Everything you always wanted to know about investing …

… but were afraid to ask your banker

INTERNATIONAL ASSET MANAGERS

TARENO

Luxembourg, December 2013

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Everything you always wanted to know about investing …

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	FOUR PRINCIPLES OF SOUND INVESTING
1.	There is no safe investment
2.	It is impossible to predict future investment returns
3.	Active investment management reduces long-term performance
4.	The best way to invest is total diversification with fixed allocation
Appendix	An investment fund based on the principles of sound investing

The notion of safe investments has powerful supporters

STATEMENTS REAFFIRMING SAFETY OF INVESTMENTS

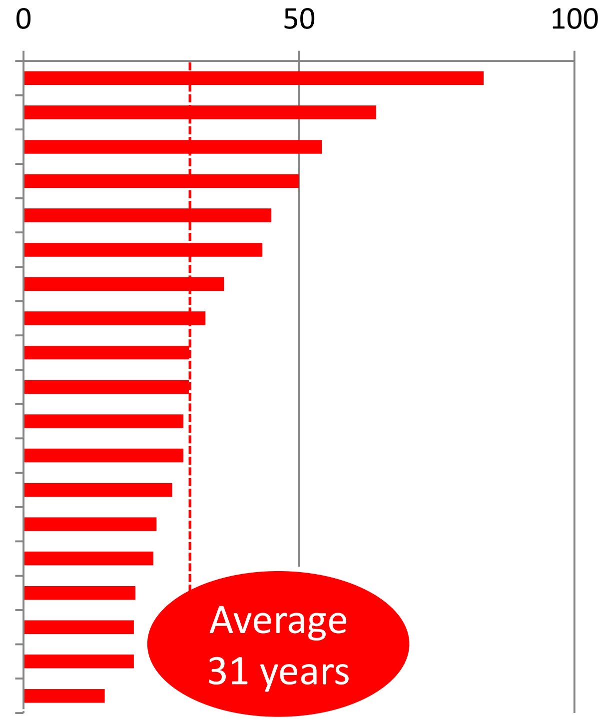
INVESTMENT	SAFE?
GOVERNMENT BONDS	• "Though a truly **risk-free asset** exists only in theory, in practice most professionals and academics use **short-dated government bonds**." *(wikinvest.com)* • "Both [current European banking regulation and plans to implement Basel III in the EU] treat **government bonds** of member states as **risk-free**, highly liquid assets and exclude them from capital requirements and large exposure regimes." *(DIW Berlin, October 2012)*
BANK DEPOSITS	• "We want to tell savers that their **deposits are safe**." (*Angela Merkel, Chancellor of Germany, 5.10.2008*) • The "Central Bank of Cyprus wishes to stress that **any action aimed at** reducing, depriving or **restricting the property rights of depositors**, contradicts … the Constitution of the Republic of Cyprus and … the European Convention of Human Rights … Hence, any suggestion to the contrary is not only legally unfounded but it **cannot merit serious consideration**." *(Central Bank of Cyprus, 11.2.2013, six weeks before bank deposits were partially confiscated)*
CASH	"We can be proud to have a **stable and credible currency**. There is no crisis of the euro. Instead, what we are currently observing in parts of the euro area is first and foremost a fiscal crisis." *(Jean-Claude Trichet, ECB President 2003-11, 15.5.2011)*
REAL ESTATE	• "We've **never had a decline in house prices** on a national basis. So, what I think what is most likely to happen is that house prices will slow, maybe stabilize." *(Ben Bernanke, FED Chairman 2006-13, in July 2005, one year before house prices started declining by 30%)* • "Nobody ever lost from investing in real estate." *(Greek folk wisdom widely believed until 2009)*

Most countries have defaulted or restructured their debt at least once

NUMBER OF DEFAULTS OR RESTRUCTURINGS OF PUBLIC DEBT (EXTERNAL AND DOMESTIC)

Until 2008

Never	Once (year)	More than once (latest year)
Belgium	United States (1790*)	United Kingdom/England (1932*)
Finland	Sweden (1812)	Portugal (1890)
Ireland	Denmark (1813*)	Germany/Prussia (1948**)
Luxembourg	The Netherlands (1814)	France (1812)
Norway	Tunisia (1867)	Hungary (1941)
Switzerland	Italy (1940)	Romania (1986)
Australia	The Philippines (1983)	Greece (1932)
Canada	Zambia (1983)	Japan (1946**)
New Zealand	Algeria (1991)	Spain (1936*)
Korea		Poland (1981)
Malaysia		China (1939)
Mauritius		10 African countries (2004)
Singapore		18 Latin American countries (2008)
Taiwan		Russia (1998)
Thailand		Austria (1945**)
		India (1972)
		Myanmar (2002)
		Sri Lanka (1996*)
		Indonesia (2002)



15 countries | 9 countries | 46 countries

GOVERNMENT BONDS MAY NOT BE PAID BACK AS PROMISED

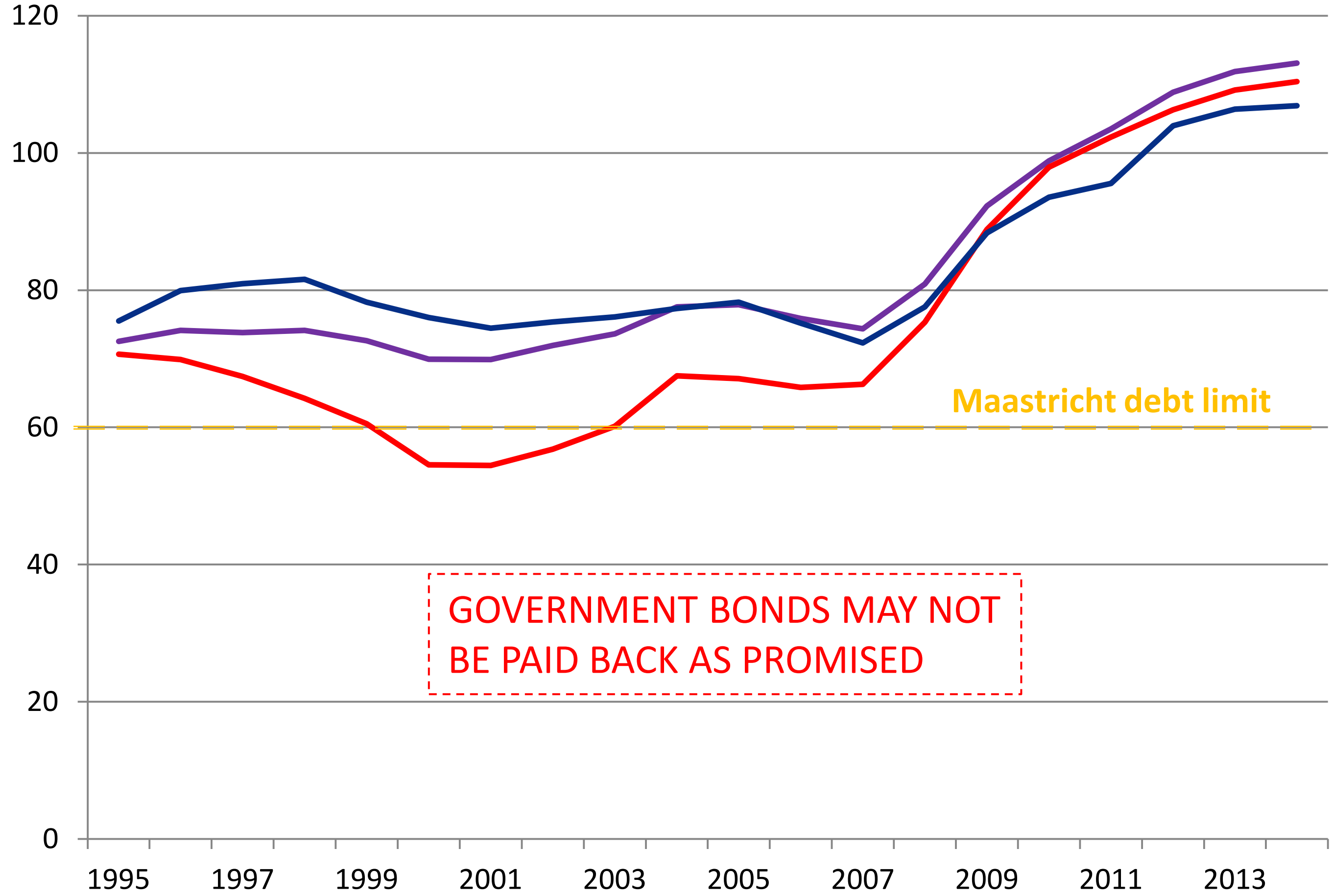
Source: Reinhart/Rogoff (2009, chapters 6,7); own research and calculations

* Domestic debt only ** Currency reform

Strong growth in government debt makes future defaults more likely

OECD GENERAL GOVERNMENT GROSS FINANCIAL LIABILITIES

In % of nominal GDP



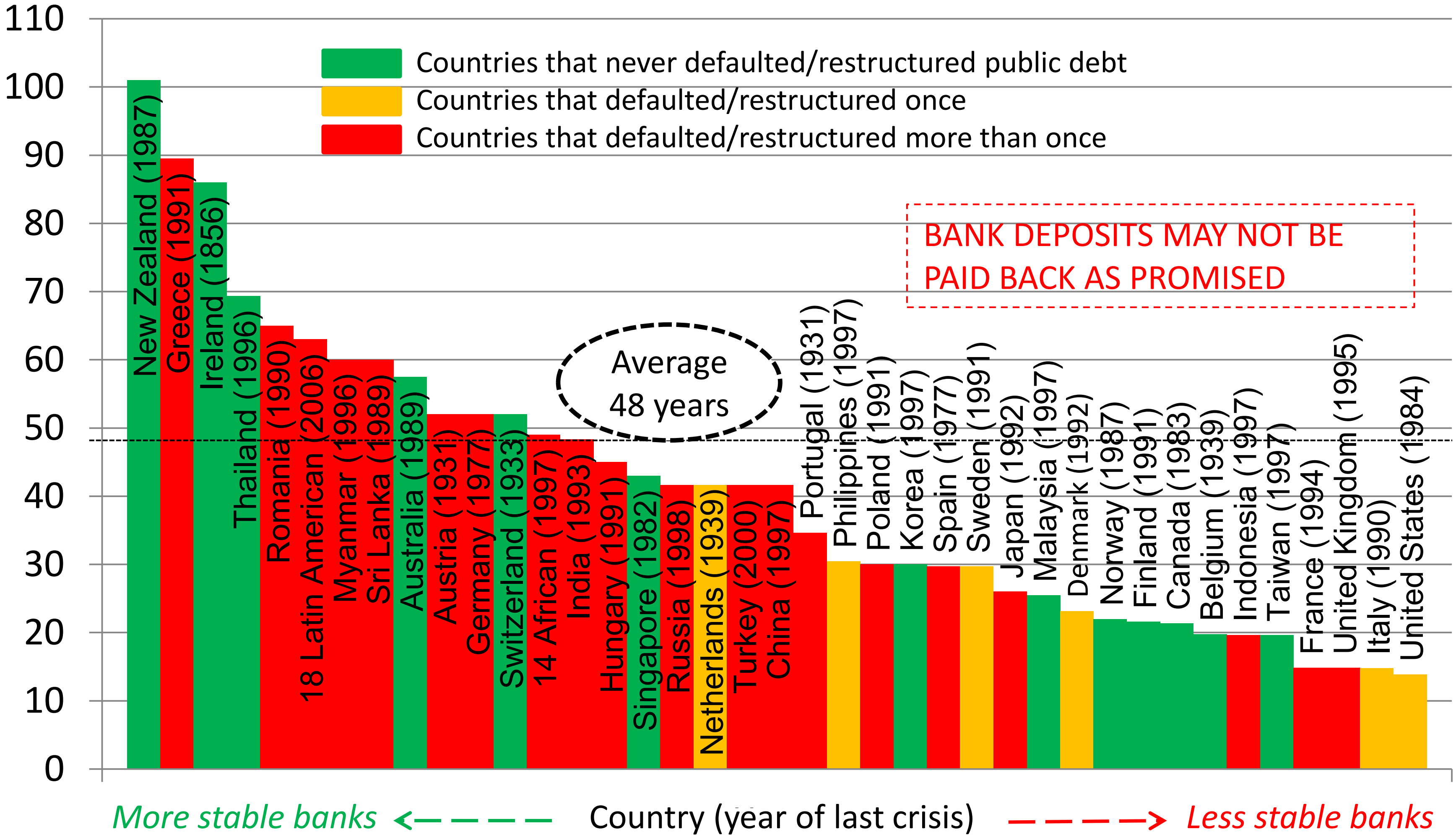
"The government pays interest on **capital that has been consumed and no longer exists**… Nobody believes that the states will eternally drag the burden of these interest payments. It is obvious that sooner or later **all these debts will be liquidated** in some way or other, but **certainly not by payment of interest and principal** according to the terms of the contract."
Ludwig von Mises, *Human Action* (1949)

Source: OECD Economic Outlook database

Even the most solvent countries suffer regular banking crises

AVERAGE NUMBER OF YEARS BETWEEN BANKING CRISES*

From 1800 or independence until 2008 — <u>*SAME SAMPLE AS DEFAULT DATA*</u>



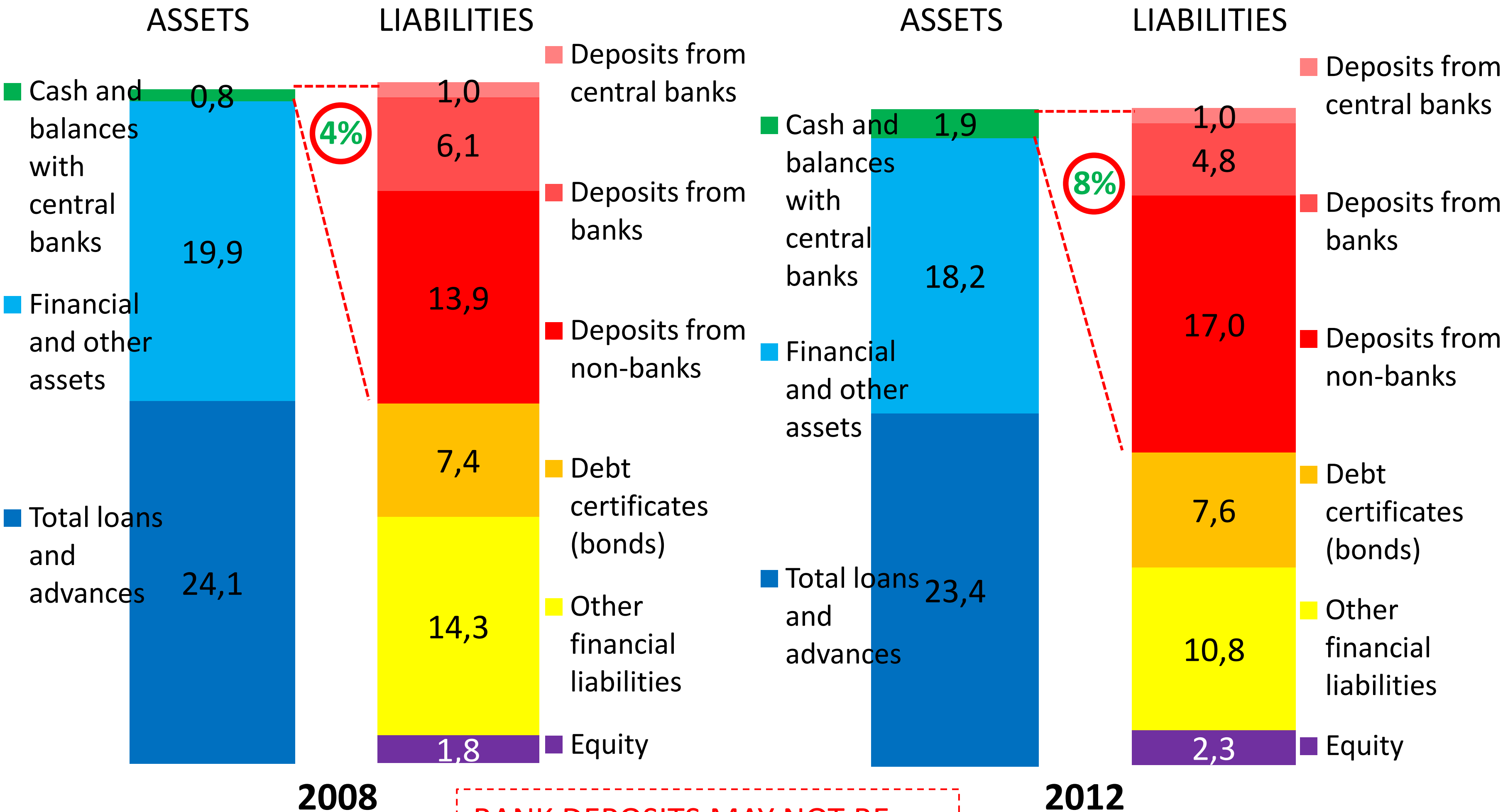
Source: Reinhart/Rogoff (2009, appendix A.3); own calculations

* Involving bank runs or closure, merging, takeover or large-scale government assistance of important financial institutions (RR, p. 10)

Only a small fraction of deposits is covered by cash

CONSOLIDATED BALANCE SHEET EU BANKS

In trn EUR



BANK DEPOSITS MAY NOT BE PAID BACK AS PROMISED

Source: ECB Consolidated Banking Data 2008-2012

All countries have suffered high inflation in the past

MAXIMUM ANNUAL INFLATION (COUNTRY, YEAR)

HYPERINFLATION

< 10%	10 - 20%	20 - 40%	40 - 80%	80 - 200%	200 - 500%	> 500%
	Panama (1974) New Zealand (1980)	Netherlands (1918) Hong Kong (1949) Malaysia (1950) Singapore (1973) **Canada** (1917) **United States** (1864) **Switzerland** (1918) Côte d'Ivoire (1994) Central African Republic (1971) Taiwan (1973) El Salvador (1986) Sri Lanka (1948) Mauritius (1980) Honduras (1991) **United Kingdom** (1800) South Africa (1919) Sweden (1918)	Egypt (1941) Guatemala (1990) Kenya (1993) Denmark (1800) Belgium (1812) Dominican Republic (2004) Colombia (1802) India (1943) Australia (1854) Morocco (1947) Myanmar (2002) Algeria (1947) Tunisia (1943) Nigeria (1995) **France** (1946) Thailand (1919)	Portugal (1808) Iceland (1983) Costa Rica (1982) Ecuador (2000) Venezuela (1996) Spain (1808) Uruguay (1990) Turkey (1942) Ghana (1983) Mexico (1987) Paraguay (1952) Philippines (1943) Norway (1812) Zambia (1993)	Korea (1951) Finnland (1918) Chile (1973) **Italy** (1944)	**Japan** (1945) Indonesia (1966) China (1947) Austria (1922) Brazil (1990) Argentina (1989) Angola (1996) Peru (1990) Bolivia (1985) Nicaragua (1987) Russia (1923) Poland (1923) Greece (1944) **Germany** (1923) Zimbabwe (2008) Hungary (1946)

PAPER MONEY LOSES ITS VALUE THROUGH INFLATION

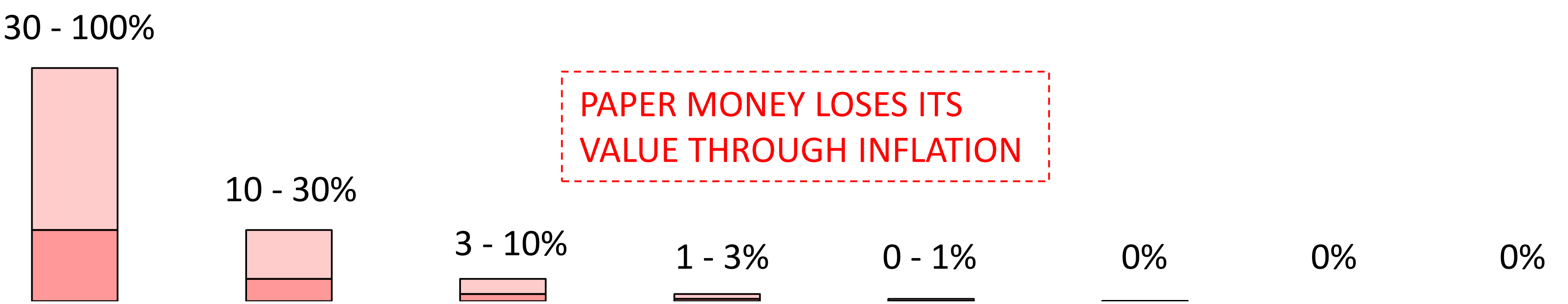
Source: Reinhart/Rogoff (2009, chapter 12)

In the stable post-war period, all countries experienced significant inflation

AVERAGE ANNUAL INFLATION 1951 – 2010 BY COUNTRY

0 -2%	2 - 4%	4 - 6%	6 - 8%	8 - 12%	12 - 20%	20 - 40%	> 40%
	Panama	**Germany**	Mauritius	Greece	Columbia	Zambia	Bolivia
	Switzerland	Thailand	India	Kenya	Paraguay	Ghana	Peru
	Malaysia	Tunesia	Spain	Dominican Republic	Iceland	Turkey	Nicaragua
	Belgium	Morocco	El Salvador	Costa Rica	Venezuela	Indonesia	Argentina
	Luxembourg	**France**	Guatemala	Myanmar	Ecuador	Chile	Brazil
	Japan	Denmark	Sri Lanka		Mexico	Uruguay	
	Netherlands	Norway	Hungary		Poland		
	Austria	**United Kingdom**	Egypt				
	United States	Sweden	Portugal				
	Canada	Australia	South Africa				
		Finland	Honduras				
		New Zealand	Philippines				
		Italy					

PURCHASING POWER AFTER 60 YEARS (1951 – 2010)



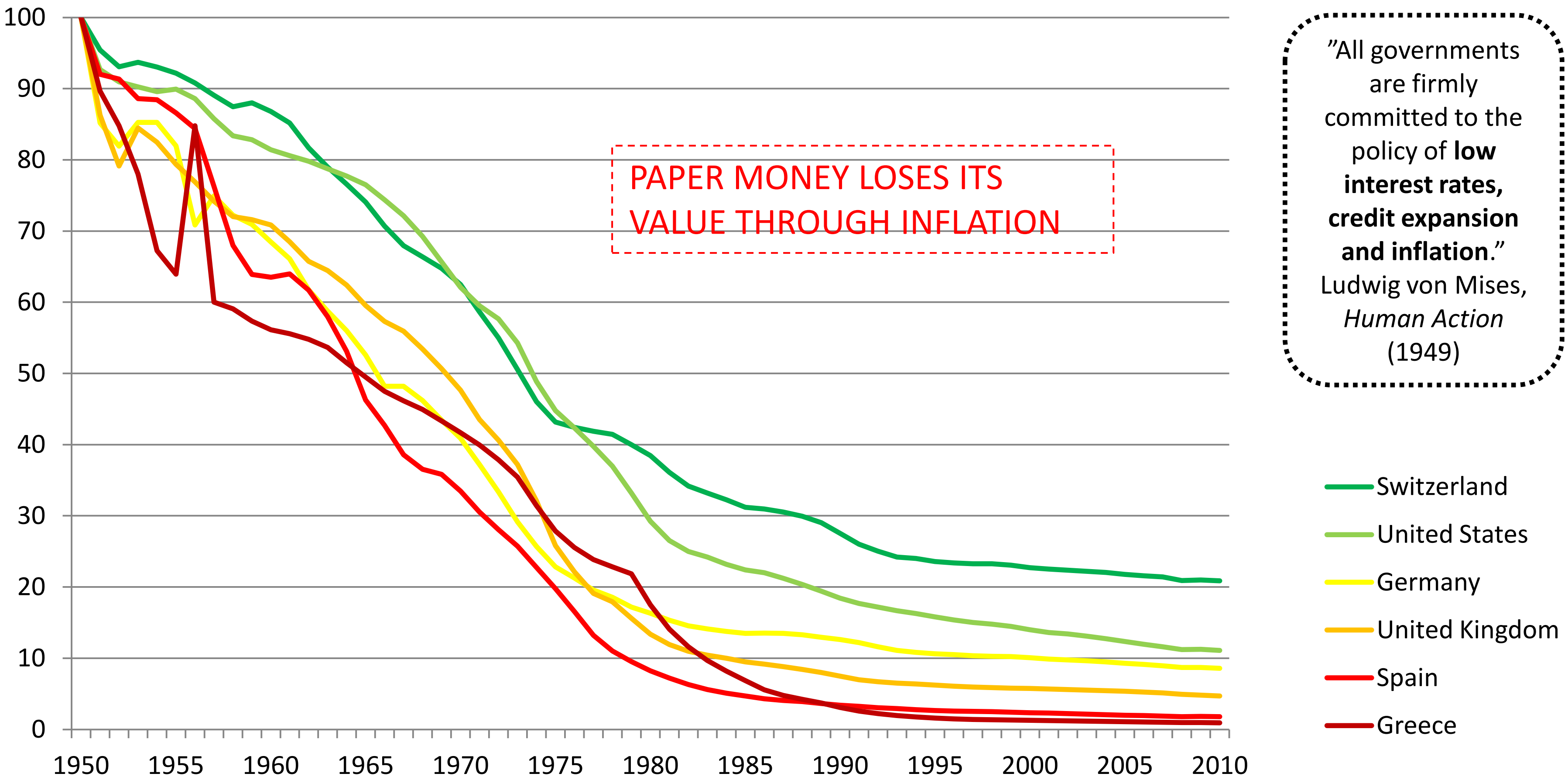
PAPER MONEY LOSES ITS VALUE THROUGH INFLATION

Source: Reinhart/Rogoff database; own calculations

Even the most stable currencies lost at least 80% of their purchasing power

PURCHASING POWER 1950 - 2010

1950 = 100



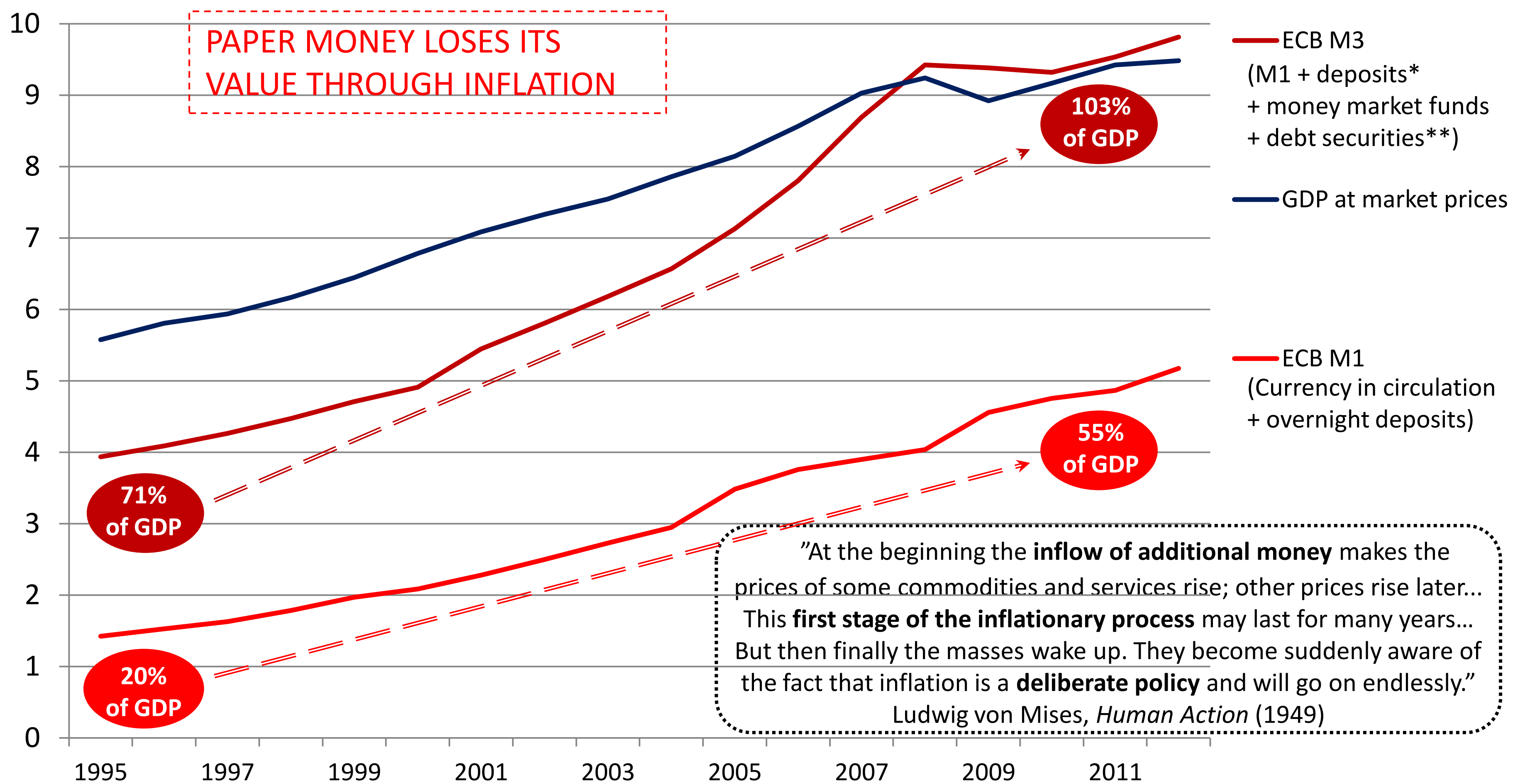
"All governments are firmly committed to the policy of **low interest rates, credit expansion and inflation**."
Ludwig von Mises, *Human Action* (1949)

Source: Reinhart/Rogoff database; own calculations

Strong growth of monetary aggregates makes future inflation more likely

ECB MONETARY AGGREGATES AND EUROZONE NOMINAL GDP 1995-2012

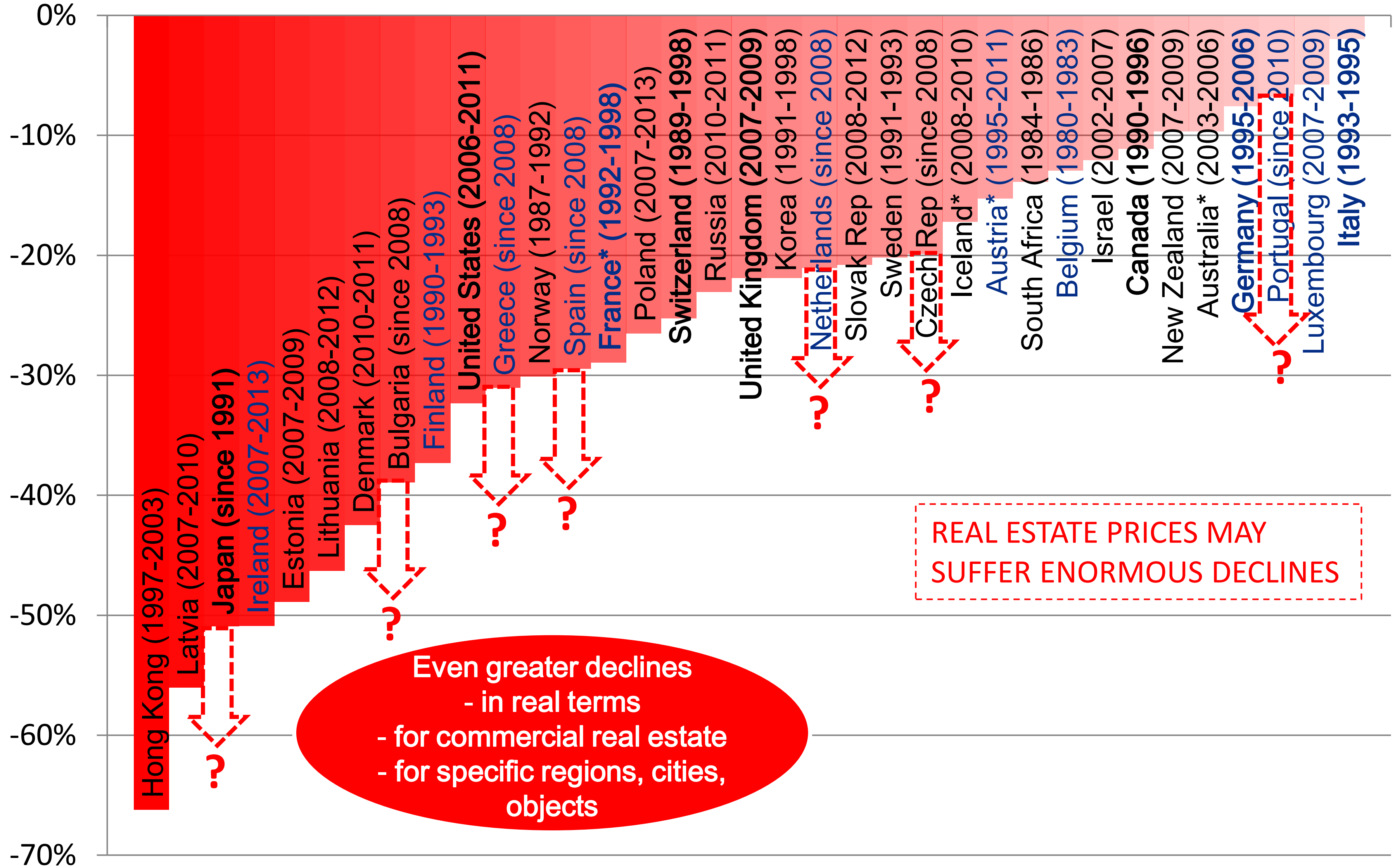
In trn EUR



Source: ECB Statistical Data Warehouse * With maturity up to 2 years or redeemable at notice up to 3 months ** Up to 2 years

Most countries have experienced at least one real estate crash since 1980

GREATEST NOMINAL DECLINES IN RESIDENTIAL REAL ESTATE AFTER 1980**

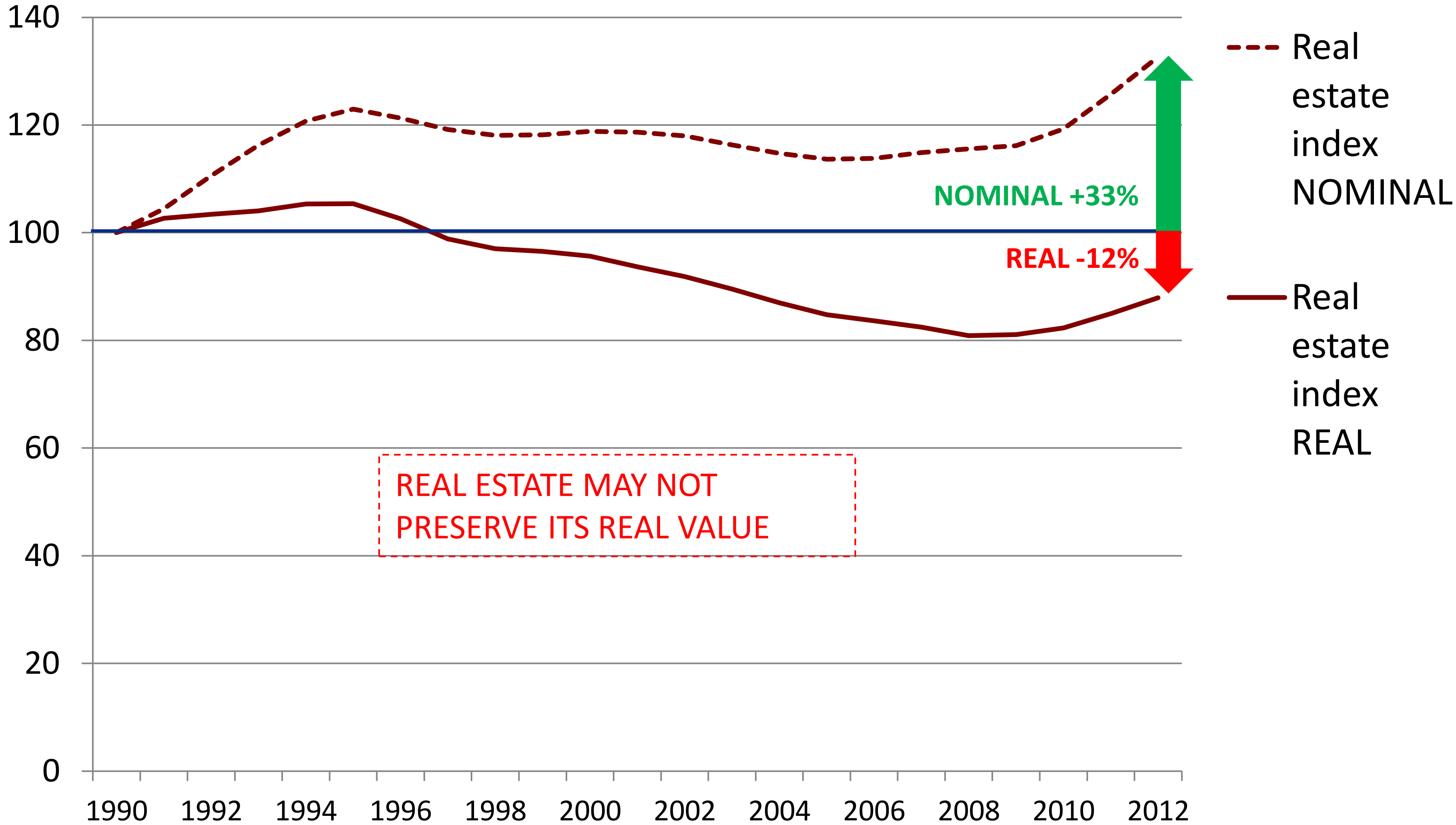


Source: BIS Property Price Statistics * Major city ** Subject to data availability - only countries with data for at least 7 years included

German real estate bought at reunification did not preserve its real value

NOMINAL AND REAL PRICES FOR GERMAN RESIDENTIAL REAL ESTATE

Real estate index 1990 = 100; nominal and real in 1990 prices

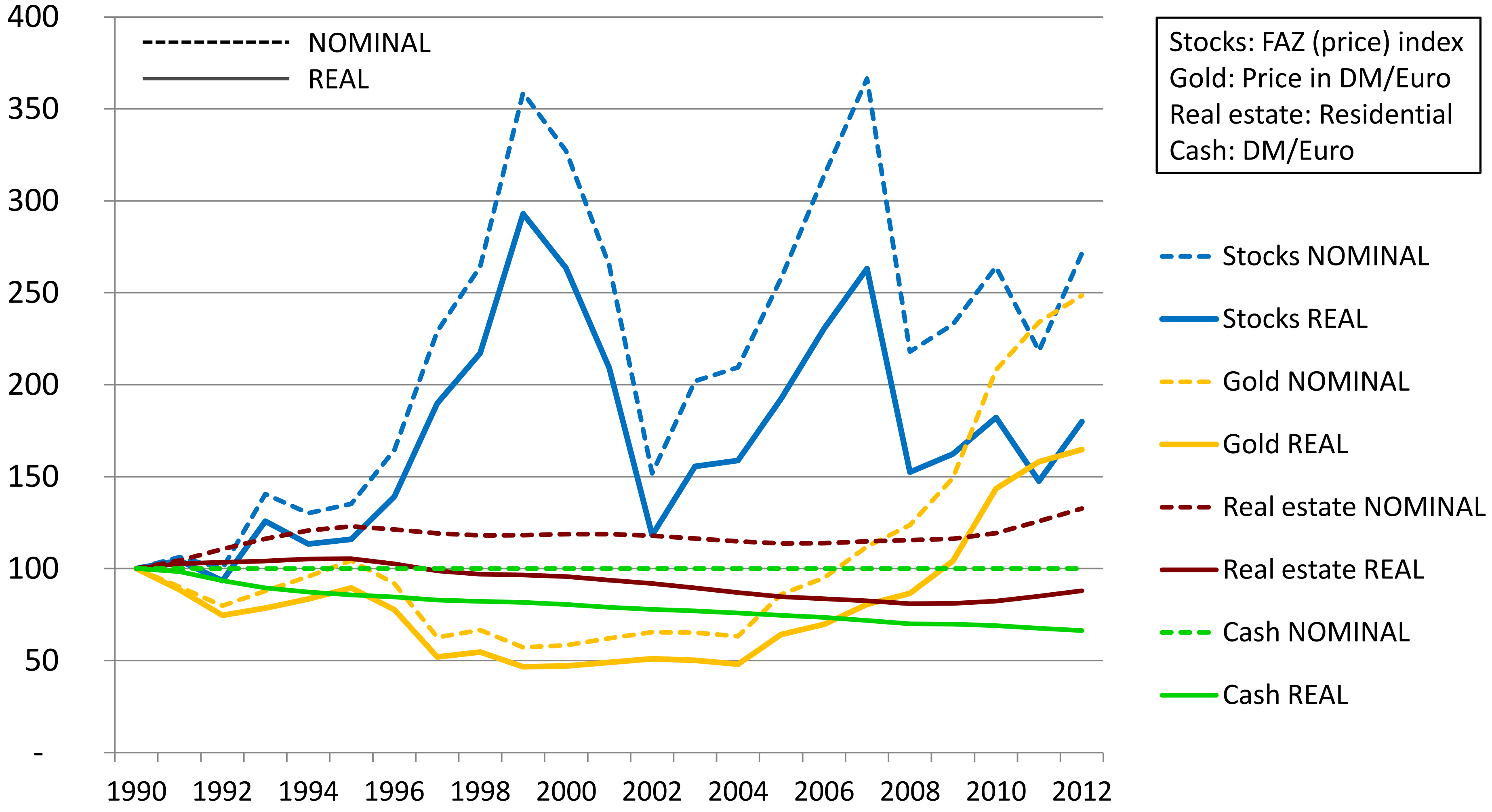


Source: Deutsche Bundesbank with data provided by Bulwien Gesa AG; own calculations

Over the same period, stocks and gold achieved real gains

NOMINAL AND REAL PRICES FOR GERMAN REAL ESTATE, STOCKS, GOLD AND CASH

Index 1990 = 100; nominal and real in 1990 prices



Source: Deutsche Bundesbank with data provided by Bulwien Gesa AG; own calculations

CONCLUSION: FIRST PRINCIPLE OF SOUND INVESTING

THERE IS NO SAFE INVESTMENT
Government bonds may not be paid back as promised
Bank deposits may not be paid back as promised
Paper money loses its value through inflation
Real estate values may suffer enormous declines

"There is **no such thing as a perfectly safe investment**...
A radical change in conditions may render bad even
investments commonly considered perfectly safe."
Ludwig von Mises, *Human Action* (1949)

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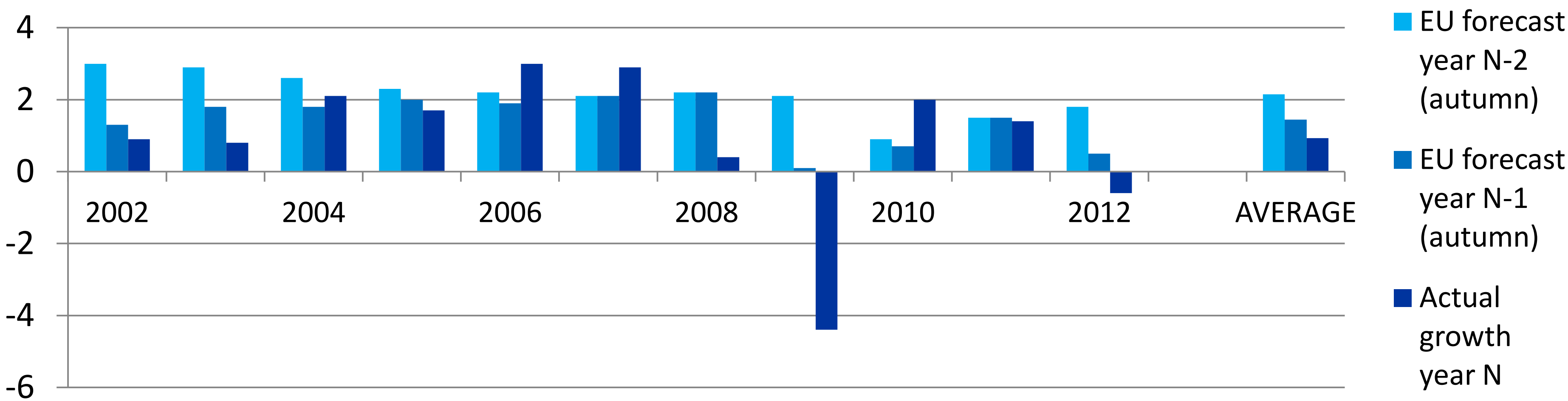
Economic forecasts beyond one year seem to have little predictive value

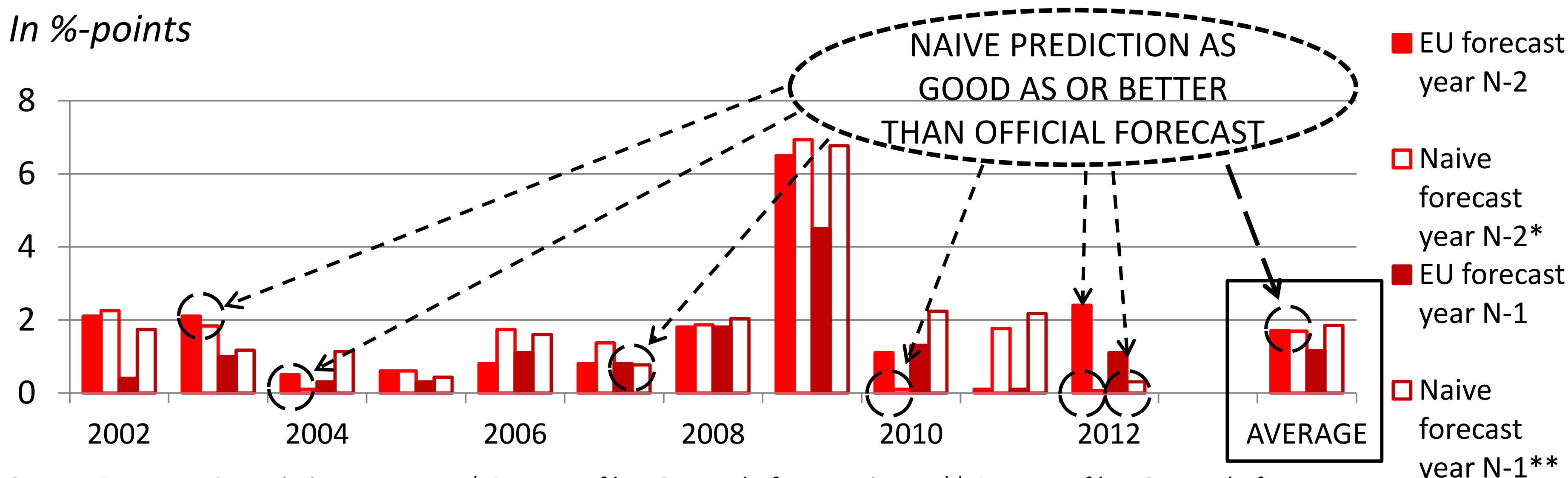
EUROZONE REAL GDP GROWTH FORECASTS VS. ACTUAL GROWTH

In %



ABSOLUTE FORECASTING ERROR EU VS. NAIVE PREDICTION (AVERAGE OF LAST 3 YEARS)

In %-points

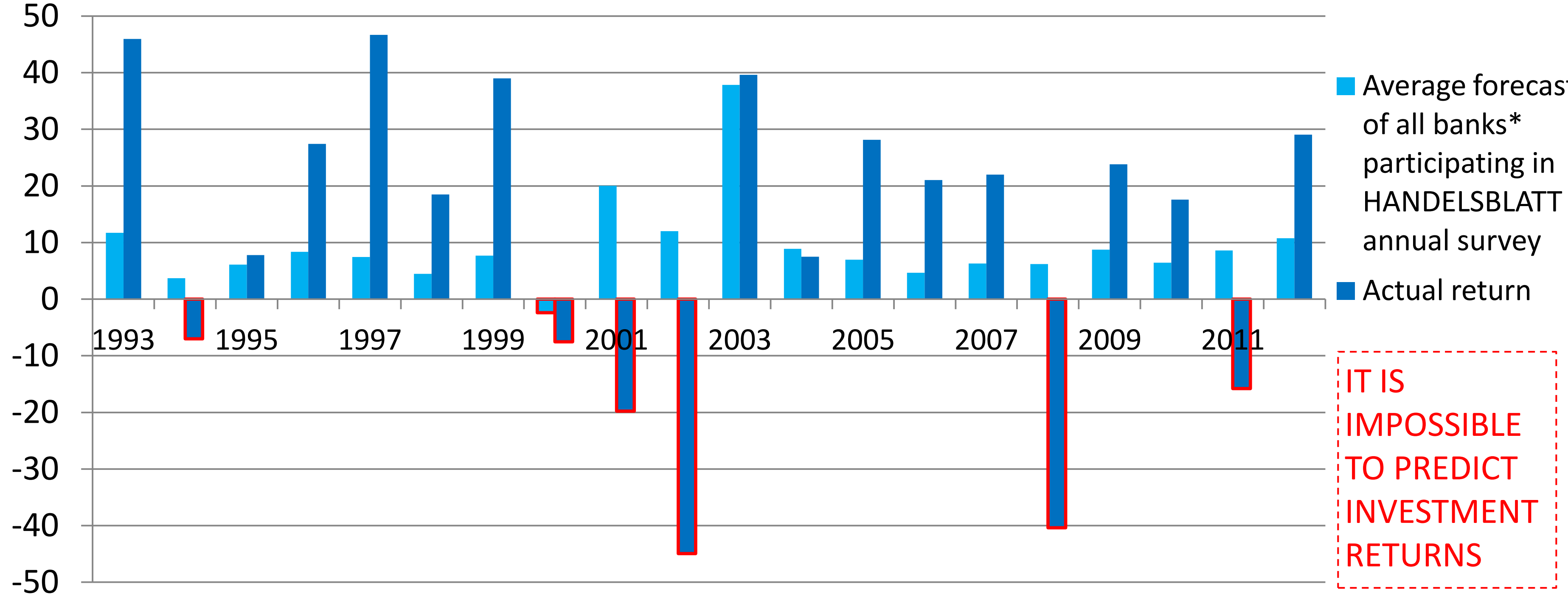


Source: European Commission * Average of last 3 years before previous ** Average of last 3 years before current

German bankers cannot predict the return of German stocks

AVERAGE FORECAST VS. ACTUAL ANNUAL RETURN OF GERMAN STOCKS

Change of DAX index in %



Right direction?	√	X	√	√	√	√	√	√	X	X	√	√	√	√	√	X	√	√	X	√
Right magnitude? (+/- 10%)	X	X	√	X	X	X	X	√	X	X	√	√	X	X	X	X	X	X	X	X

Only 1 out of 6 negative returns predicted

Only 4 out of 20 returns predicted with <10% error

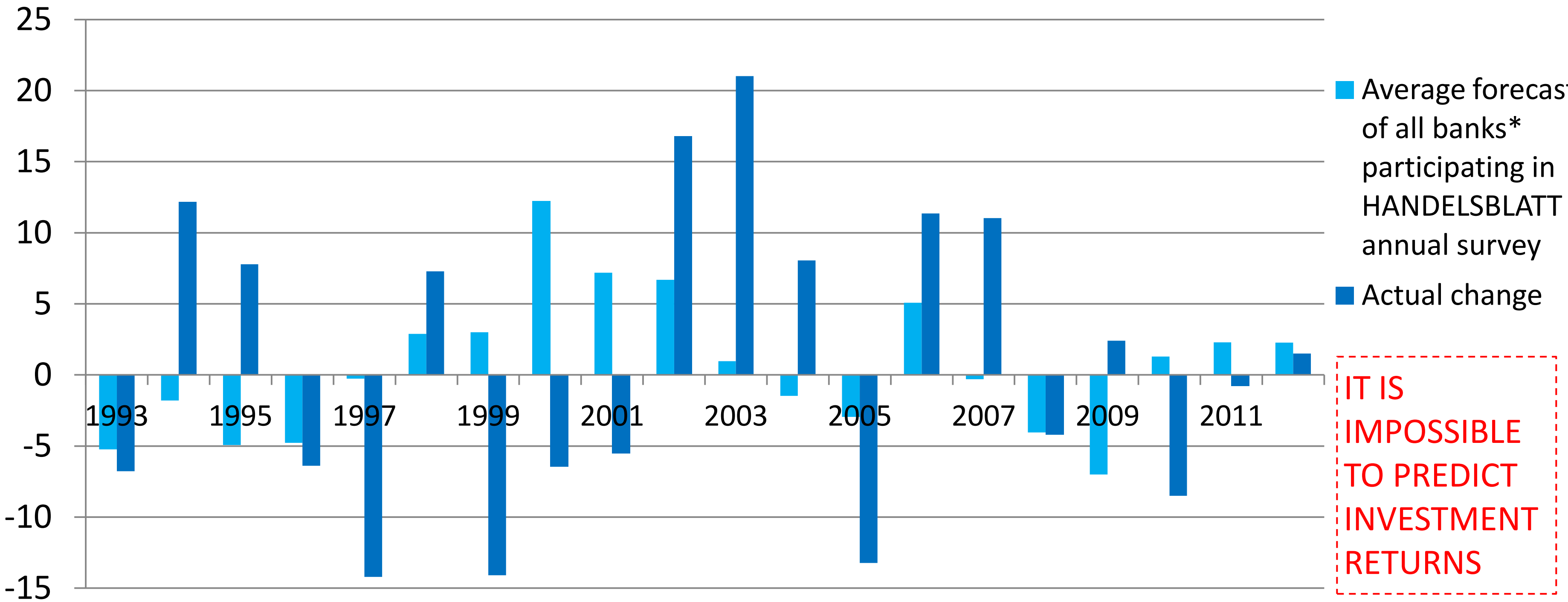
Source: Handelsblatt; own calculations

* About 40 banks operating in Germany, including Bank of America, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Deutsche Bank, Goldman Sachs, JP Morgan, Morgan Stanley, Société Générale, UBS, Unicredit

They cannot predict the US dollar exchange rate either

AVERAGE FORECAST VS. ACTUAL ANNUAL CHANGE IN DM/EURO-USD EXCHANGE RATE

In %



Right direction?	√	X	X	√	√	√	X	X	X	√	√	X	√	√	X	√	X	X	X	√
Right magnitude? (+/- 5%)	√	X	X	√	X	√	X	X	X	X	X	X	X	X	X	√	X	X	√	√

10 out of 20 directions correct (same as coin)

Only 6 out of 20 changes predicted with <5% error

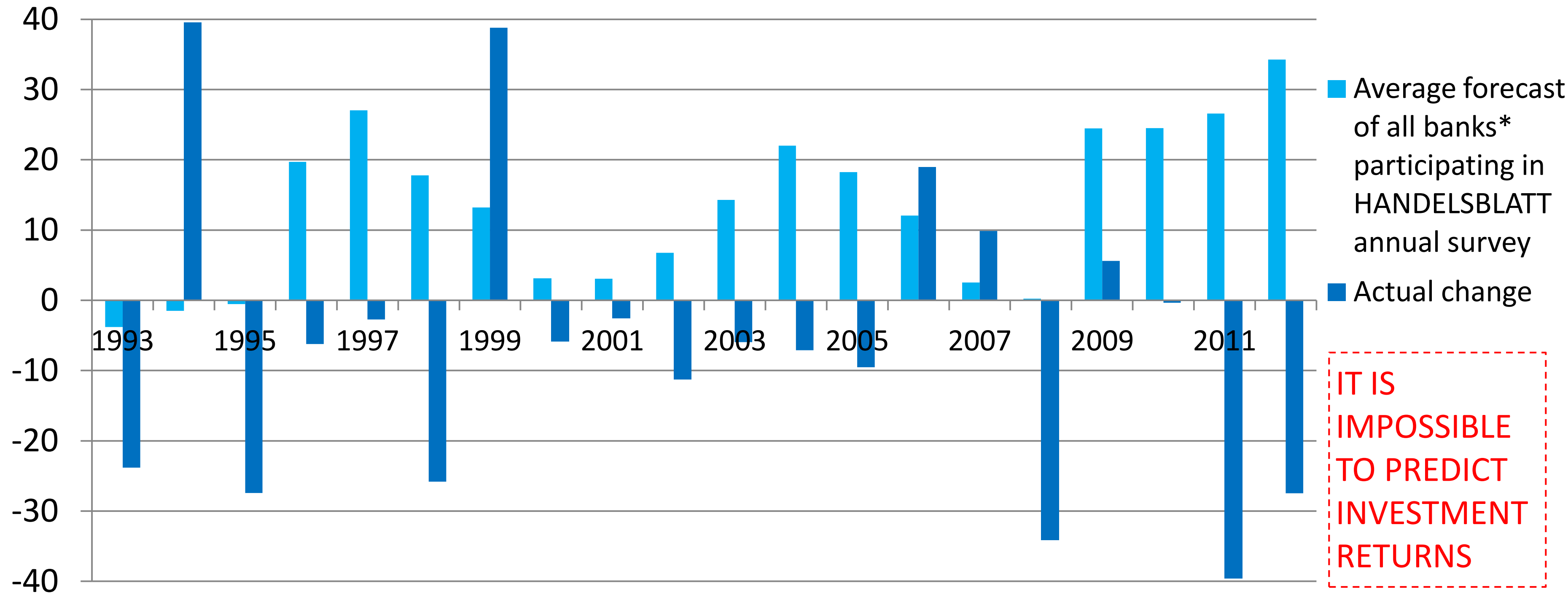
Source: Handelsblatt; own calculations

* About 40 banks operating in Germany, including Bank of America, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Deutsche Bank, Goldman Sachs, JP Morgan, Morgan Stanley, Société Générale, UBS, Unicredit

German bankers cannot predict the yield of German government bonds

AVERAGE FORECAST VS. ACTUAL ANNUAL CHANGE IN TEN-YEAR BUND YIELDS

In %



Right direction?	√	X	√	X	X	X	√	X	X	X	X	X	X	√	√	X	√	X	X	X	6 out of 20 directions correct (worse than coin)
Right magnitude? (+/- 10%)	X	X	X	X	X	X	X	√	√	X	X	X	X	√	√	X	X	X	X	X	Only 4 out of 20 changes predicted with <10% error

Source: Handelsblatt; own calculations

* About 40 banks operating in Germany, including Bank of America, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Deutsche Bank, Goldman Sachs, JP Morgan, Morgan Stanley, Société Générale, UBS, Unicredit

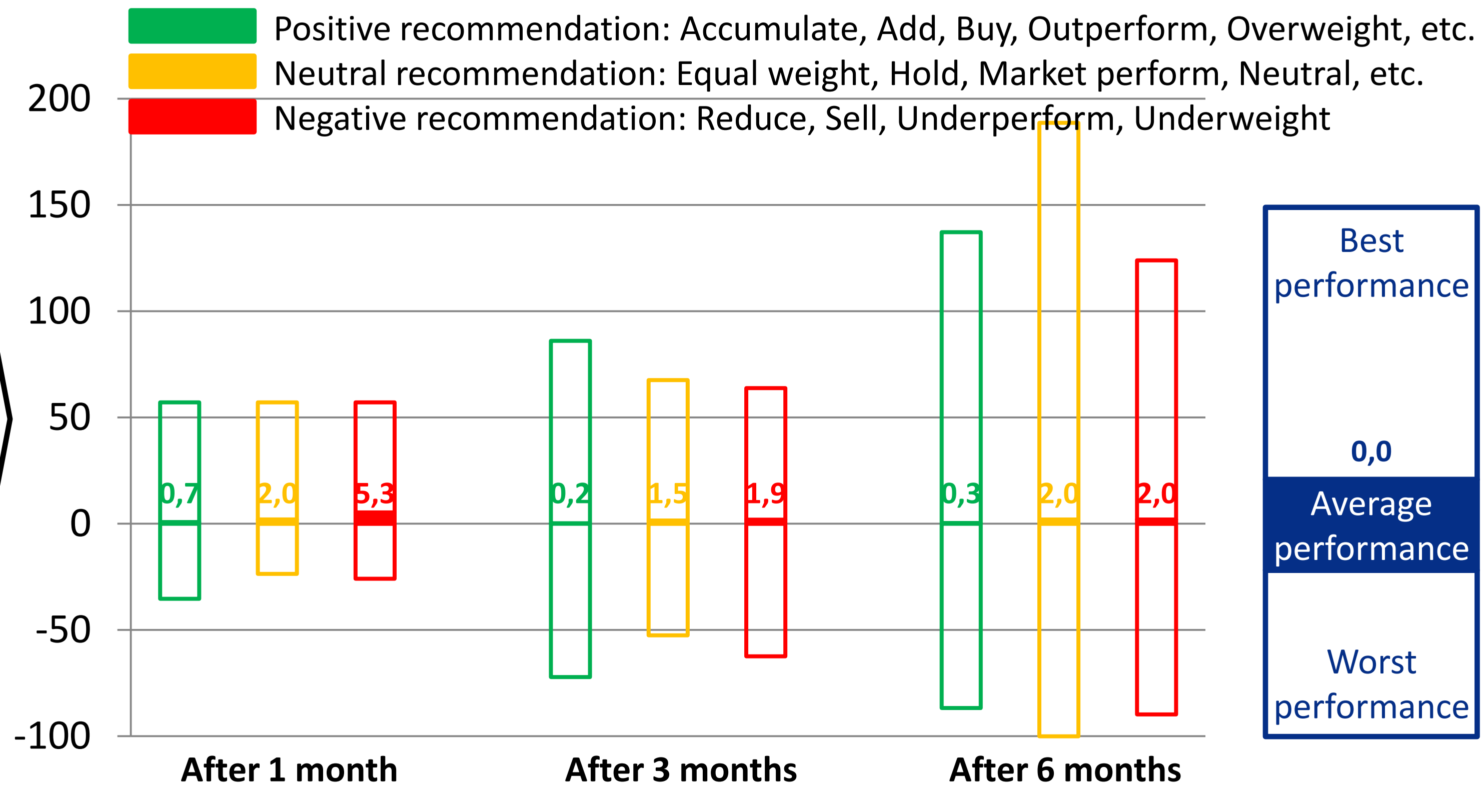
Recommendations by stock analysts have no predictive value

STOCK PERFORMANCE MINUS INDEX PERFORMANCE* AFTER 1, 3 AND 6 MONTHS

In %

SAMPLE

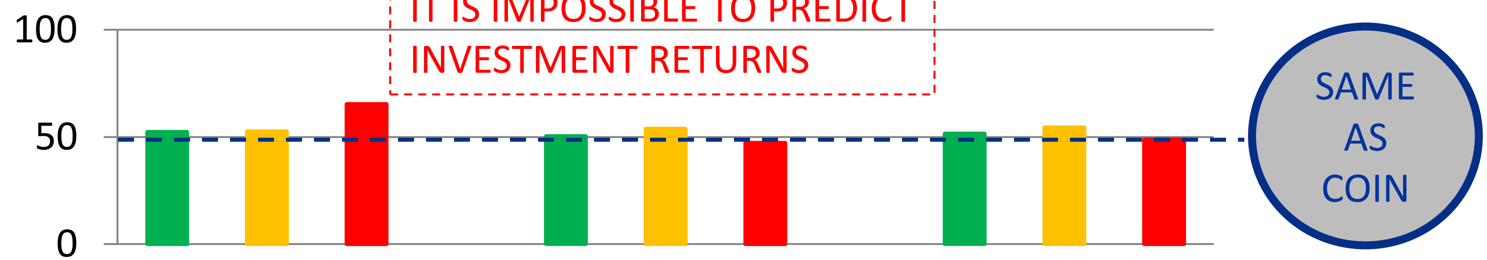
- 1.018 stock recommendations
- by 125 stock analysts (banks)
- covering 574 public companies
- in 35 markets (stock indices)
- published between 17.12. and 31.12.2012 on onvista.de



SHARE OF OUT-PERFORMERS

in % of recom-mendations

IT IS IMPOSSIBLE TO PREDICT INVESTMENT RETURNS



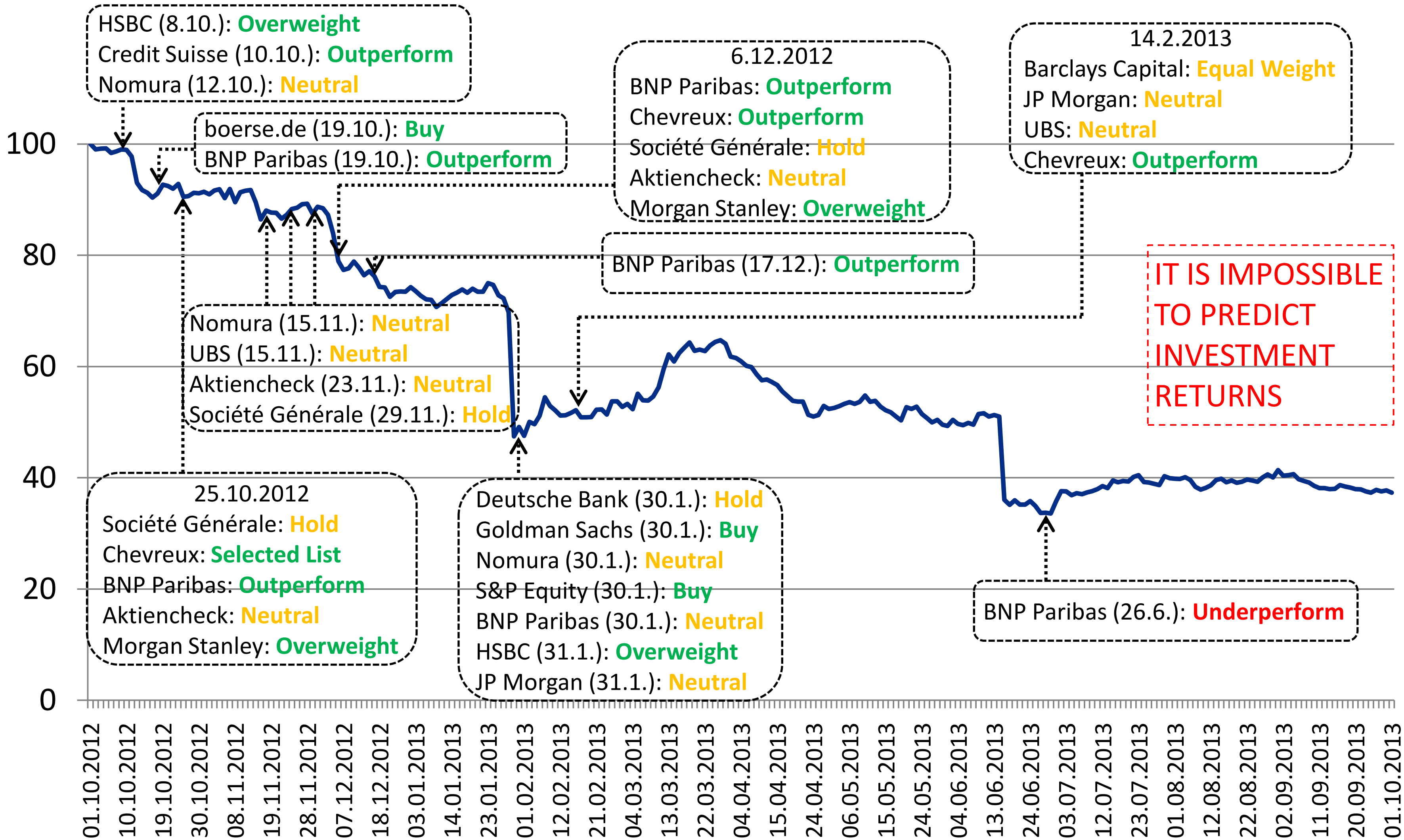
Source: Onvista.de, other investment sites; own calculations

* Change of stock price (%) – change of stockmarket *price* index (%)

Experts often display the same pro-cyclical behavior as private investors

STOCK PERFORMANCE AND RECOMMENDATIONS SAIPEM S.P.A. 1.10.2012 -30.9.2013

Relative performance vs. MBI index; 1.10.2012 = 100



Source: onvista.de, ariva.de; own calculations

CONCLUSION: SECOND PRINCIPLE OF SOUND INVESTING

IT IS IMPOSSIBLE TO PREDICT INVESTMENT RETURNS

1. Economic forecasts beyond one year have little predictive value
2. Bankers cannot predict stock returns, exchange rates, or bond yields
3. Recommendations by stock analysts do not predict performance
4. Experts often show the same pro-cyclical behavior as small investors

"If the future were merely a continuation of the trends that prevailed in the past, it would not be uncertain … But as this is not the case, what is called economic forecasting is merely guesswork."
Ludwig von Mises, *Human Action* (1949)

"Financial forecasting appears to be a science that makes astrology look respectable… Security analysts have enormous difficulty in … forecasting earning prospects for the companies they follow."
Burton Malkiel, *A Random Walk Down Wall Street* (1973)

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Most investment funds perform worse than the market index

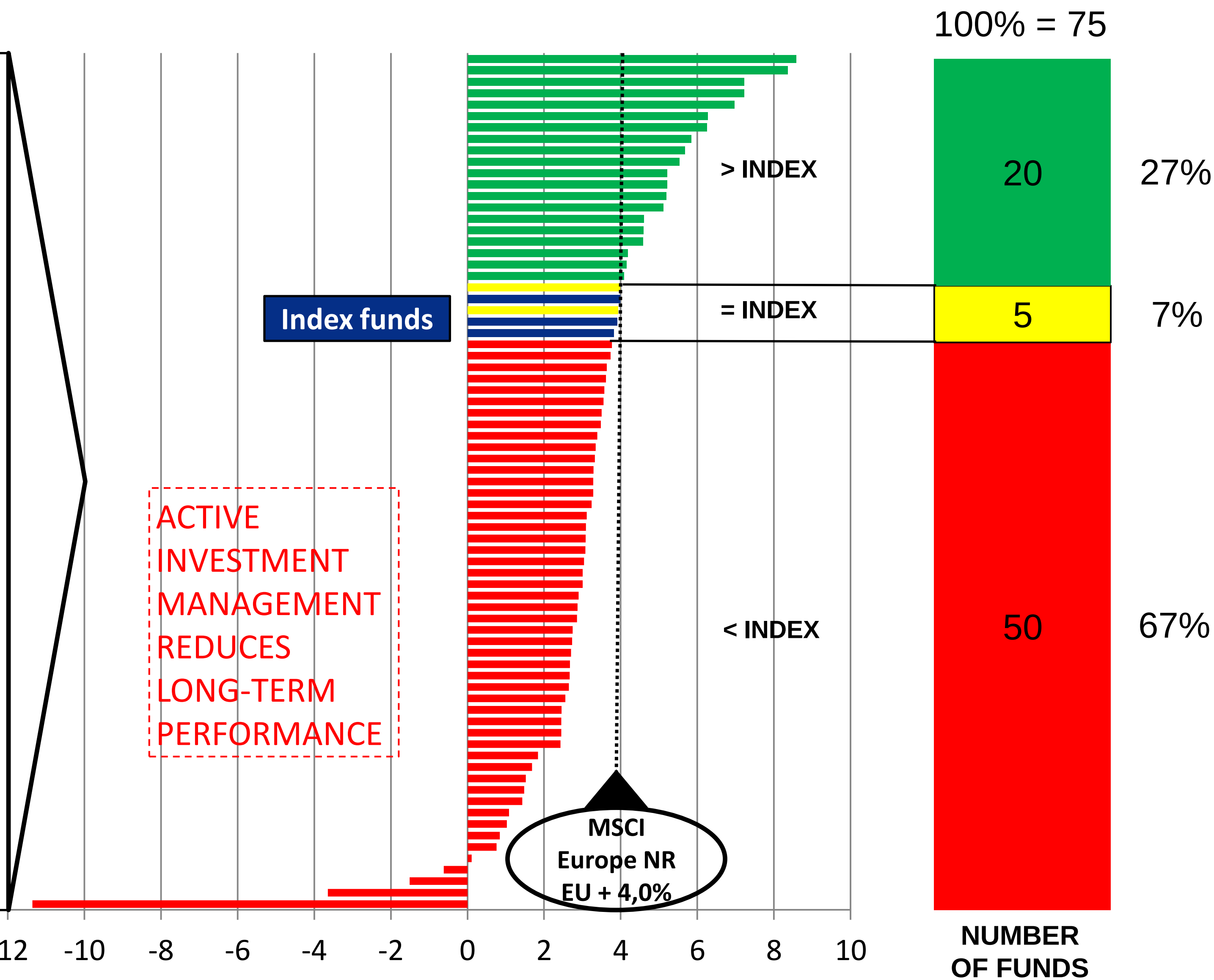
TOTAL RETURN EQUITY FUNDS EUROPE 2005-2012

In % p.a.

CRITERIA FOR FUND SELECTION

All funds (75) in the Morningstar Germany database that fulfill the following criteria:

- Morningstar Category: Europe Large-Cap Blend Equity
- Retail Investor Funds
- Distribution status: Accumulating
- First listed share class per fund
- Historical data for at least 10 years

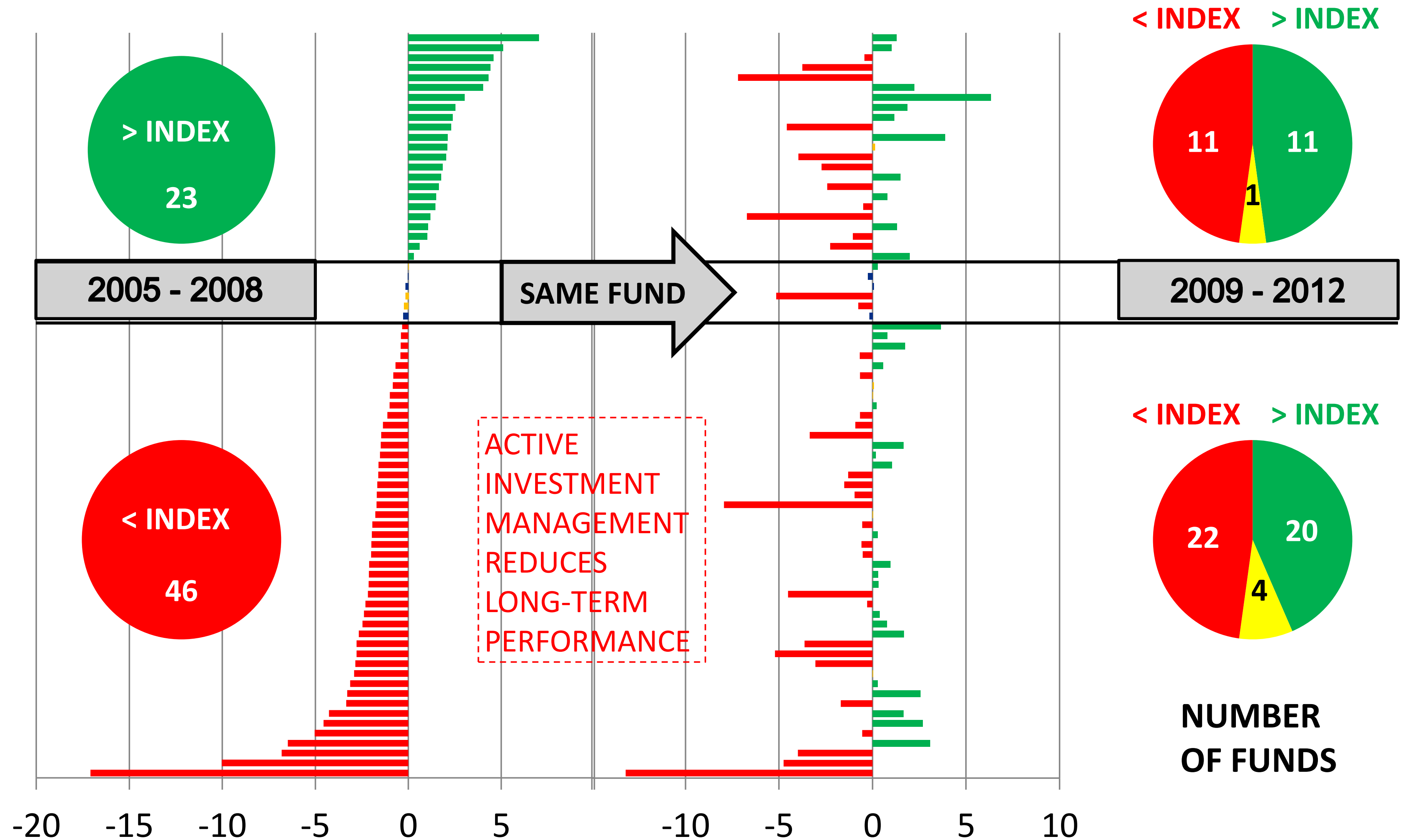


Source: Morningstar Germany

Outperformance in the past does not indicate better future performance

FUND RETURN MINUS INDEX RETURN (EQUITY FUNDS EUROPE)

In % points p.a.

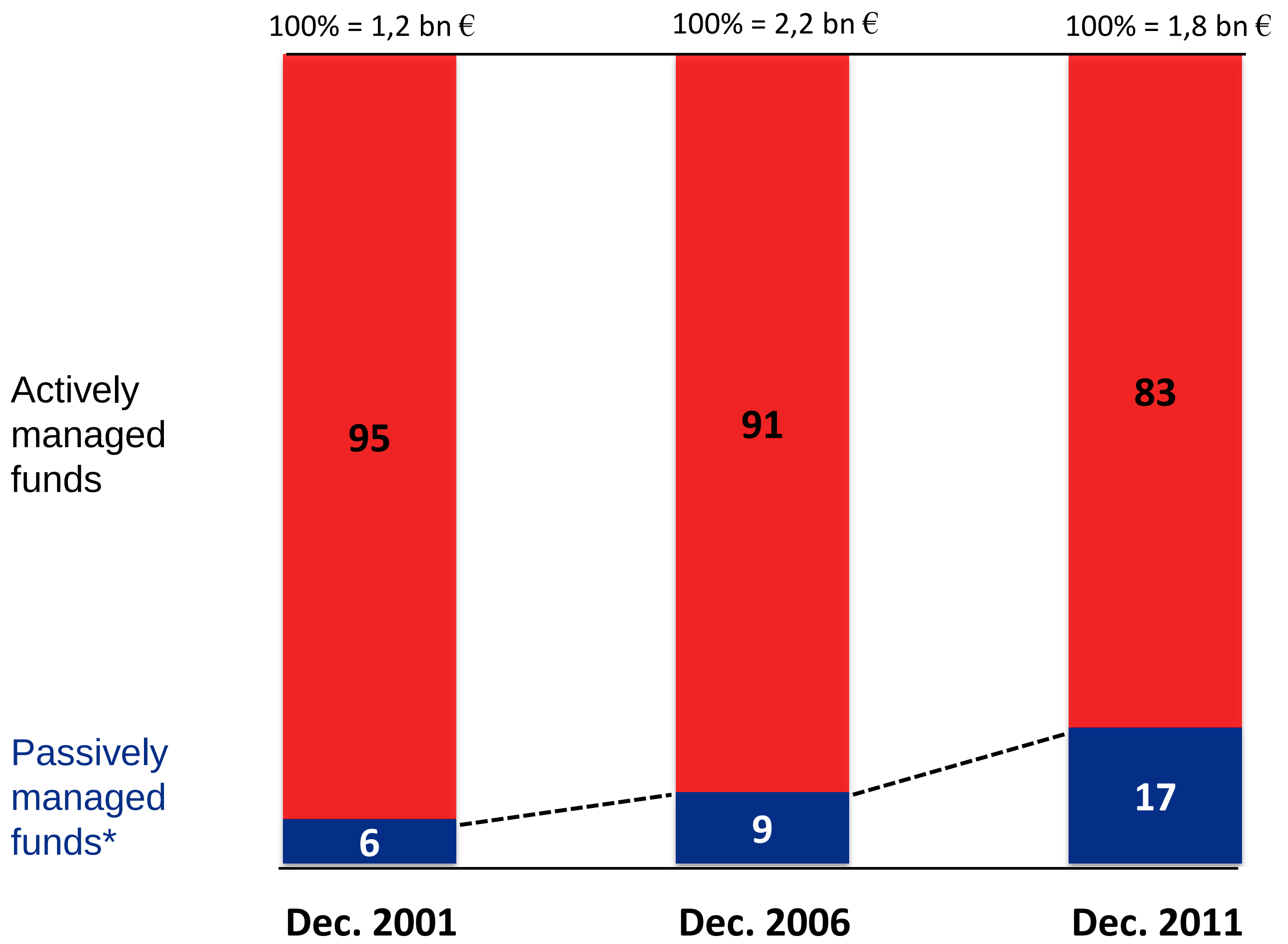


Source: Morningstar Germany

More and more investors choose passively managed index funds

BREAKDOWN OF EQUITY FUND ASSETS IN EUROPE

In %



"Clearly the support underpinning this success remains **institutional investors** and all eyes are open to see whether this investor base widens." (Lipper European Fund Market Review)

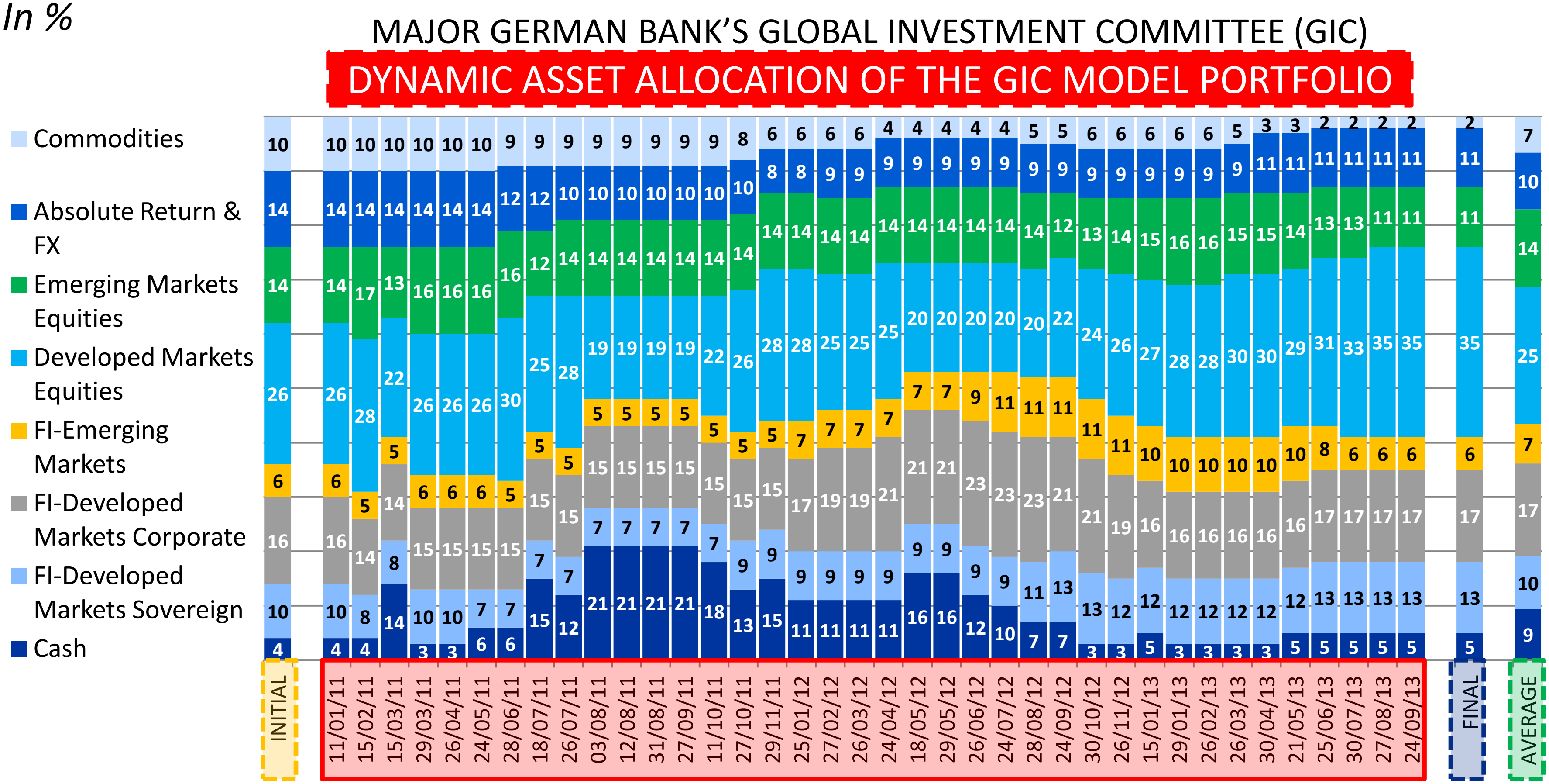
Source: Lipper European Fund Market Review 2012 edition, p. 8

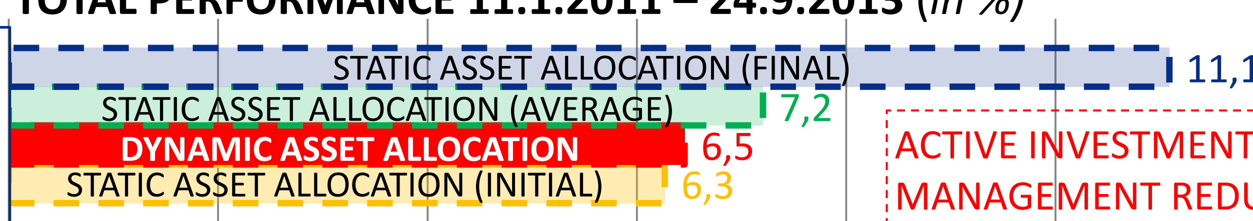
* Traditional index tracking funds and Exchange Traded Funds (ETFs)

Dynamic asset allocation may generate inferior long-term returns

TOTAL PERFORMANCE DYNAMIC VS. STATIC ASSET ALLOCATION

In %





Simulation with one representative ETF per asset class; rebalancing of all portfolios at each GIC meeting date

ACTIVE INVESTMENT MANAGEMENT REDUCES LONG-TERM PERFORMANCE

Source: Deutsche Asset & Wealth Management Investment Insights (various issues); onvista.de

CONCLUSION: THIRD PRINCIPLE OF SOUND INVESTING

ACTIVE INVESTMENT MANAGEMENT REDUCES LONG-TERM PERFORMANCE
1. Most investment funds perform worse than the market index
2. Outperformance in the past is no indication for superior performance in the future
3. More and more investors choose passively managed index funds
4. Dynamic asset allocation may generate inferior long-term returns

A "major industry appears to be built largely on an *illusion of skill*… Professional investors, including fund managers, fail a basic test of skill: persistent achievement."
Daniel Kahnemann (Nobel Prize in Economics 2002), *Thinking, Fast and Slow*

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As no investment is safe, the only way to reduce risk is total diversification

DIMENSIONS OF TOTAL DIVERSIFICATION

TOTALLY DIVERSIFIED PORTFOLIO

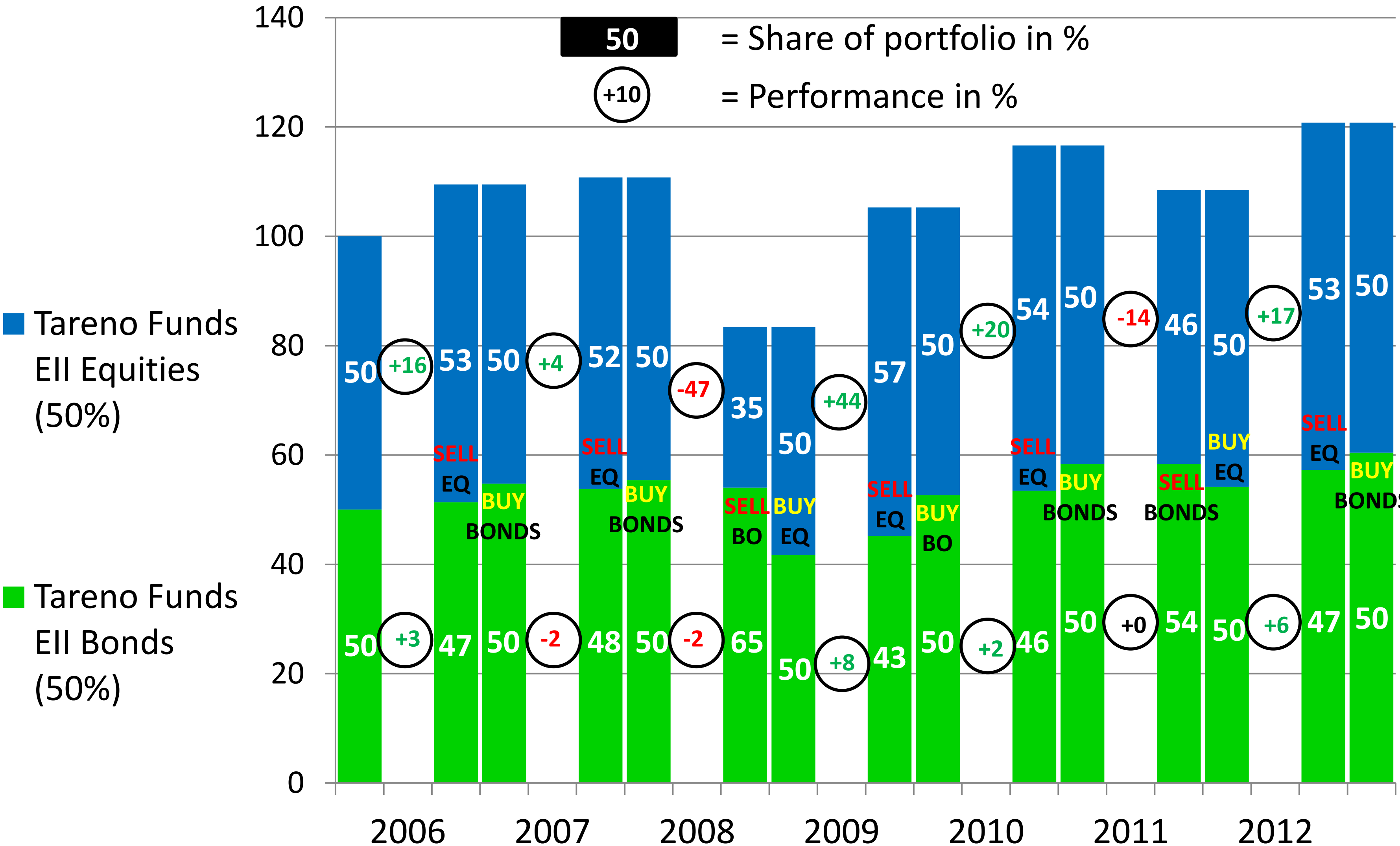
BASIC ALLOCATION	FURTHER DIVERSIFICATION	Possible number of asset classes
EQUITIES • Highest long-term returns (but highest short-term risk) • Partial inflation hedge	**Region** (Europe, America, Asia) **Development level** (developed, emerging) **Market capitalization** (large, small) **Equity style** (value, growth)	3 x 2 x 2 x 2 = 24
BONDS • Lower portfolio risk (low correlation with equities) • Best deflation hedge (but vulnerable to inflation)	**Currency** (EUR, CHF, USD, others) **Duration** (short-term, long-term) **Credit risk** (investment grade, high yield)	4 x 2 x 2 = 16
REAL ASSETS • Lower portfolio risk (low correlation with equities, especially **gold**) • Best inflation hedge	**Precious metals** (gold, others) **Real estate** (diversified by region) **Resources** (e.g. energy)	~4 + 3 + ~3 ≈ 10
		≈ 50

"Because we cannot predict the future, we diversify."
Paul Samuelson (Nobel Prize in Economics 1970)

Portfolio rebalancing with a fixed allocation means buying low and selling high

REBALANCING EXAMPLE (1/2)

Portfolio value (31.12.2005 = 100)

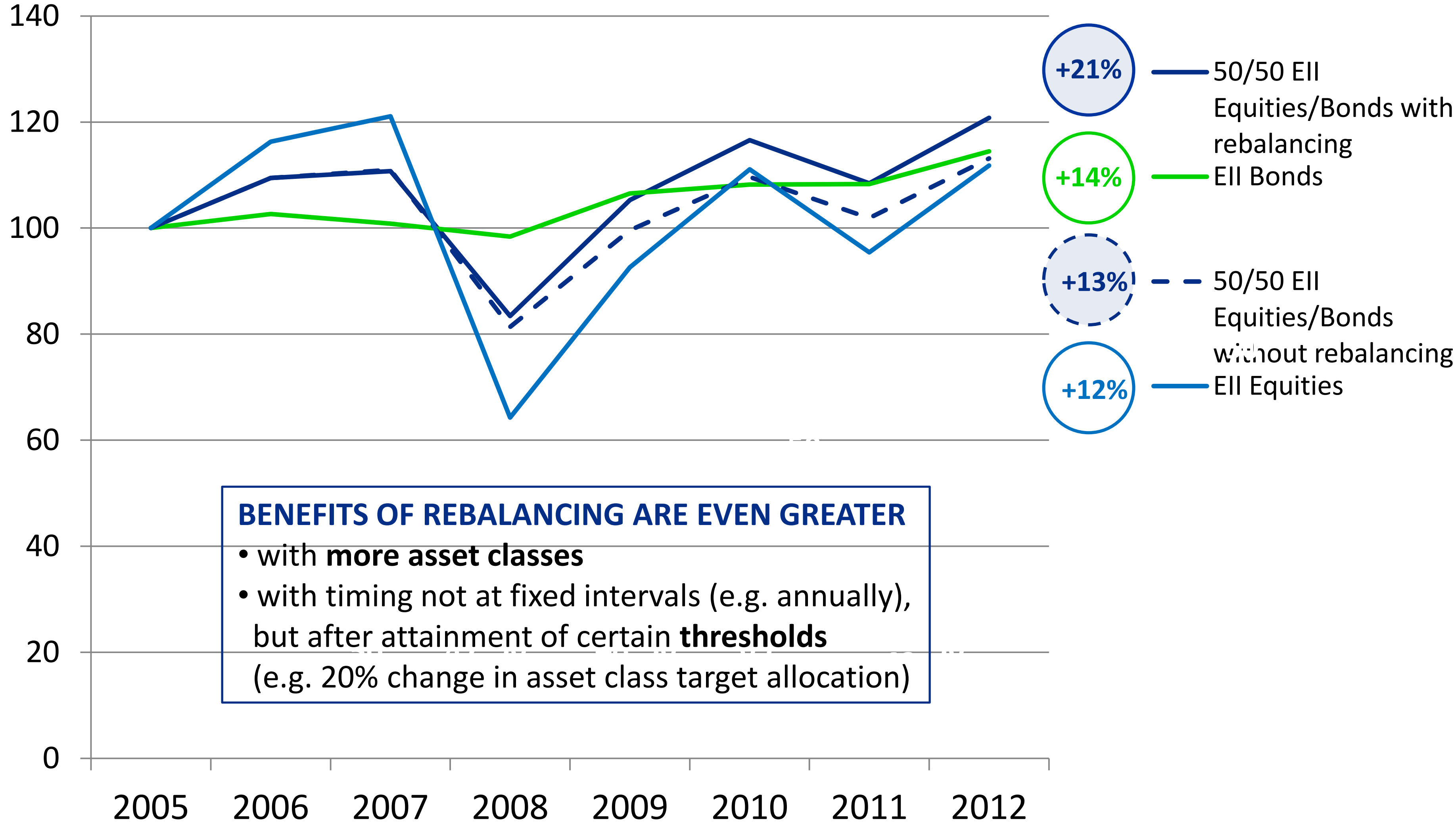


Source: Tareno (Luxembourg) S.A.

Portfolio rebalancing with a fixed allocation can generate higher returns

REBALANCING EXAMPLE (2/2)

Growth of portfolio value (31.12.2005 = 100)

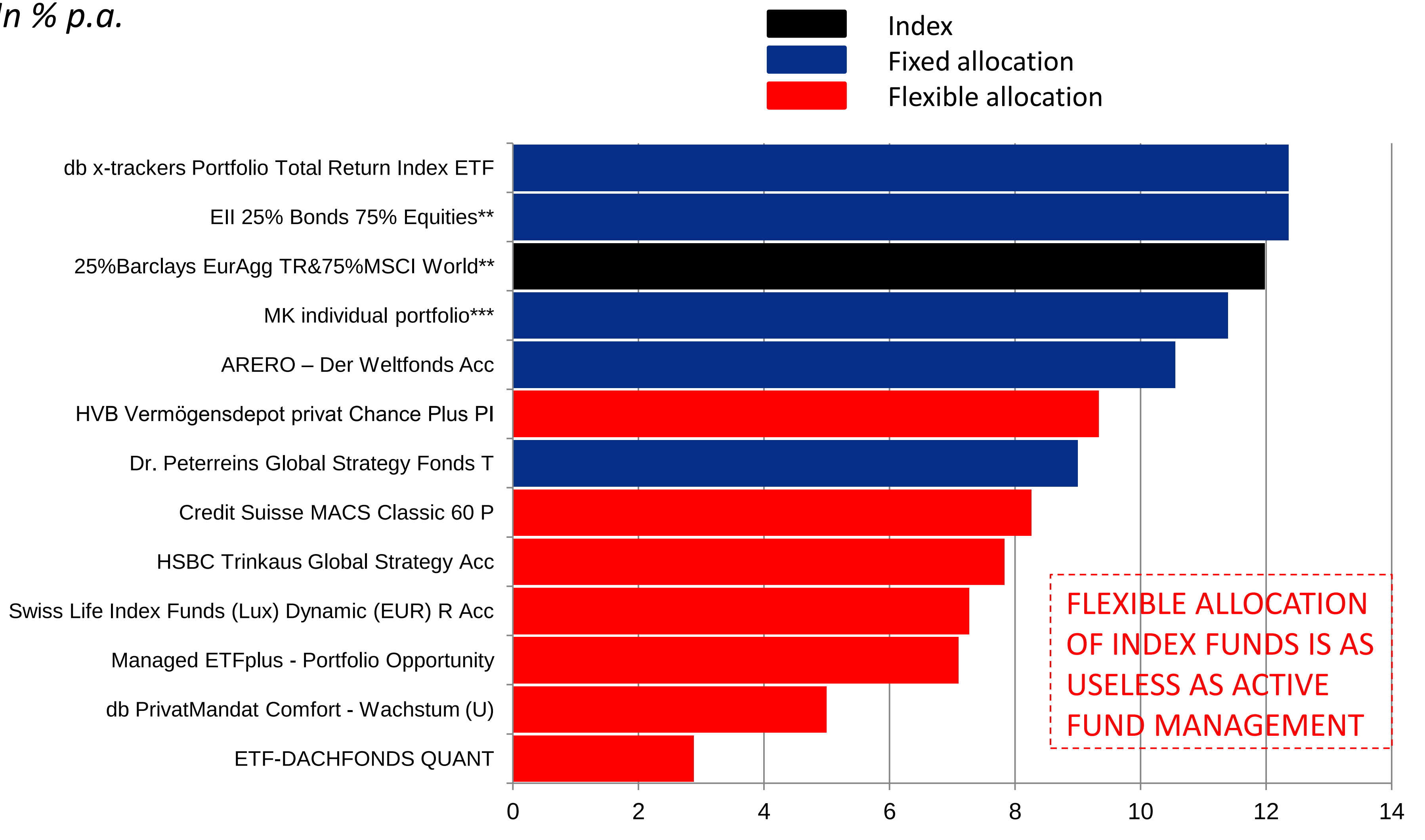


Source: Tareno (Luxembourg) S.A.

Flexible allocation seems to lower the return of managed ETF portfolios

RETURN OF MIXED INDEX PORTFOLIOS (75% EQUITIES/25% BONDS)* 2009-2012

In % p.a.



* With Morningstar benchmark 25% Barclays Eur Agg TR & 75% FTSE World TR ** With annual rebalancing
*** Client portfolio with fixed allocation managed by MK

Source: Morningstar Germany, Tareno (Luxembourg) S.A.

A sound investment manager performs three specific tasks

TASKS OF INVESTMENT MANAGER APPLYING PRINCIPLES OF SOUND INVESTING

Check suitability of new available index funds

FIXED ALLOCATION	FUND SELECTION	MANAGEMENT
Specify appropriate asset allocation for a totally diversified portfolio: • Basic allocation among equities, bonds, and real assets • Further diversification by asset class*	Choose a physically replicating index fund for each asset class: • Choose appropriate index • Check index fund's tracking performance	Maintain the specified fixed allocation through rebalancing: • at regular intervals (e.g. annually) *or* • at the attainment of predefined thresholds (e.g. 20% change in asset class target allocation)

Adjust fixed allocation only in case of major structural changes**

* Maximum one asset class per 100.000 € to limit transaction costs

** E.g. dissolution of euro area, reintroduction of gold standard, abolishment of market economy in specific countries etc.

CONCLUSION: FOURTH PRINCIPLE OF SOUND INVESTING

THE BEST WAY TO INVEST IS TOTAL DIVERSIFICATION WITH FIXED ALLOCATION
1. The only way to reduce risk is total diversification
2. Portfolio rebalancing with a fixed allocation means buying low and selling high
3. Portfolio rebalancing with a fixed allocation can generate higher returns
4. Flexible allocation seems to lower the return of managed ETF portfolios
5. A sound investment manager maintains a diversified fixed allocation of index funds

"Since the future cannot be predicted, it is impossible to specify in advance what the best asset allocation will be. Rather, our job is to find **an allocation that will do reasonably well under a wide range of circumstances**… Sticking by your target asset allocation through thick and thin is much more important than picking the right asset allocation."

William Bernstein, *The Intelligent Asset Allocator (2001)*

Everything you always wanted to know about investing …

… but were afraid to ask your banker

	FOUR PRINCIPLES OF SOUND INVESTING
1.	There is no safe investment
2.	It is impossible to predict future investment returns
3.	Active investment management reduces long-term performance
4.	The best way to invest is total diversification with fixed allocation
Appendix	An investment fund based on the principles of sound investing

Initial diversification by three basic asset classes

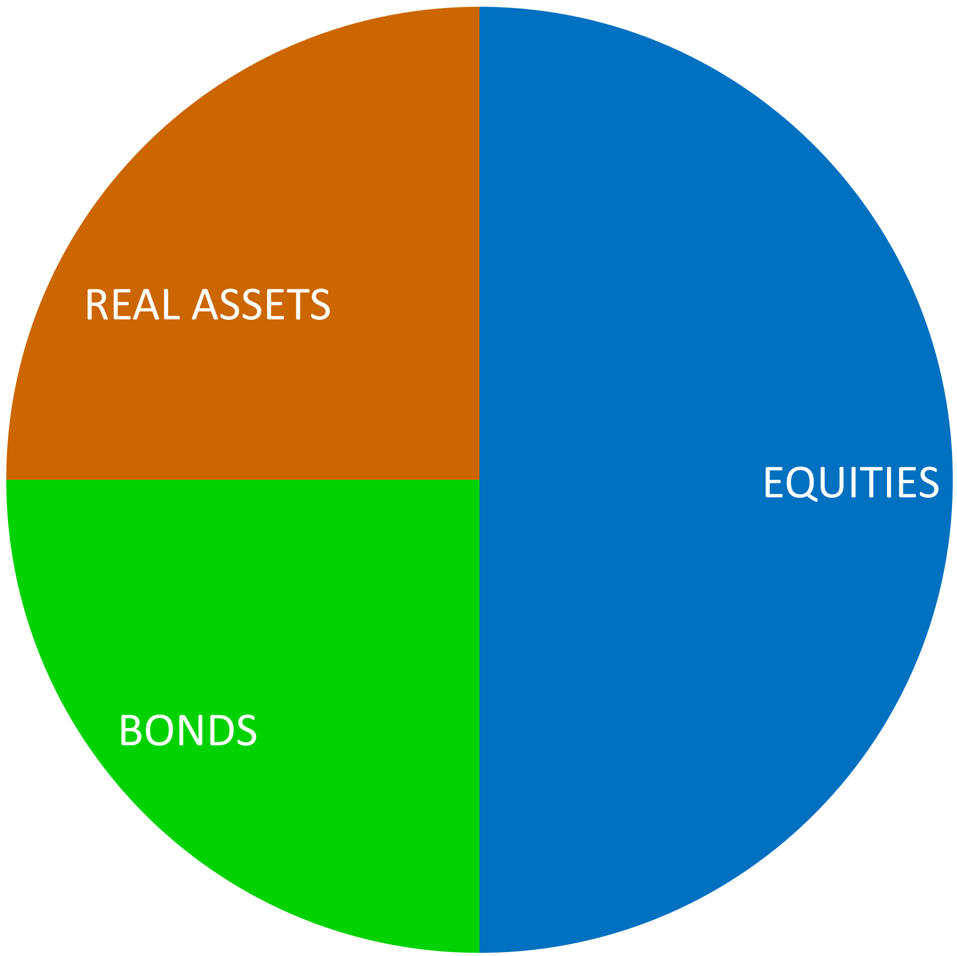
RIGOROUS DIVERSIFICATION (STEP 1/5)

3 ASSET CLASSES

TARENO DIVERSIFIED INDEX INVESTING -

EQUITIES, BONDS, REAL ASSETS

REAL ASSETS
- **High individual risk**, but
- **Lower portfolio risk** (low correlation with equities)
- **Best inflation hedge**



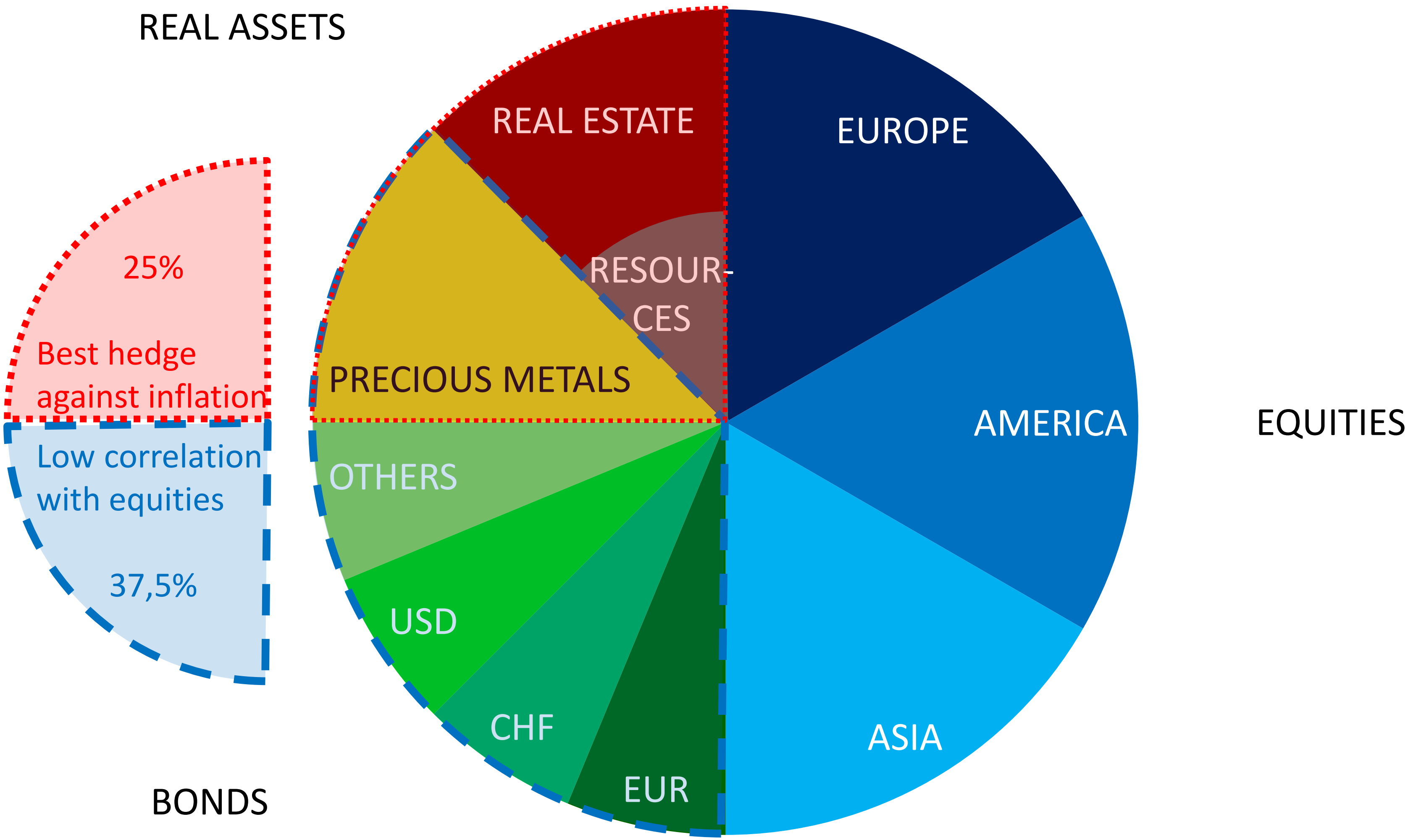
BONDS
- **Lower portfolio risk** (low correlation with equities)
- Best deflation hedge (but **vulnerable to inflation**)

EQUITIES
- **Highest long-term returns** (but **highest short-term risk**)
- Partial inflation hedge

Further diversification by geography, currency, and real asset category

RIGOROUS DIVERSIFICATION (STEP 2/5) *10 ASSET CLASSES*

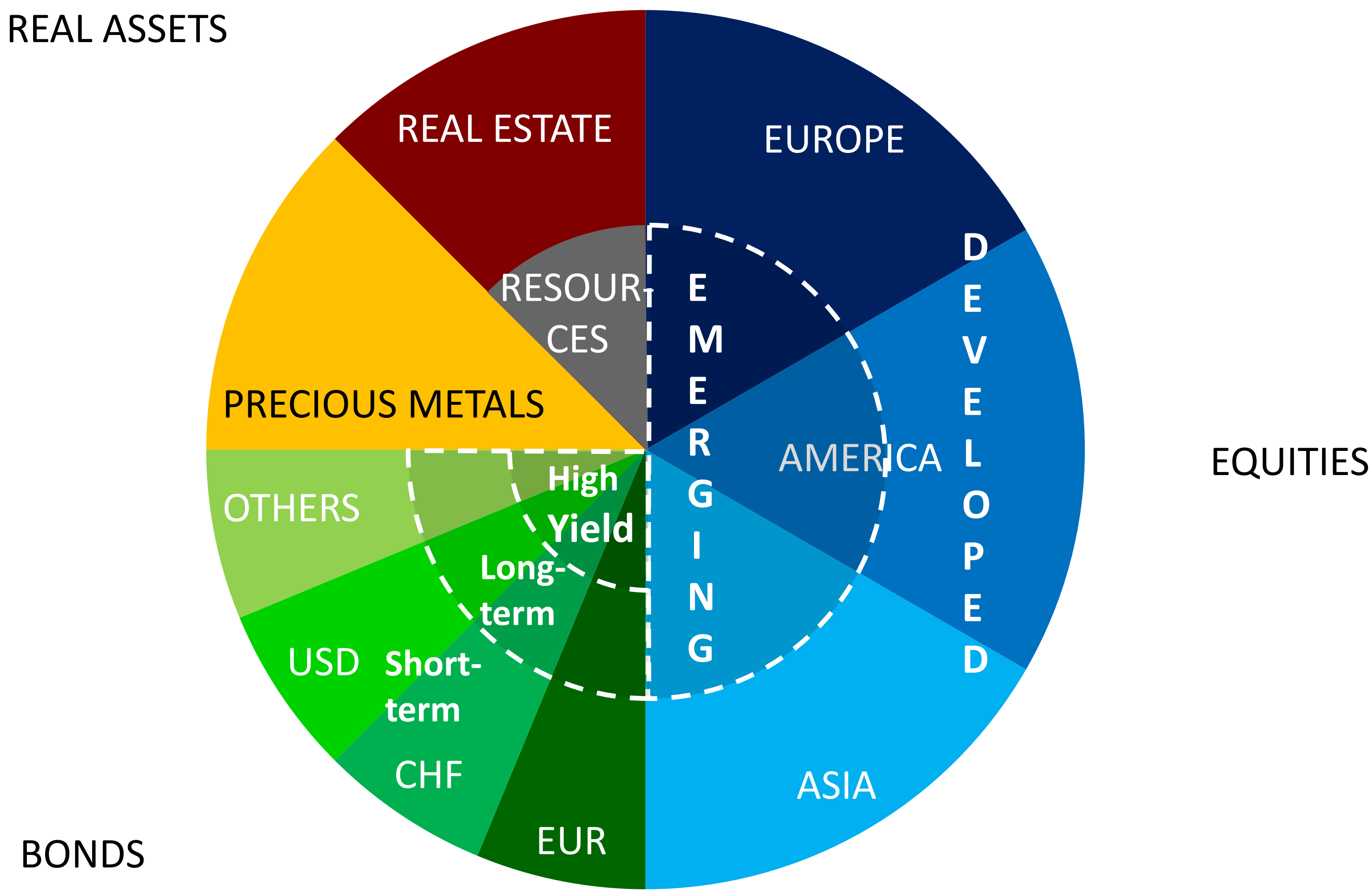
TARENO DIVERSIFIED INDEX INVESTING -
EQUITIES, BONDS, REAL ASSETS



Further diversification by development level, duration, and credit risk

RIGOROUS DIVERSIFICATION (STEP 3/5) *21 ASSET CLASSES*

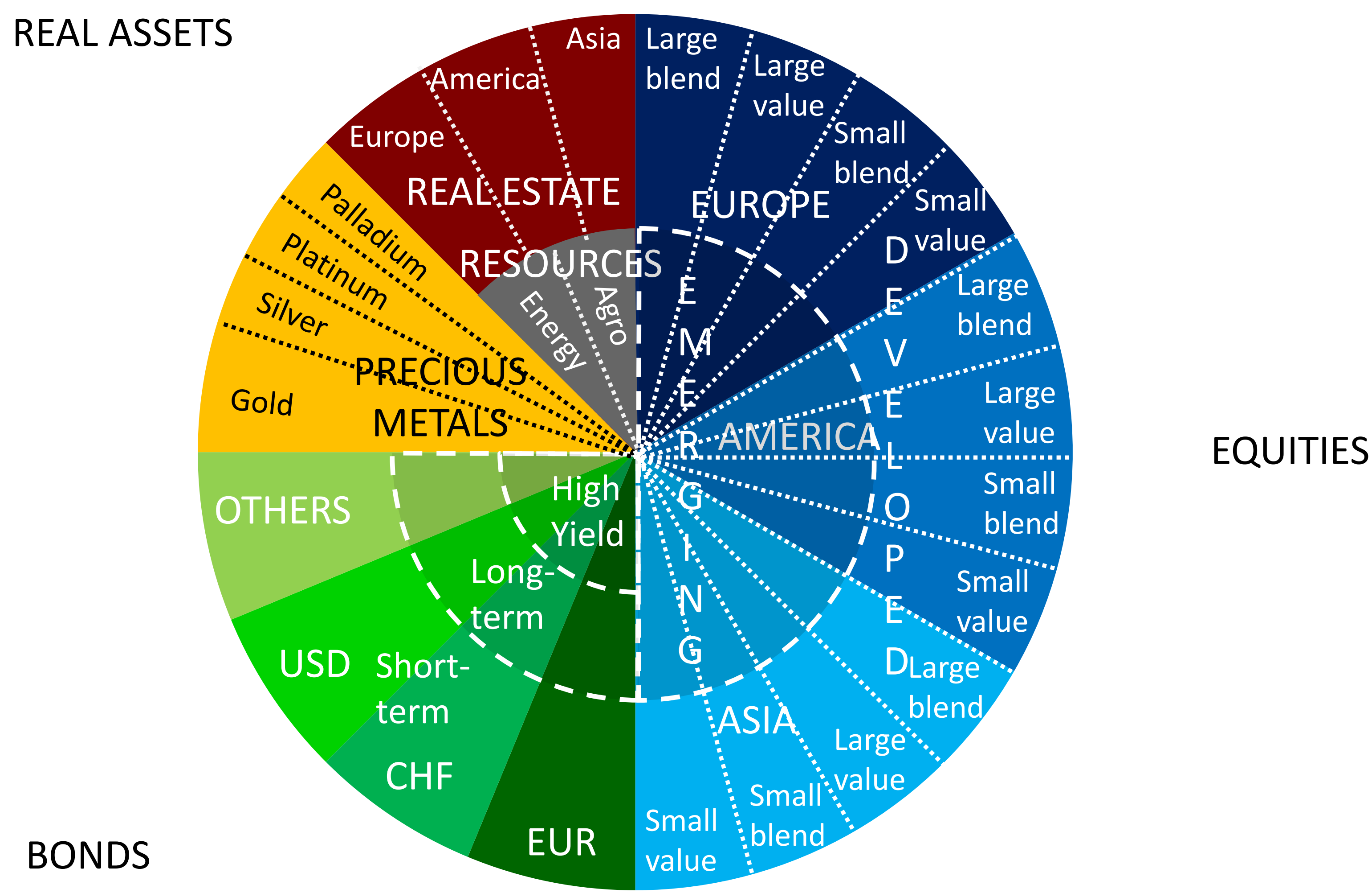
TARENO DIVERSIFIED INDEX INVESTING -
EQUITIES, BONDS, REAL ASSETS



Detailed diversification of equities by style, of real assets by type

RIGOROUS DIVERSIFICATION (STEP 4/5) *45 ASSET CLASSES*

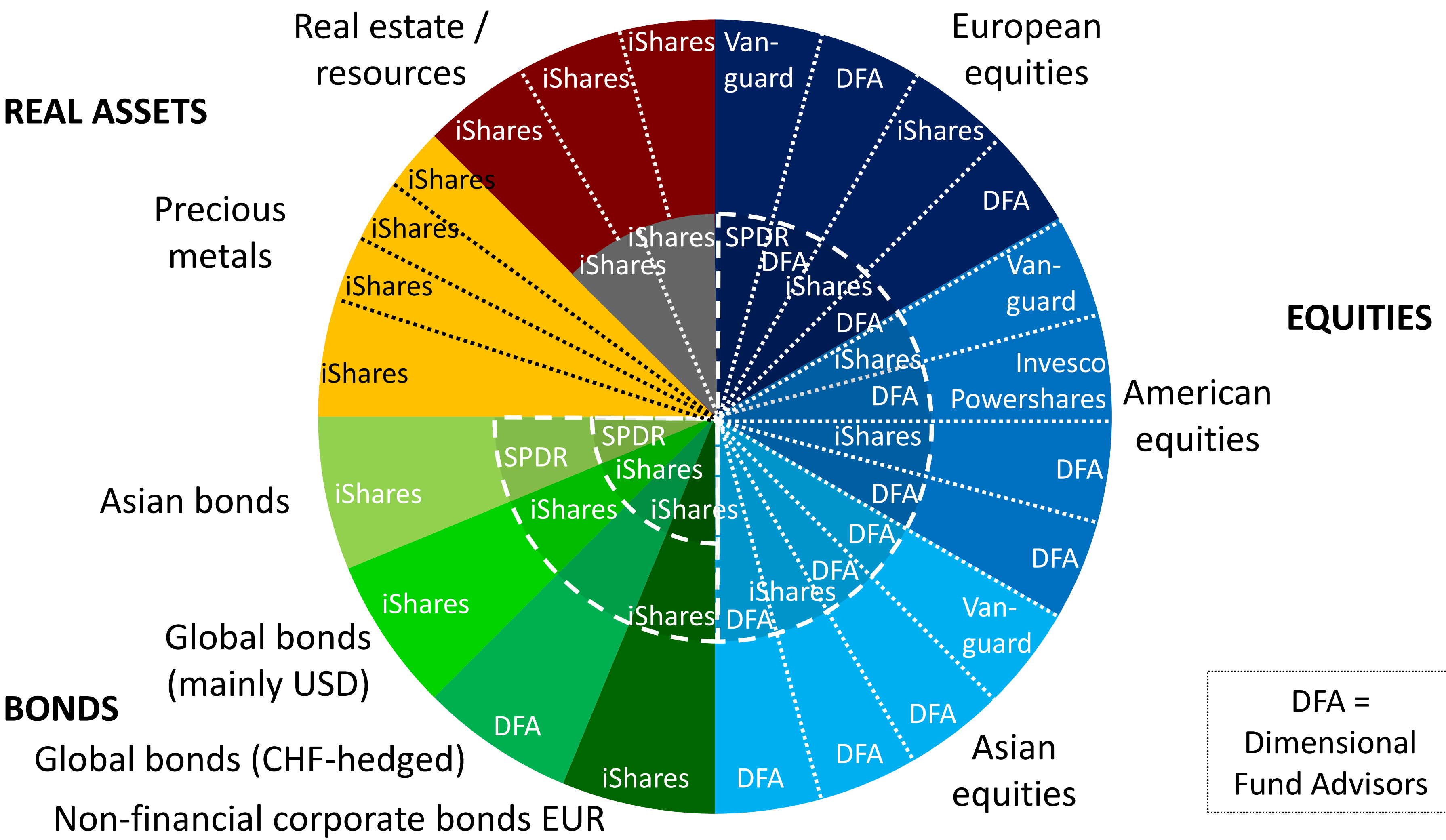
TARENO DIVERSIFIED INDEX INVESTING -
EQUITIES, BONDS, REAL ASSETS



Implementation of fixed allocation with physically replicating index funds

RIGOROUS DIVERSIFICATION (STEP 5/5 – FUND SELECTION BY COMPANY)

TARENO DIVERSIFIED INDEX INVESTING -
EQUITIES, BONDS, REAL ASSETS



Fixed DII allocation would have outperformed 95% of all global mixed funds

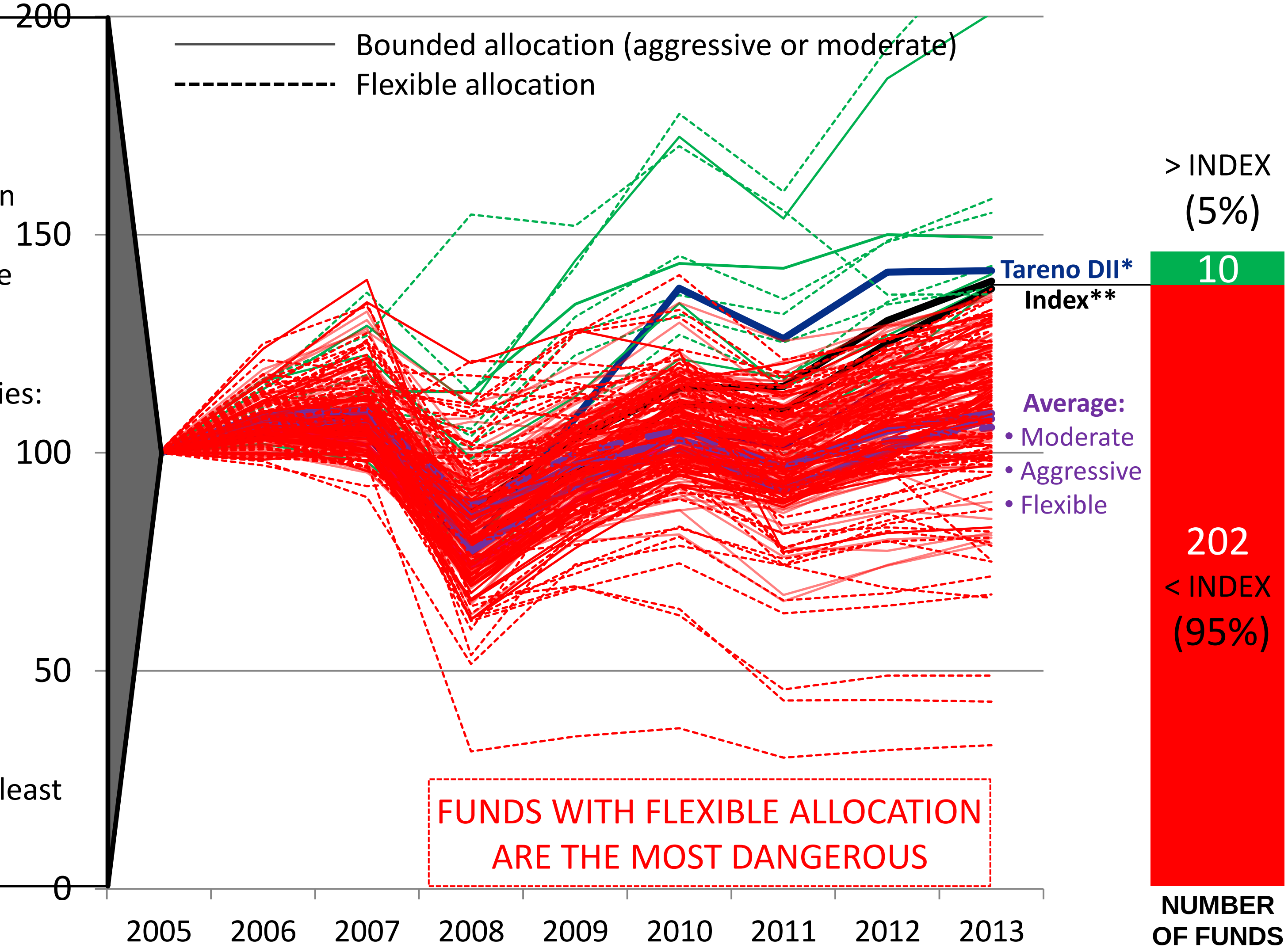
BACK TESTING TARENO DII - EQUITIES, BONDS, REAL ASSETS 2006-2013

GROWTH OF FUND VALUE *(31.12.2005 = 100)*

CRITERIA FOR FUND SELECTION

All mixed funds (212) in Morningstar Germany database that fulfill the following criteria:

- Morningstar Categories: EUR Moderate/ Aggressive/Flexible Allocation - Global
- Retail Investor Funds
- Distribution status: Accumulating
- Historical data for at least 8 years



Source: Morningstar Germany

* With annual rebalancing and TER 1,4%

** 50/50 and 75/25 FTSE Wld TR & Barclays EurAgg TR

CONCLUSION: A FUND BASED ON THE PRINCIPLES OF SOUND INVESTING

TARENO **DIVERSIFIED INDEX INVESTING** - EQUITIES, BONDS, REAL ASSETS
1. Rigorous diversification among 45 classes of equities, bonds, and real assets
• Superior long-term returns through focus on global equities (1/2 of portfolio) • Reduction of portfolio risk through global bonds and precious metals (3/8 of portfolio)
• Reduction of inflation risk through real assets (1/4 of portfolio)
2. Investment only in physically replicating, low-cost index funds by leading providers
3. Management with low transaction costs, based on fixed allocation with rebalancing
4. Better long-term performance than most flexible funds (confirmed by back testing)
5. Competitive management fee of 0,9% p.a. (in share class A with €50.000 minimum*)

RIGOROUS DIVERSIFICATION - WITHOUT ACTIVE SPECULATION

* 1,4% in share class B