

Table of Contents

Abbreviations	31
Part I: The Origins and Theory of Dark Liquidity	37
§ 1. Challenges of Dark Trading	39
A. Transparency and Dark Trading	39
B. Historical Rise of Dark Trading	41
C. Tightening of Regulatory Scrutiny over Dark Trading	43
D. Effects of Dark Trading	43
I. Individual Gains	43
II. Collective Costs	44
E. Methodology and Examined Jurisdictions	45
I. Statutory Interpretation as Means to Define the Scope of Regulation	45
II. Statutory Interpretation in Common Law Jurisdictions	46
1. The Literal Rule	46
2. The Golden Rule	46
3. The Mischief Rule	47
III. Statutory Interpretation in Civil Law Jurisdictions	47
1. Language of the Statute	47
2. Genesis of the Statute	47
3. Context of the Statute	48
4. Purpose and Extra-Legal Value of the Statute	48
IV. Additional Methods	48
1. Economic Analysis of the Law	49
2. Comparative Law	50
F. Research Questions	52

Table of Contents

§ 2. Trade Transparency, Dark Trading and the Role of Market Infrastructure	55
A. Manifestations of Transparency: Transparency about Fundamental Information and Trade Transparency	55
I. Fundamental Information about the Issuer	56
II. Technical Information about the Market	56
B. Relevance of Market Information Compared to Fundamental Information	57
C. Classification of Trade Transparency	59
I. Pre-Trade Transparency	60
1. Trading System: Order-Driven or Quote-Driven Trading Systems	61
a) Order-Driven Trading Systems	62
aa) Periodic Auction Call	62
bb) Continuous Call	63
cc) Hybrid Systems	63
dd) Order Type: Market or Limit Order	63
ee) Ambiguity of the Visibility of Depth of Order Book	64
ff) Impact of Order-Driven Systems on Pre-Trade Transparency	65
b) Quote-Driven Trading Systems	65
c) Hybrid Trading Systems	66
2. Time of Disclosure	66
3. Recipient of Disclosure	67
II. Post-Trade Transparency	67
1. Disclosed Information and Purpose of Disclosure	67
2. Time and Granularity of Disclosure	68
3. Recipient of Disclosure	68
D. Addressees of Trade Transparency Requirements	69
I. Central Role of Trading Systems	69
II. Categorization of Trading Systems	70
1. Trading Systems and Information Systems	70
a) Information Systems	70
b) Trading Systems	71
2. Parameters to Categorize Trading Systems	71
a) Multilateral Trading Systems	72

b) Bilateral Trading Systems	72
c) Non-Discretionary and Discretionary Trading Systems	73
d) Systems with a Price Formation Mechanism and Price Importing Systems	74
III. Implications of Trading Infrastructure on Trade Transparency	75
E. The Phenomenon of Dark Trading	77
I. Difference between ‘Lit’ and ‘Dark’ Trading, Pools, Orders, and Liquidity	77
1. ‘Lit’ and ‘Dark’ Trading	77
2. ‘Lit’ and ‘Dark’ Pools	79
3. ‘Lit’ and ‘Dark’ Orders	79
4. ‘Lit’ and ‘Dark’ Liquidity	80
II. Dark Trading and the Law	80
III. Classification of Dark Trading	81
1. Regulated Dark Pools	81
a) Partially Dark	82
b) Completely Dark	82
c) Examples	84
2. Unregulated Dark Pools	85
a) Completely Dark, Price Importing, with Proprietary Trading	85
b) Examples	86
3. Conclusion	86
§ 3. Goals of Financial Regulation, Transparency as a Driver of Market Efficiency, and the Role of Dark Trading	87
A. Goals of Financial Regulation	87
I. Functions of Prices on Capital Markets	88
1. Informational Function	89
a) Information Function according to the ECMH	89
b) Behavioral Finance on ECMH	90
2. Valuation Function	91
3. Allocative Function	93
II. Promoting and Ensuring Investor Protection	93

Table of Contents

B. Role of Transaction Costs and the Economic Operationalization of Transaction Costs	94
I. Role of Transaction Costs	94
II. Operationalization of Transaction Costs by Efficiency Criteria	96
1. Informational Efficiency	97
2. Market Transparency	99
3. Liquidity	102
III. Effect of Liquidity and Trade Transparency on Transaction Costs	103
1. Reduction of Fees	103
2. Reduction of the Bid-Ask-Spread	104
3. Reduction of Market Impact Costs	104
IV. Conclusions for Further Analysis	105
C. Influence of Pre- and Post-Trade Transparency on Market Efficiency	105
I. Pre-Trade Transparency	105
1. Positive Effects of Pre-Trade Transparency on Market Efficiency	105
2. Economic Studies	107
II. Post-Trade Transparency	109
1. Positive Effects of Post-Trade Transparency on Market Efficiency	109
2. Issues with Post-Trade Transparency	110
3. Economic Studies	111
D. The Role of Dark Trading for Market Efficiency	111
I. Lit Market's Attempts to Cure Adverse Effects of Trade Transparency	112
1. Veiling the Identity of Traders	112
2. No Full Order Book Transparency	113
3. Introduction of Special-Order Types	114
II. A New Market Environment	114
1. Fragmentation of the Trading Landscape	115
2. Rise of High Frequency Traders	117
a) Electronic Front Running	119
b) Slow-Market Arbitrage	120

III. Need for New Forms of Dark Trading	123
1. Avoiding Information Leakage	123
2. Allowing for Price Improvement	124
a) Reasons for Price Improvement	125
aa) Mid-Point Pricing	125
bb) Cost Savings	126
b) Pecking Order of Investors	126
3. Avoiding Adverse Price Selection due to Market Impact Costs	127
4. Protecting Market Makers	128
IV. Concerns about Adverse Effects of Dark Trading	129
1. Price Accuracy and Liquidity	129
a) Theoretical Papers	130
b) Empirical Papers	131
c) Empirical Findings on an Optimum of Dark Trading	131
d) Regulatory Conclusions	133
2. HFT Strategies in Dark Pools	135
a) Exploitation of Midpoint Orders	135
b) Pinging and Electronic Front Running	136
c) Preferred Information Access via Dark Pool Operators	137
d) Evaluation of High-Frequency Trading in Dark Pools	138
3. Limited Access to Dark Liquidity	139
4. Fragmentation by Dark Trading Increases Transaction Costs	141
5. Free-Riding of Information Production	141
6. Free-Riding of Regulation and Moral Hazard	143
7. Information Asymmetries and Principal-Agent-Conflicts to Harm Investors	145
a) Principal-Agent-Conflict in Order Routing	146
b) Front Running	147
V. Conclusion	149
§ 4. Need for Regulation of Dark Trading	151
A. Pre-Requisites of Regulation and Market Failure	151
B. Dark Trading in Need of Regulation	152

Table of Contents

C. Principles of Precautious Regulation	154
D. Government Regulation and Self-Regulation	155
I. Advantages of Self-Regulation	156
II. Disadvantages of Self-Regulation	157
III. Role of Self-Regulation in the Examined Jurisdictions	158
E. Potential Market Failures of Dark Trading	158
I. Market Power and Ruinous Competition	159
II. Rationalization and Coordination	159
III. Externalities and Public Goods	161
1. Externalities	161
2. Public Goods	162
a) Public Goods and the Price Formation Process	162
b) Distinction between Different Aspects of the Price Formation Process	162
aa) Post-Trade Information is Non-Rivalrous	163
bb) Pre-Trade Information is Rivalrous	163
c) Only Post-Trade Information is a Public Good	164
IV. Information Asymmetry, Principal-Agent-Problems and Moral Hazard	164
1. Information Asymmetry	164
2. Principal-Agent-Issues and Moral Hazard	166
Part II: Analysis of the Regulation of Dark Liquidity in the United States of America, the European Union, Germany, and Switzerland	167
§ 5. Regulation of Dark Trading under the Federal Securities Law of the United States of America	169
A. Introduction	169
B. The Structure of US Securities Law and its Regulatory Bodies	169
I. The Structure of US Securities Law	169
II. Regulatory Bodies	171
1. Securities and Exchange Commission	171
2. Self-Regulatory Organizations	171

C. The Securities Acts Amendments of 1975 and The National Market System	173
I. Policy Considerations	173
II. Implemented Measures by the SEC: A Consolidated Tape	175
D. The Trading Infrastructure Regime under US Law	176
I. Broker-Dealers	176
1. Definition	176
2. Functions of Broker-Dealers	178
a) Trader-Function of Broker-Dealers	178
b) Internalizer-Function of Broker-Dealers	179
3. Regulatory Requirements	180
4. Self-Regulatory Organization	180
II. National Securities Exchanges	181
1. Definition	181
2. Regulatory Requirements	183
3. Self-Regulatory Organization	184
III. Alternative Trading Systems	185
1. Definition: A Hybrid	185
a) Merging Markets and Market Participants	186
b) The SEC's No-Action-Letters and the Delta Government Options Corp.-Case (<i>Board of Trade v. SEC</i> , 1991)	187
aa) No-Action-Letters	187
bb) <i>Board of Trade v. SEC</i> (1991)	188
(i) The Issue in <i>Board of Trade v. SEC</i> (1991)	188
(ii) Majority Opinion Delivered by Judge Posner	189
(iii) Dissenting Opinion Delivered by Judge Flaum	190
c) Regulation ATS of 1998: Defining Exchange and ATS	191
aa) A Revised Exchange Definition under Rule 3b-16	191
bb) Definition of ATS: Hybrid Systems Embedded in the Exchange Act's Framework	192

Table of Contents

2. Registration: Still a Broker-Dealer	193
a) Registration Requirement under Rule 301	
Regulation ATS	193
b) Form ATS-N as a Response to Market Conduct	195
aa) New Form ATS-N	195
bb) Response to Market Conduct	197
(i) <i>Pipeline Trading Systems LLC</i>	197
(ii) <i>UBS Securities LLC</i>	198
(iii) Remediating the former Shortfalls	198
3. Self-Regulatory Organization	200
E. The Transparency Regime under US Law	200
I. Pre-Trade Transparency	202
1. Exchanges	202
a) Rule	202
aa) Legal Requirements	202
(i) Rule 602 Regulation NMS	202
(ii) Rule 604 Regulation NMS	203
bb) Private Data Feeds	204
(i) Nature of Private Data Feeds	204
(ii) Issues with Private Data Feeds	204
cc) Default Rule: Trade Transparency at the Top of the Order Book with Additional Information for Purchase	206
b) Exceptions	206
aa) Exceptions for Bespoke Order Types	207
(i) Customer Requests Broker-Dealer not to Display the Order	207
(ii) Odd-lot Orders	208
(iii) Block Orders	209
(iv) 'All or None'-Orders ('Fill or Kill')	210
bb) Exceptions for Technical Reasons	210
(i) Already Filled Orders	211
(ii) Order already Sent On	211
cc) Application of the Exceptions	211
c) Dark Trading on Exchanges	211

2. Broker-Dealers	212
a) Rule	212
aa) Broker-Dealers as Market Actors and as Internalization Markets	212
bb) Broker-Dealers Acting as OTC-Market Maker	213
(i) Rule 602 Regulation NMS	213
(ii) Rule 604 Regulation NMS	214
b) Exceptions	215
c) Summary of Dark Trading with Broker-Dealers	215
3. Alternative Trading Systems	216
a) Rule	216
aa) Rule 301 Regulation ATS and Rule 602 Regulation NMS	216
bb) Lit-ATS: Electronic Communication Networks (ECNs)	216
b) Dark-ATS under Rule 301(b)(3)(i) Regulation ATS: Reversing the Default Rule to Dark Trading	217
c) Unregulated and Unlimited Dark Trading in ATS	218
II. Post-Trade Transparency	219
1. Exchanges	219
2. Broker-Dealers	220
3. Alternative Trading Systems	222
III. Lit and Dark Trading under US law	222
IV. Exceptions for Governmental Agencies	223
1. Scope	223
2. Eligible Entities	224
3. Eligible Transactions	225
4. Open Market Transactions by FRBNY	226
F. Access Regime	227
I. Exchanges	227
1. Membership Access	227
2. Order Access	228
II. Broker-Dealers	229
1. Membership Access	229
2. Order Access	229

Table of Contents

III. Alternative Trading Systems	230
1. Membership Access	230
2. Order Access	231
IV. Effects of Discriminatory Access in ATS	232
G. Order Handling Rules under Regulation NMS	233
I. Rule 606 Regulation NMS: Disclosure of Order Handling Information	234
1. Purpose and Functioning of Rule 606 Regulation NMS	234
2. Two De Minimis Exceptions	236
3. Criticism	236
II. Rule 611 Regulation NMS: Order Protection Rule	237
1. Purpose and Functioning of Rule 611 Regulation NMS	237
2. Criticism on the Order Protection Rule	239
III. Rule 612 Regulation NMS: Sub-Penny Rule	241
H. Regulatory Incentives for Increased Use of Dark Trading	242
I. SEC Proposal for New Regulation in 2009	245
I. Lowering the 5 %-Threshold for Alternative Trading Systems	245
II. ATS should Identify Transactions on Tape	247
III. Including Actionable Indications of Interest into the Definition of 'Best Bid and Offer'	248
J. SEC Proposal of a Trade-At Rule in 2016	249
I. First Limiting Device under US Law	249
II. Functioning of the Trade-At Rule	250
III. Trade-At Rule in Canada and Australia	251
IV. The Findings of Foley/Putniņš (2016)	252
V. Trade-At Rule in the United States	253
1. Tick Size Pilot Program	253
2. Assessment of the Tick Size Pilot Program	254
3. The Trade-At Rule in the NMS	255
K. SEC Proposals in 2022	256
I. SEC Regulation Best Execution	257
II. SEC Rule to Enhance Competition for Order Execution	257

III. SEC Proposed Tick Size Rule	258
IV. SEC Proposal on Disclosure of Order Execution Information	259
L. Conclusion and Criticism	259
§ 6. Regulation of Dark Trading under European and German Law	263
A. The Rise of Dark Trading and Regulatory Efforts	263
I. The Rise of Dark Trading	263
II. The Role of MiFID I	265
1. A Pan-European Market	265
2. The Need for a New Market Regulation: Dark Trading under MiFID I	266
a) Uneven playing field among RMs and MTFs	266
b) Regulatory Gaps between the MTF and SI regime into OTC-Space	267
c) Loophole in the Transparency Regime	269
d) Discretion in the Application of MiFID I Rules by the Member States' NCAs	270
3. Comparison to US law	271
III. The Role of MiFID II/MiFIR	271
B. Trading System Regime under MiFID II/MiFIR	274
I. Ordering Principles for Categorizing Trading Systems	275
1. Multilateral v. Bilateral Trading Systems	275
a) Multilateral Systems	275
b) Bilateral Systems	277
c) Characteristics of a Trading System	278
aa) Nothing but a 'Set of Rules'	278
bb) Trading Systems and Information Systems	279
2. Non-Discretionary v. Discretionary Rules	280
3. Ordering Principles in the further Discussion	281
II. The Trading Venues under MiFID II	282
1. Regulated Markets	283
a) EU Law	283
b) Transposition into German Law	285
2. Multilateral Trading Facilities	285
a) EU Law	285
b) Transposition into German Law	288

Table of Contents

3. Differences between RMs and MTFs: An Uneven Playing Field?	288
4. Organized Trading Facilities	290
a) EU Law	290
aa) A New Trading System to Close the Regulatory Gaps	290
bb) Criticism on the New OTF-Category	291
cc) A New Type of Multilateral Trading	292
dd) Sovereign Debt Instruments	293
ee) A Discretionary Trading System	294
ff) Eligible Operating Entities	296
b) Transposition into German law	296
III. Investment Firms operating as Systematic Internalizers or OTC	296
1. EU Law	297
a) Definition	297
b) Bilateral Trading	297
c) The Flaws under MiFID I and MiFID II/ MiFIR's Response: Qualitative vs. Quantitative Approach	297
(i) Failure of the SI regime under MiFID I	298
(ii) MiFID II/MiFIR's Response	300
d) Quantitative Definition of 'Frequent Systematic'	300
e) Role of Liquidity	301
f) Quantitative Definition of 'Substantial Basis'	303
g) Cumulative Requirement and 'Opt-in'	304
h) New Loopholes under MiFID II/MiFIR	304
2. Transposition into German Law	308
3. Conclusion on New SI-Regime	308
IV. Trading Obligation to Shrink the OTC-Space	309
1. For Shares	309
2. For Derivatives	311
C. Trade Transparency Regime under MiFID II/MiFIR	314
I. Role of the Trade Transparency Regime for Dark Trading under MiFID II/MiFIR	314
II. Pre-trade Transparency Regime for Trading Venues	315
1. Pre-Trade Transparency for Equity Instruments	316
a) Rule	316

b) Addressee of Obligation	316
c) Scope of Pre-trade Transparency	317
aa) Equity Instruments	317
bb) Traded on a Trading Venue	318
d) Content of Publication	319
aa) Current Bid and Offer Prices	319
bb) Depth of Trading Interest at Those Prices	320
cc) Actionable Indications of Interest	320
e) Modalities of Publication	322
f) Access to Data and the System for Systematic Internalizers	323
2. Pre-Trade Transparency for Non-Equity Instruments on Trading Venues	324
a) Paradigm Shift from MiFID I to MiFID II/ MiFIR	324
b) Article 8(1) MiFIR: The Rule	324
c) Content of Publication	325
d) Captured Instruments	327
e) Non-Equity Specific Exemptions of Pre-Trade Transparency	328
f) Modalities of Publication	329
3. Common Manner of Publishing Pre-Trade Transparency Data	330
III. Waivers from Pre-Trade Transparency	331
1. Waivers for Equity Instruments, Article 4 MiFIR	332
a) Reference Price Waiver	333
aa) Prices that are ‘Widely Published’ and ‘Regarded as Reliable by the Market’	333
bb) Market of First Admittance to Trading or Most Liquid Market	334
cc) Pricing at the Midpoint	335
dd) Reference Price Waiver captures Block Orders as well as other Orders	335
ee) Narrowing the Scope of the Reference Price Waiver under the MiFIR refit	336
ff) Subject to Limitation by Article 5 MiFIR	337

Table of Contents

b) Negotiated Trade Waiver	338
aa) Transactions Subject to Conditions Other Than the Market Conditions (Article 4(1)(b)(iii) MiFIR)	339
bb) Transactions Subject to Current Market Conditions in Liquid Markets (Article 4(1)(b)(i) MiFIR)	340
cc) Transactions Under Current Market Conditions but in an Illiquid Market (Article 4(1)(b)(ii) MiFIR)	341
c) Limitation Devices: Double and Single Volume Cap Mechanisms	342
aa) Double Volume Cap Mechanism	342
bb) Comparison with US law	344
cc) Impact of the DVC on the Market	345
dd) Circumventing the DVC: Frequent Batch Auctions	347
ee) MiFID II/MiFIR Refit: Abandonment of the DVC	348
e) Large in Scale Waiver	351
f) Using the Large-in-Scale Waiver to Circumvent the Volume Cap Mechanism	354
g) Order Management Facility Waiver	355
h) ESMA's Role in Granting and Withdrawing Waivers	357
aa) Granting a Waiver	357
bb) Withdrawal of Waivers	358
2. Waivers for Non-Equity Instruments, Article 9 MiFIR	359
a) Large in Scale Waiver (Article 9(1)(a) MiFIR)	360
b) Order Management Facility Waiver (Article 9(1)(a) MiFIR)	360
c) Indications of Interest That are Above the Size Specific to the Financial Instrument Waiver (Article 9(1)(b) MiFIR)	361
d) Illiquid Financial Instruments Waiver (Article 9(1)(c) MiFIR)	363

e) Exchange for Physical Waiver (Article 9(1)(d) MiFIR)	366
f) Package Order Waiver (Article 9(1)(e) MiFIR)	367
g) Temporary Suspension (Article 9(4) MiFIR)	368
h) Granting and Withdrawal of Waivers	369
i) Comparison to the Waiver Regime for Equity Instruments	370
IV. Post-Trade Transparency for Trading Venues	370
V. Deferrals from Post-Trade Transparency	372
1. Deferrals for Equity Instruments	372
2. Deferrals for Non-Equity Instruments	374
a) Latest Developments	374
b) Functioning of the Deferrals for Non-Equity Trading	374
c) Timing of the Deferrals and Deviating Practices across the EU	375
d) Proposed Changes under the MiFID II/MiFIR Refit	376
e) Conclusion	377
VI. Implementation of a Consolidated Tape	377
VII. Transparency Regime for Bilateral Systematic Internalizers and OTC Investment Firms	378
1. Pre-Trade Transparency in Equity Instruments	380
a) Rule	380
aa) Firm Quotes and Obligation to Contract	380
bb) Instruments Captured	382
cc) Modalities of Publication	382
dd) Minimum Size and Prevailing Market Conditions	382
ee) Changes to the Minimum Size under the MiFID II/MiFIR Refit	384
ff) Access	386
gg) Notification of NCA	387
hh) Different Quality of Pre-Trade Transparency in Bilateral and Multilateral Trading Systems	387

Table of Contents

b) Exemptions	388
aa) No Quoting Obligation Above Standard Market Size	388
bb) No Firm Quotes	389
(i) Price Improvement (Article 15(2) subpara. 2 MiFIR)	390
(ii) Portfolio Transactions (Article 15(3) MiFIR)	390
(iii) Client Quote is Bigger than Quoting Size (Article 15(4) MiFIR)	391
2. Pre-Trade Transparency for Non-Equity Instruments	392
a) Rule	392
aa) Liquid Market	392
bb) Illiquid Market	393
b) Exemptions	394
aa) Waivers under Article 9(1) MiFIR	394
bb) Instruments Below the Liquidity Threshold of Article 9(4) MiFIR	396
cc) No Quoting Requirement for Orders Above the Size Specific for the Financial Instrument	396
c) Price Improvements	397
d) Access	397
3. Post-Trade Transparency Regime for Equity Instruments	398
4. Post-Trade Transparency Regime for Non-Equity Instruments	398
VII. Systematic Internalizers: The New Home for Dark Trading?	399
1. Advantages in the Transparency Regime	400
2. Advantage in Order Pricing	401
3. Issue of Bringing Together Client Orders	403
4. Trading Obligation and Dark Trading under the SI-regime: An Unlucky Combination?	405
D. Access Regime under MiFID II/MiFIR and German law	406
I. Access to Trading Venues	407
II. Access to Systematic Internalizers	410

E. Conclusion and Criticism	412
§ 7. Regulation of Dark Trading under Swiss Law	417
A. A New Regime for Swiss Financial Markets	417
B. Trading Infrastructure Regime	420
I. Ordering Principles	420
1. Multilateral vs. Bilateral Trading	421
2. Non-Discretionary vs. Discretionary Trading	421
3. Securities (<i>‘Effekten’</i>) and Other Financial Instruments	422
II. Trading Infrastructure	423
1. Exchanges	424
a) Definition	424
b) Multilateral, Non-Discretionary Trading	424
c) Trading of Securities	425
d) Conclusion of Contracts within the System	426
e) Listing of Securities	426
2. Swiss Multilateral Trading Facility (CH-MTF)	427
3. Gaps in the Regulatory Regime	428
4. Swiss Organized Trading System (CH-OTF)	428
a) Definition	428
b) Multilateral CH-OTFs	430
aa) CH-OTF under Article 42(a) FinfraG	430
bb) CH-OTF under Article 42(b) FinfraG	433
c) Bilateral CH-OTF	434
III. Authorization	436
1. Authorization of Exchanges and CH-MTFs	436
2. For CH-OTFs	436
IV. Trading Obligations for Shares and Derivatives	437
1. No Trading Obligation for Shares under Swiss Law	438
2. Trading Obligation for Derivatives under Swiss Law	439
V. Self-Regulatory Powers	442
1. Article 27 FinfraG: Principle of Self-Regulation	442
2. Article 28 FinfraG: Self-Regulation and Dark Trading	443

C. Trade Transparency Regime	445
I. Introduction	445
II. Trade Transparency for Trading Venues	446
1. Structure of Trade Transparency Rules	446
a) Three Layers of Regulation	446
b) Pre- and Post-Trade Transparency	447
2. Pre-Trade Transparency Rule	448
a) General Scope of Article 29(1) FinfraG	448
b) Indications of Interest	450
c) Traded on the Trading Venue	450
d) Subjected Instruments: Lit Trading for Shares, Dark Trading for other Securities	451
3. Waivers from Pre-Trade Transparency	453
a) Waivers	453
aa) Reference Price Waiver	454
bb) Negotiated Trade Waiver	457
cc) Order Management Facility Waiver	460
dd) Large in Scale Waiver	463
b) Omitted Waivers during the Legislative Process	465
c) No Volume Cap Mechanism under Swiss law	467
d) Process: Waiver decision is with the Trading Venue not FINMA	468
4. Post-Trade Transparency	470
5. Deferrals from Post-Trade Transparency	472
a) Large in Scale	474
b) Size Specific to the Instrument	475
c) Illiquid Securities	477
6. Exception for SNB Transactions, Article 29 FinfraV	478
III. Trade Transparency for CH-OTFs	480
1. Pre-Trade Transparency for CH-OTFs	480
a) Entity Subject to Pre-Trade Transparency	482
b) Instruments Subject to Pre-Trade Transparency	483
2. Pre-Trade Transparency for Multilateral CH-OTFs	484
3. Pre-Trade Transparency for Bilateral CH-OTFs	485
a) Issues Raised by the Reference to Article 27 FinfraV	485
b) Firm Offer or Indication of Interest	487
c) Sufficient Legal Basis	489

d) Proportionality	491
aa) Elements Mitigating the Infringement of CH-OTF's Freedom	491
(i) No Quoting Requirement for Illiquid Instruments	491
(ii) Quoting Requirement above Standard Market Size and Below a Minimum Size	493
(iii) Discretion with regard to Access to Quotes	496
(iv) Limiting the Number of Transactions	496
(v) Updating or Withdrawing Quotes	498
bb) Overall Evaluation of Proportionality	499
4. Post-Trade Transparency for CH-OTF	500
a) Post-Trade Transparency for Multilateral CH- OTFs	501
b) Post-Trade Transparency for Bilateral CH-OTFs	502
D. Access to Trading Systems	504
I. Access to Trading Venues	505
1. Article 18 FinfraG	505
2. Article 34 FinfraG	506
II. Access to CH-OTF	508
E. Conclusion and Criticism	509
Part III: Comparison and Conclusion	513
§ 8. Comparison	515
A. Causes and Regulation of Dark Trading in the Three Jurisdictions	515
I. The Rise of Dark Trading	515
II. Economic Theory of Dark Trading	515
1. Defining and Categorizing the Subject Matter	515
2. Regulatory Goals and the Roles of Lit and Dark Trading	516
3. Regulatory Issues when Regulating Dark Trading	518
4. In-Depth Analysis of the Regulatory Regimes	519

Table of Contents

B. Comparing the Findings on the Three Regulatory Regimes	519
I. Trading Infrastructure Regime	519
1. Requirements for a Proper Trading Infrastructure Regime	519
2. Findings in the Three Jurisdictions	520
3. Evaluation of the Similarities and Differences	522
a) Issues with Overbroad Categories	522
b) Issues with Highly Specific Categories	523
c) Issues with a Detailed Regime using Qualitative Definitions	524
4. Conclusion	525
II. Trade Transparency Regime	526
1. Requirements for a Proper Trade Transparency Regime	526
a) First Level: Set Trade Transparency as Default Rule	526
b) Second Level: Implement Clear-Cut Exceptions from the Default Rule	527
c) Third Level: Consider a Reverse-Exception to Support the Default Rule	529
2. Findings in the Three Jurisdictions	530
a) Trade Transparency Rules in the United States	530
aa) First Level: Transparency Rules	530
bb) Second Level: Exceptions	531
cc) Third Level: Reverse Exceptions	532
b) Trade Transparency Rules in the European Union and Germany	532
aa) First Level: Transparency Rules	532
bb) Second Level: Exceptions	534
cc) Third Level: Reverse Exception	536
c) Trade Transparency Rules in Switzerland	537
aa) First Level: Transparency Rules	537
bb) Second Level: Exceptions	538
cc) Third Level: Reverse Exception	540
3. Evaluation of the Similarities and Differences	540
a) Issues with Overbroad Exceptions	540
b) Issues with a Limitation Device	541
c) Issues with Lean Regulation	544

d) Categorizing the Trade Transparency Regimes	544
4. Conclusion	545
III. Access Regime	546
1. Requirements for a Proper Access Regime	546
2. Findings in the Three Jurisdictions	546
a) Access to Information	546
b) Access to Trading Venues	548
3. Evaluation and Conclusion	548
IV. Price Protection Rules	549
1. Further Measures to Protect Price Formation	549
2. Findings in the Three Jurisdictions	549
a) Order Protection Rule, Sub-Penny Rule, and Speed Bumps in the United States	549
b) Tick-Size Rule in the European Union	551
c) Obligation to Trade on a Trading Venue in the European Union	551
3. Evaluation and Conclusion	551
V. Supervisory Structure	552
1. United States	552
2. European Union and Germany	553
3. Switzerland	554
C. Conclusion	554
§ 9. Conclusion	557
A. The Issue of Identifying an Ideal Regulatory Regime	557
I. No Blueprint Available	557
II. Principles for Regulation	557
B. Principles for Proper Regulation and Suggestions for Future Improvements	558
I. Principle 1: Have a Broad Trading Infrastructure Regime	558
II. Principle 2: Have a Broad Transparency Regime	559
1. US law	559
2. EU law	560
3. Swiss law	560

Table of Contents

III. Principle 3: Provide for Clear-cut Exceptions from Trade Transparency where Beneficial for Trader and Market	561
1. US law	561
2. EU law	561
3. Swiss Law	563
IV. Principle 4: Be Cautious with Limiting Devices	564
V. Principle 5: Ensure Fair Access	565
VI. Principle 6: Consider Price Protection Rules	566
VII. Principle 7: Ensure a Sound Supervisory Regime	567
1. US law	567
2. EU law	567
3. Swiss law	569
C. Summary of the Findings on the Research Questions	569
Annex	575
Bibliography	579
List of Cases	617