

Contents

1	Introduction	1
2	Intermediaries and Venues: Connecting End-Users through Time and Space	11
2.1	Introduction	11
2.2	Intermediaries and end-users	18
2.3	Taxonomy of traders	21
2.4	Profitability of different groups	26
2.4.1	How profits are related to cross-market activity?	26
2.4.2	How profits are distributed in different frequencies?	31
2.5	Volatile vs quiet periods	33
2.5.1	Profitability and cross-market trading	34
2.5.2	Frequency decomposition of profitability	37
2.6	Factor-based intermediaries: connecting end-users on the same factors across securities	38
2.6.1	Identification of risk factors	39

2.6.2	Intermediaries with mean-reverting positions on risk factors	41
2.6.3	Profitability of factor-based intermediaries	43
2.6.4	Comparison between stock- and factor-based intermediaries	45
2.7	Conclusion	46
2.A	Appendix	48
2.A.1	Frequency decomposition	48
2.A.2	Robust check of frequency decomposition of profits	50
3	Systemic Risk in Real Time: A Risk Dashboard for Central Counterparties	51
3.1	Introduction	51
3.2	Approach	56
3.2.1	Real-time CCP exposure: tail risk in aggregate losses	57
3.2.2	Decomposition: Root cause(s) of CCP exposure change	58
3.2.3	Simple example to illustrate the exposure-change decomposition	62
3.3	Data	65
3.4	Application	67
3.4.1	Implementation details	67
3.4.2	Real-time CCP exposure	70
3.4.3	Decomposition of CCP exposure changes	73
3.4.4	Three largest exposure increases	75
3.5	Concluding remarks	85

3.A	Appendix	86
3.A.1	Decomposition of CCP exposure change into components	86
3.A.2	Intraday seasonality in volatility for Nordic equities	88
4	Central Counterparty Capitalization and Misaligned Incentives	91
4.1	Introduction	91
4.2	Model and first best allocation	98
4.2.1	Model primitives	98
4.2.2	First best allocation	103
4.3	Benevolent CCP	104
4.3.1	Collateral	104
4.3.2	Optimal capital and collateral for a benevolent CCP	107
4.4	Profit-driven CCP	111
4.4.1	Collateralized and mutualized financial resources	112
4.4.2	End of default waterfall	115
4.4.3	Traders' decision	119
4.4.4	Optimal collateral and capital for a profit-driven CCP	123
4.5	Optimal capital requirement for a profit-driven CCP	127
4.6	Conclusion	130
4.A	Appendix	132
4.A.1	Variable summary	132

4.A.2 Proof	132
Summary	143
Nederlandse samenvatting (Summary in Dutch)	145
Bibliography	147