

Contents

1	Abstract	1
2	Introduction	3
2.1	Definitions	5
3	Chapter I: Literature on the Subject of Excess Volatility	7
3.1	Findings of Excess Volatility In Long-term Interest Rates	7
3.1.1	The Determinants of Interest Rates: The Loanable Funds Theory	7
3.1.2	Rational Expectations Models	9
3.2	Findings of Excess Volatility in Long-maturity Stock Prices	11
3.2.1	Ex Post Rational Prices	13
3.2.2	The Dividend Series and Variance Bounds	14
3.2.3	A Small Excursus on the Distributions of Prices and Information	15
3.2.4	Other Interpretations of the Efficient Markets Model	16
3.2.5	Empirical Results of Shiller (1981a)	16
3.3	Criticisms of Shiller (1981a)	17
3.4	Volatility Measures	19
3.4.1	The Variance Inequalities	21
3.4.2	Possible Shortcomings of the Models	23
3.5	Alternatives to—or Possible Explanations in Line With—the Efficient-markets Hypothesis	24
3.5.1	“Fads” Models	25
3.5.2	Time-varying Real Discount Factors	26
3.5.3	Time-varying Term Premia	26
3.5.4	The “Peso” Problem	27
3.5.5	Some Final Observations	28

4 Chapter II: Excess Volatility Beyond Discount Rates	29
4.1 The Risk-neutral Focus	29
4.2 The Methodology	32
4.2.1 A Simplified Model for Measuring Excess Volatility	34
4.2.2 The Affine- \mathbb{Q} Model	36
4.2.3 The Variance Ratio Test	37
4.3 The Findings	39
4.3.1 Variance Swaps	39
4.3.2 Equity Options	41
4.3.3 Currency Options	42
4.3.4 Government Bond Yields	43
4.3.5 Inflation Swaps	43
4.3.6 Commodity Futures	44
4.3.7 Credit Default Swaps	44
5 Chapter III: Evidence of Excess Volatility in the Eurozone Market	47
5.1 The Data	47
5.1.1 The EURO STOXX 50 Index	49
5.1.2 The DAX Index	49
5.2 The Computations	50
5.3 The Results	54
5.3.1 Variance Swaps	54
5.3.2 Equity Options	55
5.3.3 Currency Options	59
5.3.4 German Bunds	60
5.4 Potential Explanations	62
5.4.1 Long-memory Cash Flow Dynamics	63
5.4.2 Absence of Relevant Factors	64
5.4.3 Non-linearities	64
5.4.4 Potential Mispricing	65
5.5 Natural Expectations	66
6 Conclusions	71
Bibliography	75