer's balance sheet based on data provided by EIOPA and some empirical papers
- Determination of the yield curves, coupon payments etc. based on empirical data
- Composition of the reference portfolio:



- Change of the portfolio weights in various robustness analyses
- Total balance sheet value: 10 CU billion
- BOF: 13% of total balance sheet value

3. Numerical Analysis

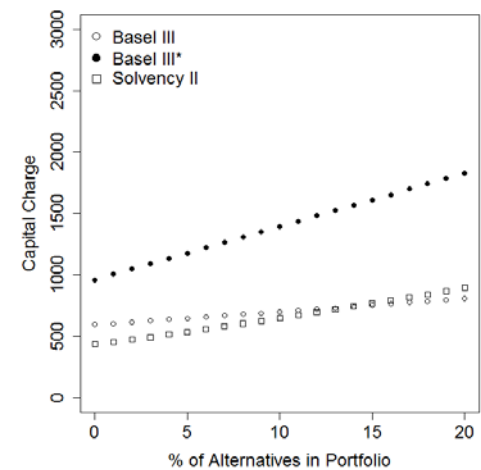
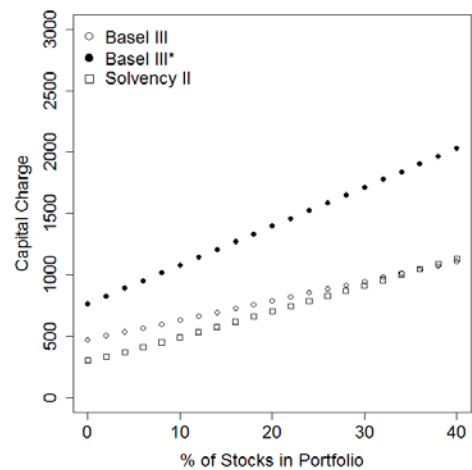
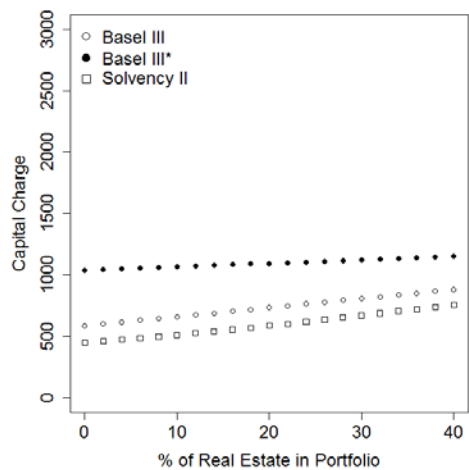
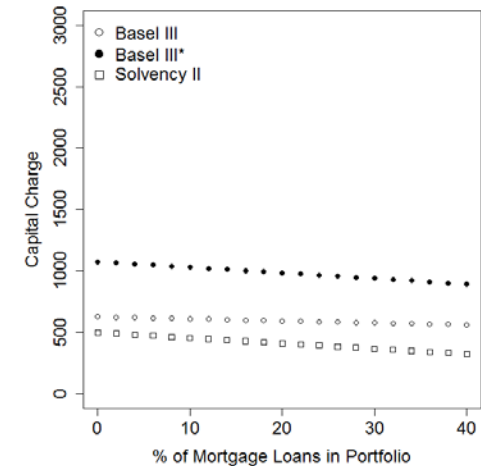
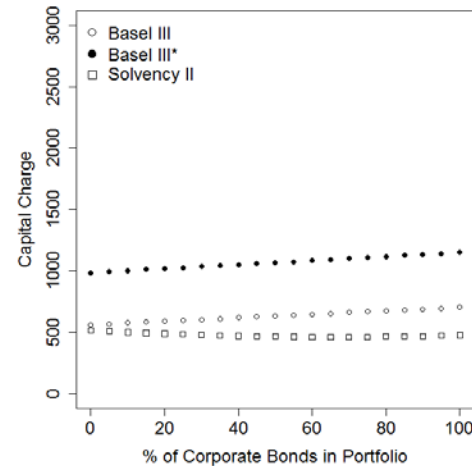
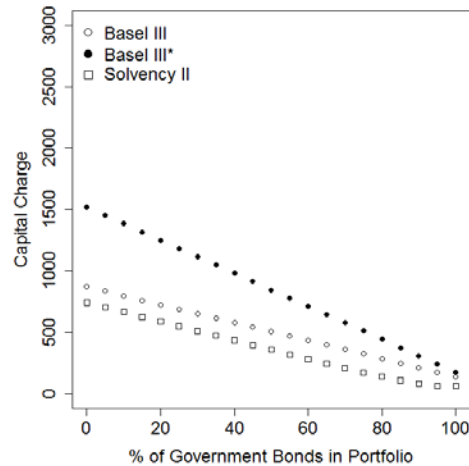
Capital Requirements for the Stylized Portfolio



- Higher capital requirements for banks than for insurance companies, especially after the introduction of the Basel III* market and credit risk modules
- Banks have to hold substantially more Tier 1 capital

3. Numerical Analysis

Capital Requirements for Different Portfolio Compositions



3. Numerical Analysis

Investment of Newly Raised Capital

	ΔCR_{III}	ΔCR^*_{III}	ΔSCR
Government Bonds	1.4	1.7	-1.2
Corporate Bonds	7.0	11.5	3.4
Mortgages	4.6	6.2	-0.4
Real Estate	13.3	13.3	9.7
Stocks	20.6	39.3	22.4
Alternatives	16.6	53.0	23.5

Changes in the Capital Requirements Resulting due to investments of newly raised capital of 0.1 CU billion

- Substantial differences between the three frameworks
- If the funds are invested in government bonds or mortgage loans, SCR even decreases

3. Numerical Analysis

Summary

- Substantially higher capital charges under Basel III* than under Solvency II for all portfolios
- The Basel III requirements exceed the Solvency II charges for almost all considered portfolios
- Similar ranking of asset types under the three frameworks
- Different absolute and relative changes in the capital requirements due to portfolio reallocations
- Unequal changes in the capital requirements due to investments of newly raised capital in one asset class
- Robustness of the results with regard to various assumptions has been checked

Implications

- The attractiveness of several asset classes varies
- Portfolio shifts or investments of new capital may be more profitable for banks than insurers or vice versa
- The inconsistencies create incentives for regulatory arbitrage

4. Conclusion and Discussion

- Substantial inconsistencies in the design of the standard approaches may lead to considerable differences in the capital requirements
 - Various reasons for the inconsistencies: Different development groups and scope of application of the frameworks, disparate main goals of the reforms, differences in the core business activities of banks and insurers, different levels of systemic risks in the two sectors,...
 - The discrepancies create incentives for regulatory arbitrage
 - There is already some evidence that several companies are transferring certain assets to the less strictly regulated sector
 - Remark 1: Decisions about asset transfers depend on various other factors (e.g., tax issues, need of portfolio diversification, liability structure)
 - Remark 2: Arbitrage is only an option if the FI has problems in meeting the reg. requirements
 - Remark 3: Regulatory arbitrage does not necessarily have negative effects (see, e.g., Mälkönen, 2004, and Freixas et al, 2007)
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- ➔ The coming years will show the extent of regulatory arbitrage and its effects
 - ➔ Regulators then have to decide whether an alignment of the frameworks is necessary

Thank You Very Much for Your Attention!

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