



Institut der deutschen
Wirtschaft Köln

The Inflation-Hedging Properties of Real Estate

Dr. Michael Voigtländer, Center for Real Estate Economics

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Inhalt

■ **Motivation**

■ Methodology

■ Real Estate Stocks and Inflation

■ Direct Investments and Inflation

■ Conclusion

Motivation

- **Real Estate is regarded as an asset that protects against inflation**

- rents are indexed to inflation
- construction cost increase with inflation

- **Empirical evidence is mixed**

- Fama/ Schwert (1981) find a negative correlation
- Others, like Hoesli et al. (2006), find a positive correlation

- **Literature concentrates on REITs and UK/US-market**

- an international panel is used
- different types of property (residential, office, retail) are taken into account

Fama/Schwert-Approach

- **According to Irving Fisher interest rates and returns should fully adjust to expected inflation**
 - Investors expectations are derived by the Box-Jenkins method
 - Alternatively inflation forecasts are used
- **Moreover, the sensitivity of returns to unexpected inflation is tested**
- **Additional variables**
 - monthly industry production
 - 3-month money market rate
 - realised inflation rate

Data

- International panel with Canada, United States, Finland, France, Germany, Ireland, Netherlands, Sweden and United Kingdom
- Macroeconomic data: OECD
- Total return of stocks
 - real estate stocks: EPRA
 - other stocks: Dax, Total-Return-S&P-500-Index (US), subindices of FTSE-Total-Return-World-Indices
- Total return of direct investments
 - IPD
 - NCREIF

Results for stocks

regression coefficients for january 1994 to june 2008

	real estate total returns			total return of stocks		
	Ia	Ila	IIla	Ib	IIb	IIIb
constant	0,01**	0,01	0,03**	0,00**	-0,00	0,01*
inflation	-0,02*	-	-0,02*	-0,01**	-	-0,01*
expected inflation	-	0,05	-	-	0,06	-
unexpected inflation	-	-0,03*	-	-	-0,02**	-
change of industry production	-	-	-0,25	-	-	0,10
money market rate	-	-	-0,62**	-	-	-0,05
R ²	0,01	0,01	0,03	0,01	0,01	0,01
countries	9	9	9	8	8	8
observations	1.192	1.192	1.191	1.096	1.088	1.090

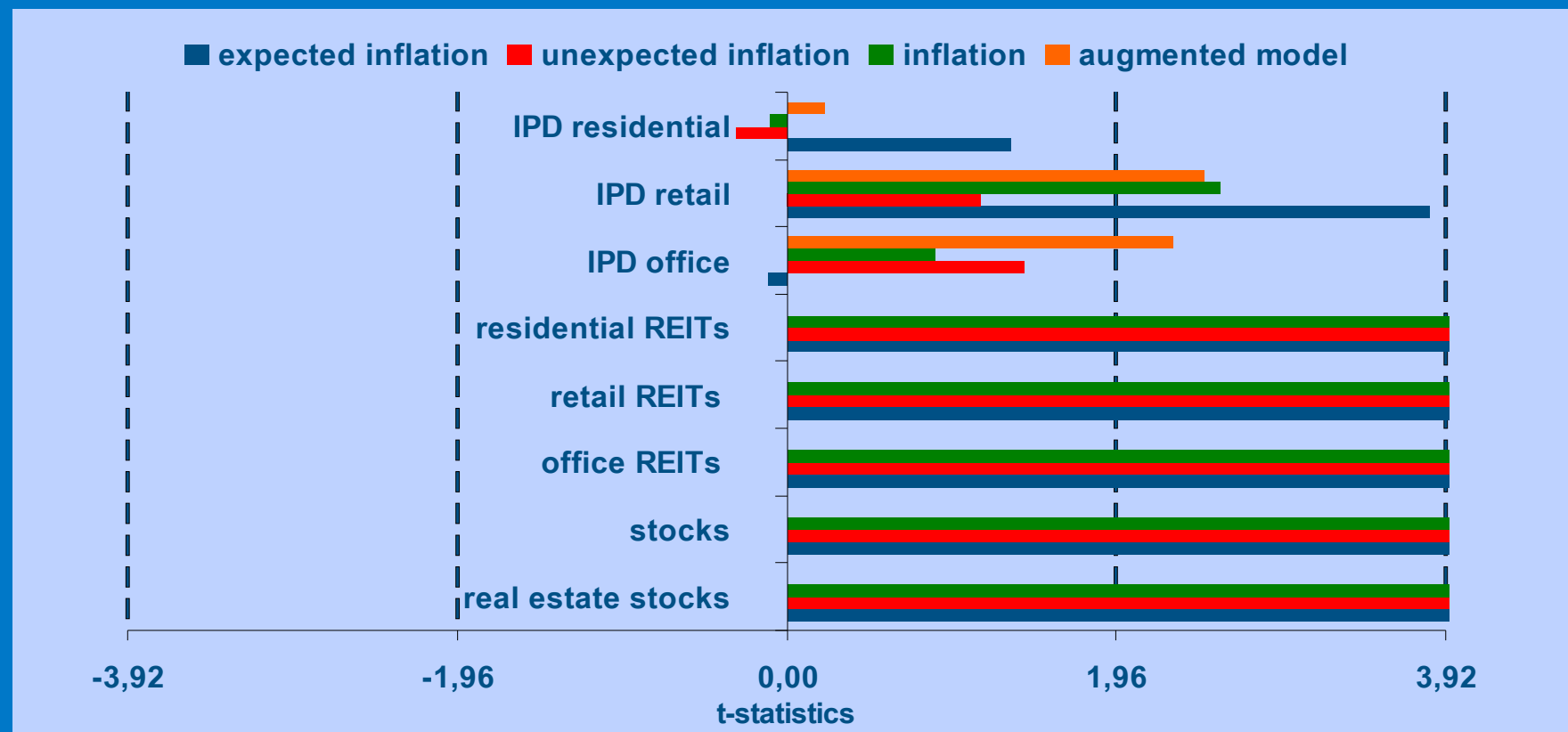
Source: IW Köln

Real estate stocks do not react to inflation

- Neither stocks nor real estate stocks provide an inflation-hedge
- This applies also to specialised REITs (residential REITs or office REITs)
 - such indices are not available for european stocks
 - US-REITs cannot be explained by macroeconomic factors
- All in all, the coefficient of determination is very low
- Generally, stocks are not highly correlated with macroeconomic factors since expectations and corporate news are more relevant
- A negative correlation between inflation and returns is probably an indicator for worsening expectations

Mixed Results for Direct Investments

Results for t-Tests with the null hypothesis: $\beta_i=1$ for the coefficients of the models I to III



Source: IW Köln

Residential Property provides an inflation-hedge

- **Residential Property offers an hedge against expected and unexpected inflation**
 - Rents are often indexed
 - The good housing cannot be substituted
- **Offices protect only partly against inflation**
 - Results are mixed
 - Worsening economic perspectives (inflation) alleviate the demand for office space
- **Retail property does not provide an inflation-hedge**
 - Retailers cannot shift inflation to customers
 - However, retail real estate protects against unexpected inflation



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contact:

Dr. Michael Voigtländer

Center for Real Estate Economics

tel.: +49 221-4981 741

email: voigtlaender@iwkoeln.de

www.immobilienoekonomik.de