

# **The Futility of Stock-Based Compensation In Light of Imperfect Market Pricing**

A thesis submitted to the University of Manchester for the degree  
of  
Doctor of Philosophy  
in the Faculty of Humanities

**2012**

**James P. Cullen**  
**School of Law**

## LIST OF CONTENTS

<b>TITLE PAGE .....</b>	<b>1</b>
<b>LIST OF CONTENTS.....</b>	<b>2</b>
<b>LIST OF ABBREVIATIONS.....</b>	<b>6</b>
<b>ABSTRACT.....</b>	<b>10</b>
<b>DECLARATION.....</b>	<b>11</b>
<b>COPYRIGHT STATEMENT.....</b>	<b>12</b>
<b>DEDICATION.....</b>	<b>13</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>14</b>
<b>LIST OF CASES.....</b>	<b>15</b>
<b>LIST OF STATUTES .....</b>	<b>16</b>
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>17</b>
<b>1.1 THEMES OF THE THESIS .....</b>	<b>17</b>
1.1.1 <i>Background to the Study</i> .....	17
1.1.2 <i>Study Objectives</i> .....	19
<b>1.2 STRUCTURE AND METHODOLOGY.....</b>	<b>20</b>
1.2.1 <i>Structure</i> .....	20
1.2.2 <i>Methodology Statement</i> .....	27
<b>CHAPTER 2: THE FOUNDATIONS OF ANGLO-AMERICAN CORPORATE GOVERNANCE .....</b>	<b>30</b>
<b>2.1 THE EVOLUTION OF THE ANGLO-AMERICAN CORPORATION.....</b>	<b>31</b>
2.1.1 <i>The position of the company in neoclassical economic thought</i> .....	32
2.1.2 <i>Contractarian Theory</i> .....	34
<b>2.2 SHAREHOLDER VALUE &amp; AGENCY THEORY.....</b>	<b>36</b>
2.2.1 <i>Shareholder Value Theory</i> .....	36
2.2.2 <i>Agency theory</i> .....	37
<b>2.3 LIMITS TO SHAREHOLDER VALUE AND AGENCY THEORY.....</b>	<b>40</b>
2.3.1 <i>Limits to shareholder power</i> .....	40
2.3.2 <i>Ineffective boards</i> .....	45

2.3.3	<i>Limits to the market for control</i> .....	50
2.4	<b>CONCLUSION</b> .....	53

**CHAPTER 3: EXECUTIVE COMPENSATION AS AN AGENCY PROBLEM..... 55**

3.1	<b>THE ROLE OF EXECUTIVE COMPENSATION IN CORPORATIONS</b> .....	57
3.1.1	<i>Incentive-Based Pay</i> .....	58
3.1.1.1	Stock performance-based pay .....	60
3.1.1.2	Stock-options.....	62
3.1.2	<i>Financial Market Liberalisation: The Leveraged Buy-Out Boom</i> ...	63
3.1.3	<i>Summary of incentive-based plans linked to stock-price performance</i> .....	65
3.2	<b>FLAWS IN THE PAY-FOR-PERFORMANCE PARADIGM</b> .....	66
3.2.1	<i>Introduction</i> .....	67
3.2.1.1	The near-uniform use of ‘at-the-money’ options .....	67
3.2.1.2	Reload features of options .....	69
3.2.1.3	Option repricing & fragility .....	69
3.2.2	<i>Market Manipulation</i> .....	71
3.2.2.1	The Enron story .....	76
3.2.2.2	The role of executive compensation at Enron .....	77
3.2.2.3	Lessons from Enron .....	81
3.2.3	<i>The Sarbanes-Oxley Act 2002</i> .....	83
3.3	<b>IMPERFECT MARKETS: A DEEPER FLAW IN STOCK PRICE GOVERNANCE</b> .....	85
3.3.1	<i>Sector-wide rather than firm-specific performance</i> .....	86
3.3.1.1	Indexed Options .....	88
3.3.2	<i>Imperfect Markets</i> .....	90
3.4	<b>CONCLUSION</b> .....	91

**CHAPTER 4: MODERN FINANCE THEORY: LIMITS AND ALTERNATIVES..... 93**

4.1	<b>MODERN FINANCE THEORY</b> .....	95
4.1.1	<i>The Efficient Capital Market Hypothesis</i> .....	96
4.1.2	<i>Market prices as good indicators of rationally evaluated economic value</i> .....	97
4.1.2.1	Price stability in light of unchanged fundamentals .....	97
4.1.2.2	The Rational Investor Model .....	98
4.1.2.3	Consequences of price stability and rational investors .....	99

<b>4.2</b>	<b>A CRITIQUE OF THE ECMH.....</b>	<b>100</b>
4.2.1	<i>Prices are not stable: ‘fat-tails’ and crashes</i> .....	100
4.2.2	<i>Stock-price dependence: markets have memories</i> .....	104
4.2.3	<i>Price Efficiency</i> .....	106
	4.2.3.1 ‘Informational’ vs. ‘Fundamental Value’ efficiency .....	107
	4.2.3.2 Information asymmetries and securities prices.....	108
	4.2.3.3 Limits to Arbitrage .....	111
4.2.4	<i>Summary: Implications of price inefficiency for stock-based compensation</i> .....	112
<b>4.3</b>	<b>ALTERNATIVE THEORIES FOR FINANCIAL MARKET OPERATION.....</b>	<b>113</b>
4.3.1	<i>Behavioural Finance</i> .....	113
	4.3.1.1 Heuristics .....	115
4.3.2	<i>Asset bubbles</i> .....	117
	4.3.2.1 Asset bubbles: a behavioural analysis .....	119
	4.3.2.2 Feedback loops .....	121
	4.3.2.3 Herding .....	123
	4.3.2.4 Overconfidence, feedback loops and herding in the stock market .....	125
4.3.3	<i>Summary: Implications of behavioural finance for stock-based compensation</i> .....	128
<b>4.4</b>	<b>THE BANK SECTOR, ASSET PRICES AND THE FINANCIAL INSTABILITY HYPOTHESIS.....</b>	<b>129</b>
4.4.1	<i>The FIH.....</i>	130
	4.4.1.1 The FIH Taxonomy .....	134
	4.4.1.2 The FIH: Bank Leverage, Stock Prices and Executive Compensation .....	136
	4.4.1.3 The FIH, uncertainty and confidence .....	138
4.4.2.	<i>Summary: Implications of the FIH for stock-based compensation....</i>	142
<b>4.5</b>	<b>CONCLUSION.....</b>	<b>143</b>

**CHAPTER 5: THE CONTRIBUTION OF EXECUTIVE COMPENSATION TO THE GFC.....145**

<b>5.1</b>	<b>THE GFC: THE BEHAVIOURAL CRITIQUE .....</b>	<b>146</b>
	5.1.1 <i>Background to the GFC</i> .....	146
	5.1.2 <i>Behavioural factors which contributed to the GFC</i> .....	148
<b>5.2</b>	<b>LEVERAGE-FUELLED OVERCONFIDENCE &amp; FINANCIAL FRAGILITY .....</b>	<b>150</b>
<b>5.3</b>	<b>POORLY STRUCTURED INCENTIVES .....</b>	<b>156</b>
	5.3.1 <i>Poor risk management systems in financial institutions</i> .....	157
	5.3.2 <i>Short-term compensation targets</i> .....	162

5.3.3	<i>Potential limits of stock options to incentivise behaviour</i> .....	166
5.3.4	<i>Forging a link between asset price collapses and executive compensation</i> .....	170
<b>5.4</b>	<b>CONCLUSION</b> .....	<b>171</b>

**CHAPTER 6: ANALYSIS OF REGULATIONS, PROPOSALS & CONCLUSION..... 174**

<b>6.1</b>	<b>THE TENOR OF POST-GFC REFORM.....</b>	<b>176</b>
6.1.1	<i>U.S Reform: The Dodd-Frank Act 2010</i> .....	177
6.1.2	<i>UK Reform</i> .....	179
6.1.3	<i>EU Recommendations</i> .....	182
6.1.4	<i>International Reform: The FSB, the BCBS and the IIF</i> .....	184
6.1.5	<i>Summary</i> .....	188
<b>6.2</b>	<b>POST-CRISIS COMPENSATION REFORMS: A CRITIQUE.....</b>	<b>189</b>
6.2.1	<i>Deferral of variable compensation</i> .....	189
6.2.2	<i>Clawback</i> .....	191
6.2.3	<i>Increased shareholder power – ‘say-on-pay’</i> .....	192
6.2.4	<i>Qualitative indicators of performance</i> .....	194
6.2.5	<i>Risk and leverage-adjusted remuneration</i> .....	196
<b>6.3</b>	<b>PROPOSALS FOR EXECUTIVE COMPENSATION: MEASURES TO MITIGATE THE EFFECTS OF PRICE DISTORTIONS.....</b>	<b>197</b>
6.3.1	<i>Proposal I – Three/Ten-year deferral plans</i> .....	199
6.3.2	<i>Proposal II – Qualitative Indicators of Performance</i> .....	201
6.3.3	<i>Proposal III – Leverage-cycle adjustments to compensation.....</i>	204
<b>6.4</b>	<b>CONCLUSION.....</b>	<b>209</b>

<b>BIBLIOGRAPHY.....</b>	<b>215</b>
--------------------------	------------

**Final Word Count of Main Text (including footnotes):**

**84, 830**

## **LIST OF ABBREVIATIONS:**

ABA	American Bar Association
AIG	American International Group
BCBS	Basel Committee on Banking Supervision
BDT	Behavioural Decision Theory
BIS	Bank for International Settlements
BLE	Behavioural Law and Economics
BOFI	Bank or Other Financial Institution
BRT	Business Round Table
CalPERS	California Public Employees' Retirement System
CDO	Collateralised Debt Obligation
CDS	Credit Default Swap
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CSR	Corporate Social Responsibility
ECMH	Efficient Capital Market Hypothesis
FASB	Financial Accounting Standards Board
FBI	Federal Bureau of Investigation
FIH	Financial Instability Hypothesis
FRC	Financial Reporting Council
FSA	Financial Services Authority
FSB	Financial Stability Board
G20	Group of Twenty Finance Ministers and Central Bank Governors
GFC	Global Financial Crisis
HBOS	Halifax-Bank of Scotland
HFT	High Frequency Trading
ICGN	International Corporate Governance Network
IIF	Institute of International Finance
IMF	International Monetary Fund
IRB	Internal Ratings Based
LBO	Leveraged Buy-Out
MBS	Mortgage-Backed Security
NASDAQ	National Association of Securities Dealers Automated Quotations
NBER	National Bureau of Economic Research
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and Development
OTC	Over The Counter
P/E	Price/Earnings Ratio
RBS	Royal Bank of Scotland
ROE	Return On Equity
RPE	Relative Performance Evaluation
RWH	Random Walk Hypothesis
S&P 500	Standard and Poor's Index of 500 Leading Shares
SEC	Securities and Exchange Commission
SIV	Structured Investment Vehicle
SOX	Sarbanes-Oxley Act 2002
SPE	Special Purpose Entity
TARP	Troubled Asset Relief Program
VAR	Value At Risk

## **JOURNAL ABBREVIATIONS:**

Acad. Man. J.	Academy of Management Journal
Acc. Horiz.	Accounting Horizons
Acc. Rev.	Accounting Review
Admin. Sci. Q.	Administrative Science Quarterly
Am. Bankrupt. L. J.	American Bankruptcy Law Journal
Am. Econ. Rev.	American Economic Review
Am. L. Rev.	American Law Review
Ann. Rev. Pol. Sci.	Annual Review of Political Science
Ann. Sci. Ecole Norm. S.	Annales Scientifique de l'Ecole Normale Superieure
Appl. Fin. Econ.	Applied Financial Economics
Bell J. Econ.	Bell Journal of Economics
Brook. Pap. Econ. Ac.	Brookings Papers on Economic Activity
Bu. L. Rev.	Buffalo Law Review
Bus. L.	Business Lawyer
Bus. Soc. Rev.	Business and Society Review
Camb. J. Econ.	Cambridge Journal of Economics
Camb. L. J.	Cambridge Law Journal
Col. L. Rev.	Columbia Law Review
Cor. L. Rev.	Cornell Law Review
Corp. Gov.	Corporate Governance
Corp. Gov. Adv.	Corporate Governance Advisor
Corp. Gov. Int. Rev.	Corporate Governance: An International Review
Corp. Own. Cont.	Corporate Ownership and Control
Crit. Rev.	Critical Review
Duke J. Comp. Int. L.	Duke Journal of Comparative International Law
Duke L. J.	Duke Law Journal
Em. L. J.	Emory Law Journal
Econ. J.	Economic Journal
Econ. Pol. Rev.	Economic Policy Review
Eur. Fin. Man.	European Financial Management
Eur. L. J.	European Law Journal
Bank N.Y. Econ. Pol. Rev.	Federal Reserve Bank of New York Economic Policy Review
Fed. Res. Bank. St.	Federal Reserve Bank of St Louis
Fin. An. J.	Financial Analysts Journal
Fin. Man.	Financial Management
George. L. J.	Georgetown Law Journal
Gl. Econ. Rev.	Global Economic Review
Harv. Bus. Rev.	Harvard Business Review
Harv. J. Legis.	Harvard Journal on Legislation
Harv. L. Rev.	Harvard Law Review
I. J. Bank Mark.	International Journal of Bank Marketing
ICFAI J. Behav. Fin.	ICFAI Journal of Behavioural Finance
Ind. Corp. Change	Industrial and Corporate Change
Ind. Lab. Rel. Rev.	Industrial Labour Relations Review
Ind. Man. Rev.	Industrial Management Review
Int. Comp. Comm. L. Rev.	International Company and Commercial Law Review
Int. J. L. Man.	International Journal of Law and Management

J. Abn. Soc. Psych.	Journal of Abnormal Social Psychology
J. Acc. Econ	Journal of Accounting and Economics
J. Acc. Res.	Journal of Accounting Research
J. Appl. Corp. Fin.	Journal of Applied Corporate Finance
J. Appl. Fin.	Journal of Applied Finance
J. B. Law and B.	Journal of Banking Law and Banking
J. Bank. Fin.	Journal of Banking and Finance
J. Behav. Dec.	Journal of Behavioural Decision-making
J. Bus.	Journal of Business
J. Bus. & Tech.	Journal of Business and Technology
J. Consult. Psych.	Journal of Consulting Psychology
J. Corp. Acc. Fin.	Journal of Corporate Accounting and Finance
J. Corp. Fin.	Journal of Corporate Finance
J. Corp. L.	Journal of Corporation Law
J. Deriv.	Journal of Derivatives
J. Econ. Iss.	Journal of Economic Issues
J. Econ. Lit.	Journal of Economic Literature
J. Econ. Persp.	Journal of Economic Perspectives
J. Emp. Fin.	Journal of Empirical Finance
J. Exp. Soc. Psych.	Journal of Experimental Social Psychology
J. Fin.	Journal of Finance
J. Fin. Econ.	Journal of Financial Economics
J. Fin. Int.	Journal of Financial Intermediation
J. Fin. Quant. An.	Journal of Financial Quantitative Analysis
J. Fin. Trans.	Journal of Financial Transformation
J. Int. Econ.	Journal of International Economics
J. Int'l. Econ. L.	Journal of International Economic Law
J. L. Econ.	Journal of Law and Economics
J. Man.	Journal of Management
J. Man. Gov.	Journal of Management and Governance
J. Mon. Econ.	Journal of Monetary Economics
J. Pers. Soc. Psych.	Journal of Personality and Social Psychology
J. Polit. Econ.	Journal of Political Economy
J. Port. Man.	Journal of Portfolio Management
J. Post-Keynes. Econ.	Journal of Post-Keynesian Economics
J. Psych. Fin. Mar.	Journal of Psychology and Financial Markets
J. Risk. & Uncert.	Journal of Risk and Uncertainty
J.B.L.	Journal of Business Law
J.B.R.	Journal of Bank Regulation
J.C.L.S.	Journal of Corporate Law Studies
Leg. Stud.	Legal Studies
M.L.R.	Modern Law Review
Man. Sci.	Management Science
Mich. J. L. Ref.	Michigan Journal of Law Reform
Mich. L. Rev.	Michigan Law Review
Minn. L Rev.	Minnesota Law Review
Nw. U. L. Rev.	North Western University Law Review
Org. Behav. Hum. Perf.	Organizational Behavior and Human Performance
Ox. Rev. Econ. Pol.	Oxford Review of Economic Policy
Ox. Rev. Fin.	Oxford Review of Finance



Psych. Bull.	Psychological Bulletin
Q. J. Econ.	Quarterly Journal of Economics
Rev. Acc. Stud.	Review of Accounting Studies
Rev. B. Fin. L.	Review of Banking and Financial Law
Rev. Econ. Stat.	Review of Economic Statistics
Rev. Econ. Stud.	Review of Economic Studies
Rev. Fin.	Review of Finance
Rev. Fin. Stud.	Review of Financial Studies
Rev. Quant. Fin. Acc.	Review of Quantitative Financial Accounting
S. Cal. L. Rev.	Southern California Law Review
Stan. J. L. Bus. Fin.	Stanford Journal of Law, Business and Finance
Stan. L. Rev.	Stanford Law Review
Theor. Decis.	Theory and Decision
Tul. L. Rev.	Tulane Law Review
U. Chi. L. Rev.	University of Chicago Law Review
U. Cin. L. Rev.	University of Cincinnati Law Review
U. Ill. L. Rev.	University of Illinois Law Review
U. Mich. J.L. Ref.	University of Michigan Journal of Law Reform
U. of Penn. J. Int. Econ. L.	University of Pennsylvania Journal of International Economic Law
U. of Penn. Law Rev.	University of Pennsylvania Law Review
Va. L. Rev.	Virginia Law Review
Vand. L. Rev.	Vanderbilt Law Review
Wake F. L. Rev.	Wake Forest Law Review
Wash. U. L. Rev.	Washington University Law Review
Wrld. Econ.	World Economics
Yale J. Reg.	Yale Journal on Regulation
Yale L. J.	Yale Law Journal

## ABSTRACT

This thesis addresses the mechanics of executive remuneration from an unorthodox perspective; the view presented through the lens of imperfect market pricing. Whilst many of the criticisms of existing compensation arrangements are merited, they ignore the integrity of a crucial aspect of the way remuneration awards are calculated; the market pricing mechanism. The original contribution of knowledge of this thesis is to explain how imperfect market pricing undermines the utility of stock-based compensation awards, especially in light of the Global Financial Crisis of 2007-11 ('GFC').

The existing position with regard to Anglo-American corporate governance emphasises the role of the market in determining optimal governance solutions. However, the market cannot regulate all conflicts. For example, the separation of ownership and control in modern corporations creates an agency problem whereby managerial and shareholder interests may diverge. Public companies therefore use performance-related pay to align the interests of management with those of firm owners. This performance-related pay often includes an element with a specific link to the price of company stock. A by-product of these arrangements is that incentives are created for executives to inflate the value of their companies in order to benefit from short-run price appreciation. This reduces the utility of stock-based pay and encourages market short-termism.

There is however, a further fundamental flaw in the use of stock-based pay; it places complete faith in modern finance theory; a theory which asserts that market pricing is flawless (the so-called Efficient Capital Markets Hypothesis). However, financial and asset markets are susceptible to forces which drive prices away from intrinsic value for protracted periods and contribute to serious price distortion. Behavioural finance explains how these distortions occur and provides a more appropriate paradigm for securities market operation. The Financial Instability Hypothesis ('FIH') also explains how endogenous instability, emanating from the banking sector, arises as an inevitable consequence of the functioning of the capitalist economy. It further demonstrates how markets may be driven away from fundamental value, how asset bubbles occur, and how the market pricing mechanism is seriously distorted.

The most serious recent crisis, the GFC, exhibited the FIH taxonomy. It exposed serious flaws in modern finance theory and revealed the dangers of flawed incentive systems in generating asset bubbles. Executives at financial institutions stand accused of short-termism, over-leveraging and poor risk management. Monitoring of management was impossible to perform effectively due to various behavioural and structural obstacles arising from the size and complexity of the institutions concerned. Moreover, a system of perverse incentives led to the failure of effective regulation of executive compensation.

Reform is therefore required. The thesis will conclude with a critical analysis of recent amendments to the regulation of compensation systems at financial institutions. Based on this examination, the thesis will make some proposals for future remuneration packages in the wider economy. These proposals are designed to reduce the potential for financial instability through removing incentives for firm executives to concentrate on short-term results, and emphasize the role of qualitative indices of performance.

## **DECLARATION**

No portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

# COPYRIGHT STATEMENT

- i.** The author of this thesis (including any appendices and/or schedules to this thesis) owns certain copyright or related rights in it (the “Copyright”) and s/he has given The University of Manchester certain rights to use such Copyright, including for administrative purposes.
- ii.** Copies of this thesis, either in full or in extracts and whether in hard or electronic copy, may be made **only** in accordance with the Copyright, Designs and Patents Act 1988 (as amended) and regulations issued under it or, where appropriate, in accordance with licensing agreements which the University has from time to time. This page must form part of any such copies made.
- iii.** The ownership of certain Copyright, patents, designs, trade marks and other intellectual property (the “Intellectual Property”) and any reproductions of copyright works in the thesis, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property and/or Reproductions.
- iv.** Further information on the conditions under which disclosure, publication and commercialisation of this thesis, the Copyright and any Intellectual Property and/or Reproductions described in it may take place is available in the University IP Policy (see <http://www.campus.manchester.ac.uk/medialibrary/policies/intellectual-property.pdf>), in any relevant Thesis restriction declarations deposited in the University Library, The University Library’s regulations (see <http://www.manchester.ac.uk/library/aboutus/regulations>) and in The University’s policy on presentation of Theses.

## DEDICATION

*For Neve, my Angel*

# ACKNOWLEDGEMENTS

During the writing of this thesis, many things have changed in my life.

This has made it all the more important that certain things remained constant. These things are the reasons that this thesis exists.

To Professor Emiliios Avgouleas, who has opened my eyes to a wider world of scholarship, study and thinking. I want to thank you for all of the support, encouragement and wisdom you have demonstrated throughout this process.

To my family – Dad, Mum, Claire, Rob and Amelia – you have all been a consistent source of optimism, encouragement and patience. You are a wonderful family.

To my colleagues at Liverpool John Moores University – especially Dr Lorie Charlesworth, Dr Tony Harvey, and Professor John Cooke – who, with wisdom and wine, have kept me on course to complete this work.

To Sarah, my rock. You give light to my darkest hours, and have taught me what it is to dream. I could not have done this without you.

To Neve, my angel.

To all of you, I offer my love, and thanks.

*August 2012*

## LIST OF CASES

### UNITED STATES:

*Smith v. Van Gorkem*, 488 A.2d 858 (Del. 1985).

*Unocal Corp. v Mesa Petroleum Co.*, 493 A. 2d 946, 949 (Del. 1985).

*SEC v Jenkins*, 718 F. Supp. 2d 1070, 1074-77 (D, Ariz. 2010).

*Neer v. Pelino*, 389 F. Supp. 2d 648, 657 (E.D. Pa. 2005).

## LIST OF STATUTES

### UNITED KINGDOM:

Companies Act 2006.

### UNITED STATES:

Public Company Accounting Reform and Investor Protection Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (July 30, 2002)

Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub, L. No. 111/203 (2010).

### UNITED STATES REGULATIONS:

Accounting Principles Board, 'Opinion 25: Accounting for Stock Issued to Employees' (October 1972); FASB Statement 123r, para. D7.

US Internal Revenue Code § 83(a) (2006).

US Internal Revenue Code § 162 (m) (2006).

SEC Final Rule No. 33-8340, *Disclosure Regarding Nominating Committee Functions and Communications between Security Holders and Boards of Directors* 17 CFR Parts 228, 229, 240, 249, 270 and 274 [Release Nos. 33-8340; 34-48825; IC-26262; File No. S7-14-03] (14 November 2003).

SEC Final Rule 15c3-117: *Alternative Net Capital Requirements for Broker-Dealers That Are Part of Consolidated Supervised Entities*, 17 CFR PART 240 [Release No. 34-63241; File No. S7-03-10] (8 June 2004).

### EUROPEAN UNION:

Council Directive 2002/87/EC [2002] OJ L35/1

Council Directive 2006/48/EC [2006] OJ L177/1

Council Directive 2006/49/EC [2006] OJ L177/201

Council Directive 2010/76/EU [2010] OJ L329/3

Commission Recommendation 2009/211/EC C(2009) 3177

Commission Recommendation 2009-384/EC (C(2009) 3159



# **THE FUTILITY OF STOCK-BASED COMPENSATION IN LIGHT OF IMPERFECT MARKET PRICING**

## **CHAPTER ONE – INTRODUCTION**

### **1.1 THEMES OF THE THESIS**

This thesis is an examination of compensation systems utilised in public financial companies in Anglo-American securities markets. It makes a contribution to the extant literature on corporate governance in public corporations by performing an analysis of the relationship between compensation systems and the efficiency of the market pricing mechanism. In this context, the thesis attempts to answer three key questions:

1. How the dominant view of the firm in economic theory influences remuneration systems in publicly-listed companies and determines the use of stock-based compensation schemes;
2. Why this view is flawed in light of alternative theories of asset and securities markets behaviour which explain how market prices may become distorted; and
3. Whether those alternative financial market theories ought to be considered by regulators in the design of future compensation systems following the Global Financial Crisis ('GFC'), which exposed the limits of stock-price based remuneration.

This introductory chapter shall attempt to provide an outline of the issues and brief summaries of the questions posed above.

#### **1.1.1 Background to the study**

The topic of executive compensation, particularly in large financial institutions, has therefore been the source of much recent debate in both the academic community and popular press. Much of this debate has centred on absolute levels of remuneration or the creation of excessive short-termism in financial markets through the inclusion of

perverse incentives in compensation contracts. The corporate destruction following the GFC certainly occurred against the backdrop of substantial increases in executive compensation levels.<sup>1</sup> In fact, excessive remuneration was cited as cause – perhaps inaccurately<sup>2</sup> – of the collapse in financial markets.<sup>3</sup> As noted in conclusion to a recent conference on executive remuneration in financial institutions, pay contributed to the GFC: “It would be hard to argue that pay for performance increases incentives for risk when times are good and then argue that such incentives did not lead to too much risk taking given the crisis.”<sup>4</sup>

This thesis acknowledges that those concerns are relevant and serious but also introduces a less orthodox perspective exhibited by many existing treatments of the subject: the view presented through the lens of imperfect market pricing. It shall be noted that whilst remuneration systems in financial institutions created perverse incentives (particularly short-termism), further limits to executive compensation efficiency exist due to market price distortions, which may persist for protracted periods. This thesis therefore contends that, whilst many of the criticisms of existing compensation arrangements are merited, they ignore crucial questions concerning the integrity of the market pricing mechanism, which remains a central aspect of the methods used to calculate remuneration awards. It will be demonstrated by this thesis that the market pricing mechanism does not operate according to modern finance theory. This undermines the use of many forms of incentive-based pay because market prices are often used as benchmarks with which to assess performance (usually through metrics such as stock prices or asset prices). As noted by Stout:

---

<sup>1</sup> Executive compensation in the US, in real terms, increased by 5 percent per year from 1980 to 1996. See Xavier Gabaix and Augustin Landier, ‘Why has CEO Pay Increased So Much?’ (2008) 123 Q. J. Econ. 49. The US has the highest CEO-pay to worker-pay ratio in the world – in 2005, the ratio was 39:1. In the same year, the UK had the second highest ratio at 31.8:1. See Heather Landy, ‘Behind the Big Paydays’ *The Washington Post* (Washington, 15 November 2008).

<sup>2</sup> For a rejection of the role of executive compensation as a primary driver of the financial crisis, see Emiliios Avgouleas, *Governance of Global Financial Markets: The Law, the Economics, the Politics* (Cambridge University Press, 2012) 126-9.

<sup>3</sup> For example, see Financial Services Authority, *The Turner Review: A Regulatory Response to the Global Banking Crisis* (March 2009) which commented at 80: “It is ... likely that past remuneration policies, acting in combination with capital requirements and accounting rules, have created incentives for some executives and traders to take excessive risks and have resulted in large payments in reward for activities which seemed profit making at the time but subsequently proved harmful to the institution, and in some cases to the entire system.”

<sup>4</sup> ‘Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium’ Columbia Business School (27-28 March 2010) Recommendation 1a, available at [www4.gsb.columbia.edu/rt](http://www4.gsb.columbia.edu/rt) accessed 20/06/12.

“A salient example [of supposed good corporate governance] can be found in the recent enthusiasm for “incentivizing” corporate officers and directors by compensating them primarily, or even solely, through options and stock-based compensation schemes. If market prices do not closely reflect actual expected risks and returns, this single-minded focus on share price is a recipe for mismanagement.”<sup>5</sup>

### 1.1.2 Study objectives

On research considering the causes of the GFC, it has been noted:

“As in most historical narratives, the motives [for the crisis were] no doubt plural, but no matter which ones were operative, powerful equity-based incentives for highly levered institutions with government guarantees should be very strongly examined for their role in the formation of financial crises.”<sup>6</sup>

By examining the role of incentives in executive compensation systems in contributing to price distortions and thus adding to the potential for financial crises, this thesis adds to the considerable literature on this issue. It shall critically evaluate whether or not current calculations of executive remuneration pay sufficient attention to the unstable nature of financial markets and the inherent flaws in the market pricing mechanism. By addressing the three key questions posed in the introduction to this chapter, the thesis shall provide a critical analysis of subsisting executive pay arrangements in public corporations. It shall be demonstrated that the mechanisms used as the basis for current pay practices do not reflect the limitations of the neoclassical model of economics or the flaws in financial market theory.<sup>7</sup> It is clear that most researchers are in agreement that neoclassical economics failed to provide sound predictions or risk management systems with which to avoid the recent GFC. As noted in 2008 by Alan Greenspan, arch-free market advocate:

---

<sup>5</sup> Lynn A. Stout, ‘The Mechanisms of Market Inefficiency: An Introduction to The New Finance’ (2003) 28 J. Corp. L. 635, 641.

<sup>6</sup> Sudhakar Balachandran, Bruce Kogut and Hitesh Harnal, ‘The Probability of Default, Excessive Risk, and Executive Compensation: A Study of Financial Services Firms from 1995 to 2008’ Columbia Business School Research Paper Series (November 2010) 36 available at [ssrn.com/abstract=1914542](http://ssrn.com/abstract=1914542) accessed 01/07/12.

<sup>7</sup> For a study in the tradition of re-theorising corporate governance, see Stephen Letza, James Kirkbride, Xiuping Sun and Clive Smallman, ‘Corporate governance theorising: limits, critics and alternatives’ (2008) 50 Int. J. L. Man. 17.

“This modern risk-management paradigm held sway for decades ... The whole intellectual edifice, however, collapsed in the summer of last year ... Those of us who have looked to the self-interest of lending institutions to protect shareholders’ equity, myself included, are in a state of shocked disbelief.”<sup>8</sup>

The tenets of modern finance market theory were revealed to be deficient by the GFC. One of these tenets is that wide disparities between value and price are not possible. This thesis provides strong evidence that this view of financial market operation is incorrect. On this basis it contends that compensation packages pegged to the short-term whims of financial markets are an inefficient form of corporate remuneration; they do not provide corporate executives at financial institutions with the necessary incentives that would motivate them to maximise corporate value or provide long-term growth and sustainability. Instead, they incentivise executives to adopt short-term, high-risk business strategies, particularly through the use of leverage and credit. This, as witnessed following the GFC, has contributed to the most severe economic recession in almost a century which, at the time of writing, appears many years from abating.<sup>9</sup> The thesis shall make recommendations for the adoption of certain mechanisms in compensation structures which, alongside existing reforms to the financial system, ought to increase the capacity of regulators to preserve market stability.

## **1.2 STRUCTURE AND METHODOLOGY**

### **1.2.1 Structure**

The first substantive chapter of the thesis, Chapter Two, analyses the predominant view of the firm in Anglo-American markets. The chapter begins with a brief analysis of the position of the firm in neoclassical economic thought; a crucial undertaking, as this will help contextualise the arguments made later in the thesis and provide some reasoning for the adoption of certain corporate governance arrangements. The firm, in neoclassical economic theory, is cast as a ‘nexus of contracts’ (under the subsuming theory of contractarianism), which emphasises the role of the market in determining optimal

---

<sup>8</sup> This quote is derived from Greenspan’s testimony to the US House of Representatives Committee on Oversight and Government Reform on the GFC. See Edmund L. Andrews, ‘Greenspan Concedes Error on Regulation’ *New York Times* (New York, 23 October 2008).

<sup>9</sup> In June 2012, Spain was forced to borrow tens of billions of euros from the European Central Bank in order to fund a recapitalisation programme of its banking sector. See Peter Spiegel, ‘Spain seeks eurozone bailout’ *Financial Times* (London, 9 June 2012).

governance solutions,<sup>10</sup> and regards human agents from the perspective of ‘rational choice theory’, which shall be critiqued later in the thesis.<sup>11</sup> According to this view, free and costless bargaining will produce the greatest economic efficiency and the market’s epistemic qualities are to be preferred to state intervention in determining corporate structures (including appropriate remuneration policies). The firm is thus a legal construct to be used as a vehicle for the furtherance of the interests of profit-seeking economic agents. The competitive process is trusted to remove firms with inefficient bargaining agreements and spare firms with more optimal contractual arrangements and management structures. Moreover, neoclassical economic theory stresses the importance of liberal and deregulated markets to ensure efficient use of resources and facilitate legal contracting.<sup>12</sup>

This liberalisation emphasises the importance of ‘shareholder value theory’ in creating efficient markets, which the second section of Chapter Two considers. Shareholder value theory has become the dominant paradigm in directing management decisions in Anglo-American markets. The pursuit of shareholder value is viewed as a method of creating more efficient firms.<sup>13</sup> However, Anglo-American public firms are not generally controlled by shareholders, but by managers (the so-called separation of ownership and control). The separation of ownership and control creates an agency problem<sup>14</sup> whereby managerial and shareholder interests may diverge. Supporters of contractarianism argue that aligning the interests of principals and agents is the most effective method with which to reduce agency costs and contributing to overall economic efficiency. There are, however, several obstacles to the efficient reduction of agency costs and the remainder of Chapter Two highlights these problems. Firstly, the principal must assess whether the extracted rents are worthy of attention in relation to the costs of monitoring the agent. Secondly, there are inherent structural obstacles to effective monitoring of executive performance (such as the composition of the board of

---

<sup>10</sup> Frank H. Easterbrook and Daniel R. Fischel, *The Economic Structure of Corporate Law* (Harvard University Press 1991).

<sup>11</sup> *Infra*. Chapter 4.

<sup>12</sup> Jacint Jordana and David Levi-Faur (eds), *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance* (Elgar, 2004); Christine Parker, *The Open Corporation: Effective Self-regulation and Democracy* (Cambridge University Press 2002).

<sup>13</sup> William W. Bratton, ‘Enron and the Dark Side of Shareholder Value’ (2002) 76 *Tul. L. Rev.* 1275, 1283.

<sup>14</sup> Michael C. Jensen and William H. Meckling, ‘Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure’ (1976) 3 *J. Fin. Econ.* 305.

directors or managerial power) and the bounded rationality and imperfect information of shareholders which prevents them from making informed decisions about the performance of top management.

Chapter Three considers the dominant response to the agency problem: executive compensation. Executive compensation packages at public companies comprise common elements such as a base salary and performance-target related pay. This, theoretically, ought to mitigate potential conflict between the principal and agent, by making a proportion of the executive's pay contingent on firm performance. This aligns the interests of shareholders (superior firm performance and increased profits) with those of management (commensurate performance-adjusted rewards). This performance-related pay often includes an element with a specific link to the price of the company stock that the executive is employed by. Thus the more shareholder value that executives create, the more pay they receive. Executive remuneration rewards are therefore based, to a great extent, on the market price of companies (or their market capitalization).<sup>15</sup> The mantra of stock-based compensation caught hold during the leveraged buyout ('LBO') boom of the 1980s and significantly inflated corporate compensation packages, and Chapter Three discusses the LBO revolution briefly. This phenomenon marked the advent of the use of stock-based compensation with which to reward financiers for corporate takeovers and restructurings.

The remuneration mechanisms used to reward executives under this theory are not free from criticism. Chapter Three critically considers these weaknesses. The widespread adoption of stock-based compensation led to a damaging obsession with short-term market price movements, contributing to corporate scandals based on systematic abuse of financial reporting. The chapter therefore conducts a critical discussion of the collapse of Enron, which highlighted the insidious role of executive compensation in instigating financial collapse. More presciently, many commentators view performance-related-pay as inefficient precisely because it is often linked to the performance of the stock price of firms and many stock-price movements are market or sector-driven, rather than being firm-specific. In these situations, executives may be rewarded (or even penalized) for factors which are beyond their control and which they cannot possibly

---

<sup>15</sup> Calculated by multiplying the number of outstanding shares in a company by the current per share market price.

influence.<sup>16</sup> These criticisms underpin the arguments regarding the efficiency of incentive contracts and might be regarded as the principal ‘traditional consensus’ on the critique of the pay-for-performance model. They do, however, neglect a further and essential aspect of the pay-for-performance paradigm: the concept of imperfect market pricing. Chapter Three concludes by introducing this factor into the analysis.

As Chapters Two and Three note, the prevailing view of the firm and the contractual arrangements which operate within it place complete faith in modern finance theory. Chapter Four begins with a discussion of this theory, which asserts that market pricing is flawless; that is, the price of a security is always equal to its value (the so-called Efficient Capital Markets Hypothesis, or ‘ECMH’). If the value of securities is flawless so, by proxy, must be a firms’ market capitalisation. The ECMH bases its predictive qualities upon the rational investor model.<sup>17</sup> A further and essential tenet of the ECMH is that there is no such thing as an asset ‘bubble’ or ‘overvaluation’ of assets: market prices are always correct because agents are rational and will arbitrage away any price anomalies extremely quickly. Financial crisis is therefore unpredictable – and therefore unavoidable – and crashes simply mark departures from equilibrium.

The GFC has, axiomatically, shaken the neoclassical view of financial markets and reduced faith in its predictive qualities.<sup>18</sup> Chapter Four proceeds with two critiques of the ECMH; an internal critique, which highlights flaws within the model itself, and an

---

<sup>16</sup> Perhaps the most apposite recent example was the terror attack on September 11<sup>th</sup> 2001, which wiped \$1.2 trillion from US securities markets in one week. See Michael T. Carpenter, *The Risk-Wise Investor: How to Better Understand and Manage Risk* (Wiley 2009).

<sup>17</sup> In relation to the supposed futility of governmental fiscal policy, for example, neoclassical economic theory holds that “...markets will adjust instantaneously [to new information]. For because expectations are rational, optimizing agents will take predictable countercyclical government fiscal and monetary policy into account in their behaviour. Policy can only have effects if it ‘surprises’ agents, and rational expectations ensure that policy that systematically surprises agents is not possible.” Source: William Outhwaite (ed), *The Blackwell Dictionary of Modern Social Thought* (Blackwell 2002) 433.

<sup>18</sup> For example, a group of economists recently concluded that: “The economics profession appears to have been unaware of the long build-up to the current worldwide financial crisis and to have significantly underestimated its dimensions once it started to unfold. In our view, this lack of understanding is due to a misallocation of research efforts in economics. We trace the deeper roots of this failure to the profession's focus on models that, by design, disregard key elements driving outcomes in real-world markets. The economics profession has failed in communicating the limitations, weaknesses, and even dangers of its preferred models to the public. This state of affairs makes clear the need for a major reorientation of focus in the research economists undertake, as well as for the establishment of an ethical code that would ask economists to understand and communicate the limitations and potential misuses of their models.” See David Colander, Hans Follmer, Armin Haas, Michael D. Goldberg, Katarina Juselius, Alan Kirman, Thomas Lux and Birgitte Sloth, ‘The Financial Crisis and the Systemic Failure of Academic Economics’ Univ. of Copenhagen Dept. of Economics Discussion Paper No. 09-03 (March 2009) available at [ssrn.com/sol3/papers.cfm?abstract\\_id=1355882](http://ssrn.com/sol3/papers.cfm?abstract_id=1355882) accessed 15/02/12.

external critique which presents alternative views on the operation of financial markets. The internal critique highlights a substantial body of research which purports to demonstrate that the ECMH performs poorly when confronted by empirical data. This is sometimes attributed to limits to arbitrage which prevent the full incorporation of information into prices, which is not so much a problem with the ECMH as with the structure of securities markets. However, this chapter also demonstrates that observations of the operation of markets – especially financial markets – cannot support the notion of rationally and fully-informed agents. The price of financial assets is not always efficient; significant departures from price and persistent market anomalies may be observed. There is also a distinction between ‘informationally-efficient’ and ‘fundamental-value efficient’ pricing. This distinction has practical consequences because information asymmetry affects the behaviour of agents in managerial positions within firms in the economy and can also affect economic stability, especially in relation to the banking sector.

Chapter Four also conducts an external critique of the ECMH. The assumptions made under the ECMH about investors and the choices they make are highly questionable. Regulation of financial markets is underpinned by rational choice theory, which has suffered from sustained criticism.<sup>19</sup> The chapter thus delves into the realm of behavioural economics to provide alternatives to the ECMH in explaining financial market behaviour and comments upon its utility as the basis for regulation. It considers research from behavioural finance economists and lawyers<sup>20</sup> to provide an explanation for the contention that markets are prone to price distortion.<sup>21</sup> The topic of asset bubbles – perhaps the epitome of price distortion – is addressed. Standard financial theory does not recognise the possibility of asset bubbles, yet every major banking crisis has been preceded by one.<sup>22</sup>

---

<sup>19</sup> For a summary of the criticisms see Burton G. Malkiel, ‘The Efficient Market Hypothesis and Its Critics’ (2003) 17 J. Econ. Persp. 59.

<sup>20</sup> For example, Robert J. Shiller, Daniel Kahneman, Charles P. Kindleberger, Nicholas Thaler, Richard Barberis, Emilios Avgouleas.

<sup>21</sup> Michael D. Bordo and John S. Landon-Lane, ‘The Global Financial Crisis of 2007-08: Is it Unprecedented?’ NBER Working Paper 16589 (December 2010).

<sup>22</sup> Charles P. Kindleberger and Robert Z. Aliber, *Manias, Panics and Crashes: A History of Financial Crises* (5<sup>th</sup> edn Palgrave MacMillan 2005); Carmen M. Reinhart and Kenneth S. Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* (Princeton University Press 2009).



The chapter concludes by incorporating the rebuttal of certain axioms of modern finance theory by Hyman Minsky. This so-called 'Financial Instability Hypothesis' ('FIH') claims that euphoric expectations of future expansion will affect an economy's debt structure, leading to financial instability and eventual collapse. Asset prices appreciate in times of prosperity. Often, financial and industrial institutions will increase their leverage in credit-based expansion. Debt-fuelled exuberance in this way contributes to inflated market valuations and may distort stock prices as a criterion for the measurement of corporate performance. Minsky highlighted the perverse compensation incentives that leverage creates for bank management, and this aspect of his theory shall also be addressed. Debt levels, however, become unsustainable and a market crash become inevitable. If one accepts that capitalist markets are characterised by cyclical alterations in the value of stock markets, which may create imbalances and market mispricings, corporate remunerative policies ought to capture the fact that the financial system will perennially be subject to severe price corrections.

Chapter Five proceeds with an examination of the contribution of executive remuneration to the GFC, which exploded modern finance theory and supports the consideration of a new economic paradigm. The GFC is important to the arguments proffered in this thesis as it demonstrated that common causes drive most significant financial crises, and exposed the role of debt-fuelled expansion in creating financial conditions of fragility. Stock-based compensation provided executives at financial institutions with serious incentives for this expansion. Many investors were caught up by the market euphoria of the years preceding the crash despite warning signs that a financial crash was imminent being sounded before 2007, when the crisis began.

When viewed from the perspective of behavioural finance and the FIH taxonomy, the asset bubble that emerged was entirely predictable. The market pricing mechanism did not reflect the likelihood that this was the case. Market discipline was insufficient to guard against consequences which flowed from poor incentives and rent-seeking. Economic units, particularly financial institutions, migrated towards unstable financial structures, as entities in the shadow banking system and traditional banks sought to increase returns via credit. To support this, the thesis utilises data from the financial sector which demonstrates that leverage in the financial system increased significantly in the build-up to the crisis and the subprime mortgage backed asset market was

expanding at a rate which did not reflect underlying fundamentals. At the same time, executive pay levels, based on weak incentives for risk management and related to a large extent on the inflation of asset values, burgeoned. This chapter also notes a further paradox in relation to this theme; the very compensation policies that executives push for (stock-options/stock-related remuneration) drive financial institutions to become more unstable. This is because the investment strategies which reward executives to the greatest extent are those based upon creating further leverage from underlying assets. So, stock-based executive pay is not only a product of an increasingly fragile financial structure, but a driver of it.

Chapter Six examines the regulatory response to the GFC in relation to executive compensation in the major global financial centres and concludes with recommendations for future regulation of executive compensation in all public corporations.<sup>23</sup> It shall note that excellent progress has been made in relation to reducing poor incentives within corporate executive compensation systems, especially through the introduction of mandatory deferral of variable compensation. Modern markets are characterised by regular financial crises and value captured in ‘benign’ economic conditions is perennially wiped out in recession. Many financial institutions which awarded executives huge bonuses in ‘good’ years collapsed or were effectively bankrupted when the market pricing mechanism eventually corrected itself in 2007-08. Executives at financial institutions pursued policies that inflated asset values in the short-term – for which they were often rewarded handsomely – and when those asset values collapsed, shareholders were left holding little or no equity. Executives, for the most part, kept their compensation.

This thesis does not call for the complete abandonment of the incentive-based contract. Pay-for-performance remains a highly useful tool to align the interests of management with shareholders and stock market pricing is still the best metric with which to measure performance. However, its central foundations must be solid. Markets are prone to extreme oscillations in price and it may require observation for a protracted period for fundamental value to emerge in order to ‘screen out’ the possible effects of market

---

<sup>23</sup> The thesis concentrates on regulation in the US, UK, and EU and also the recommendations of the Financial Stability Board, the Basel Committee on Banking Supervision and the International Institute of Finance.

irrationality and failed investor learning. The thesis summarises its findings by suggesting that a more rounded view of performance would be useful in augmenting the mechanisms of executive remuneration to more closely tie pay to performance. Because stock and asset prices are often inflated, taking a 'longer view' of share-price performance and reducing the incentive to leverage in executive remuneration systems would reduce the risk to shareholder value and promote financial stability. Alternative qualitative criteria for measuring performance (such as brand enhancement, customer/employee satisfaction etc) may also be useful in setting comparative executive pay. Further safeguards ought to be introduced into executive compensation contracts which adjust for the level of leverage (or instability) at periodic intervals during the leverage cycle. This will increase the level of protection for financial stability by denying executives incentives to over-leverage their firms or pursue short-term stock-appreciating strategies which undermine long-term sustainability.

## **1.2. Methodology statement**

The thesis is analytical and interdisciplinary; it provides a critical analysis of existing normative rules regarding the operation of the firm and compensation systems in public companies and engages with the conclusions of the vast literature on the topic of stock-based remuneration in law, economics and finance. It further critically evaluates theoretical explanations for the operation of financial markets and the failure of neoclassical economics to provide sufficient insights for lawmakers to act efficiently in preventing market crises.

Many of the normative rules that this thesis surveys and evaluates are not 'law'; they are instead codes and practices that have been agreed to voluntarily by institutions and signatory States. This does not however, render the work of a lawyer redundant; lawyers are vital components in the design of regulatory systems and assist in reconciling the law with the economics that underpins it. The thesis collects data from a wide variety of theoretical and empirical research into corporate governance and financial market theory to support its contentions. Chapters Two, Three and Four rely mainly on critical analysis of existing literature in the areas of corporate governance and financial market theory, as well as performing a critical analysis of existing regulatory structures.

Chapter Five performs a reflective analysis of the recent GFC which links to the themes discussed in previous chapters to provide an explanation for the contribution of perverse incentives to the financial meltdown. Chapter Six makes some proposals for reform in a wide, fundamental sense.

The thesis is an amalgam of doctrinal and non-doctrinal research. Whilst doctrinal legal research may be narrow, as noted:

“All [non-doctrinal] legal research can be generally grouped within three categories: problem, policy and law reform based research ... They can be considered together because of the often occurring link between them. In fact, all four categories of research, doctrinal, problem, policy and law reform, could be part of a large-scale research project. A researcher, for example, could begin by determining the existing law in a particular area (doctrinal). This may then be followed by a consideration of the problems currently affecting the law and the policy underpinning the existing law, highlighting, for example, the flaws in such policy. This in turn may lead the researcher to propose changes to the law (law reform).”<sup>24</sup>

This thesis thus reflects the great tradition of legal scholarship. It uses observations from the recent GFC, in concert with analysis of the subsisting theoretical and empirical work in the realms of financial markets, regulation and corporate governance, to provide suggestions for possible reform of compensation systems. Whilst the thesis relies on theory and a substantial amount of secondary research, it remains empirical:

“[E]mpirical research, as natural and social scientists recognize, is far broader than these [normally] suggest[ed]. The word “empirical” denotes evidence about the world based on observation or experience. That evidence can be numerical (quantitative) or nonnumerical (qualitative); What makes research empirical is that it is based on observations of the world ... These facts may be historical or contemporary, or based on legislation or case law, the results of interviews or surveys, or the outcomes of secondary archival research or primary data collection.”<sup>25</sup>

The thesis shall thus make empirical observations on the current regulation of executive

---

<sup>24</sup> Ian Dobinson and Francis Johns, ‘Qualitative Legal Research’ in Michael McConville and Wing Chong Hui (eds), *Research Methods for Law* (Edinburgh University Press, 2007) 19-20.

<sup>25</sup> Lee Epstein and Gary King, ‘The Rules of Inference’ (2002) 69 U. Chi. L Rev. 1, 2-3.

compensation packages, whilst also critiquing prevalent theories of neoclassical efficient market pricing. It will move on to consider alternative theories which explain financial market operation in different terms to the neoclassical synthesis and reach conclusions on future regulation of executive remuneration based on its findings. These aspects of the thesis were selected systematically. It seems that the entire intellectual foundation of stock-related executive compensation rests on the assumption of efficient market pricing. There is also a linear and documented relationship between the amount of leverage employed in the financial sector and financial instability. Current literature does not appear to place sufficient emphasis on the interconnection between remuneration-linked incentives to undertake leverage-based expansion. This factor ought to be considered in any proposed reforms to compensation arrangements. This thesis therefore attempts to explain the links between perverse remuneration incentives and financial fragility and thereby, it is hoped, provide some insight into why reform of incentive structures within the financial system – and beyond – is necessary.

Most of the sources used in this study were freely available through journal subscriptions, books and online databases. A broad spectrum of legal and non-legal, technical and non-technical literature, particularly recent empirical studies into the GFC and reports by national and supranational organisations such as the U.S Senate, the UK Parliament, the European Commission, the International Monetary Fund (IMF) and the Basel Committee on Banking Supervision (BCBS) have been analysed and relevant quotes obtained. In some cases, corporate proxy materials have been examined to provide empirical data for analysis. Relevant statutory law (in particular, the provisions of the recently enacted Dodd-Frank Act 2010 in the US) in conjunction with the plethora of regulatory reports and codes which have been released since 2008, have been carefully examined.

## CHAPTER TWO – THE FOUNDATIONS OF ANGLO-AMERICAN CORPORATE GOVERNANCE

### INTRODUCTION

This chapter discusses the systems of governance that have dominated Western economies since the 1970s. It sets the scene for subsequent consideration of the first question posed in the introductory chapter of this thesis<sup>1</sup>, which shall be addressed substantively in Chapter Three,<sup>2</sup> namely: How the dominant view of the firm in economic theory influences remuneration systems in publicly-listed companies and determines the use of stock-based compensation schemes.

Section One traces the historical development of the governance form that currently prevails in Anglo-American markets.<sup>3</sup> This form has been refined over the last century or so to produce the model that underpins corporate governance systems in the US and the UK. These systems are based on highly similar principles which are attributable largely to a neoclassical economic theory of corporate law ('contractarianism') which seeks to promote efficient markets by upholding the rights of individuals to enter into freely negotiated contracts and places faith in the inherent capacity of market participants to fully evaluate and price risk.

Section Two analyses the concept of shareholder primacy and the agency theory of the firm. Shareholder primacy is an extension of contractarianism and is the dominant approach to the management of the modern corporation. Agency theory explains how the tensions generated by the division of ownership and control may be mitigated by behavioural and contractual-based remedies. In this era of highly dispersed ownership structures, executives normally own only tiny fractions of the shares of the public corporations they are employed by. Without sufficient alignment of shareholder and management interests, a patent risk exists that managers will seek to enrich themselves at the expense of the firm and, by proxy, the shareholders.

---

<sup>1</sup> *Supra.* Chapter 1.

<sup>2</sup> *Infra.* Chapter 3.

<sup>3</sup> Generally, this term refers to the US and UK as a collective unit, as distinct from other regional governance systems such as those found in the European Community or Asia.

Section Three analyses the incentive problems that shareholder value theory has generated for corporate securities markets and some of the weaknesses of the notion of shareholder primacy. Short-term focus on share prices engenders certain behaviours which might distort measures of corporate performance and this provides some objections to the assumptions made under neoclassical theory regarding price efficiency. Weaknesses in corporate governance pose questions as to the validity of entrusting the market with the role of regulator and the viability of solutions proffered to solve the agency problem.

Section Four concludes.

## 2.1 THE EVOLUTION OF THE ANGLO-AMERICAN CORPORATION

Anglo-American Corporate governance has undergone several metamorphoses since the genesis of the concept during the early twentieth century. Shares in Anglo-American companies are widely-held.<sup>4</sup> Large investment vehicles established by pension providers, mutual funds and others have resulted in huge investment portfolios enjoying substantial shareholdings in public companies.<sup>5</sup> Indeed, recently, there has been a pronounced trend away from individual share ownership to institutional ownership.<sup>6</sup> This phenomenon has prompted a new form of de-centralised and less-concentrated ownership structures: managers of companies usually do not have significant equity holdings in them.<sup>7</sup> The ownership of companies has become more dispersed and, by

---

<sup>4</sup> Approximately 80 percent of the shareholdings of large US public companies are widely-held. See Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer, 'Corporate Ownership Around the World' (1999) 54 J. Fin. 471.

<sup>5</sup> The top 20 mutual funds in the world manage close to \$1 trillion between them. Ten of the top twenty mutual funds are based in the US. See [www.therealreturns.blogspot.com](http://www.therealreturns.blogspot.com) accessed 7-11-08. Assets of the largest 300 global pension funds were around \$10.7 trillion towards the end of 2007. See [www.efinancialnews.com](http://www.efinancialnews.com) accessed 7-11-08.

<sup>6</sup> NYSE, *Report of the New York Stock Exchange Commission on Corporate Governance*, (23 September 2010) 12. Individuals held 93% of US equities in 1950; by 2006 this had dropped to approximately 33%; and by 2009, it was just 25%. See American Bar Association, *Report of the Task Force of the ABA Section of Business Law Corporate Governance Committee* (August 2009) 15. The UK experience of share ownership change has been even more pronounced. In 1957 individuals owned nearly 70 percent of quoted equities; by 1989 this had fallen to around 20 percent. Today the figure is 14.8 percent, with institutional investors holding over 50 percent, and overseas holders (including institutions) accounting for 31.9 percent. See Jonathan P. Charkham, *Keeping Better Company* (OUP 2005) 307.

<sup>7</sup> Margaret M. Blair, 'The Neglected Benefits of the Corporate Form: Entity Status and the Separation of Asset Ownership from Control' in Anna Grandori (ed), *Corporate Governance and Firm Organization: Microfoundations and Structural Forms* (OUP 2005).

proxy, owners of companies have become quasi-divorced from control. Indeed, it has been asserted that stockholders cannot be accurately described as the true ‘owners’ of firms, because their powers of control are generally ceded to such a degree that the term ‘owners’ ceases to be a worthwhile description of their function.<sup>8</sup>

This diversification of ownership titles has led to a reformed management and control structure, whereby stockholders no longer exert direct control over a company, but instead delegate their powers of ownership to a board of directors. In turn, the board of directors appoint senior managers (some of whom themselves sit on the board of directors) to direct operations and firm strategy on behalf of the stockholders. Many firms insist on senior executives commanding large stockholding positions; this is seen as an incentive for improving performance by tying remuneration to stock performance.<sup>9</sup>

### **2.1.1 The position of the company in neoclassical economic thought**

The trust placed in the market requires that certain private and individual rights must be enshrined in law to allow market participants to pursue their economic goals and reduce the ambit of state activity. Thus, private property rights are the cornerstone of any libertarian economy:

“State enforced property rights [are] the key growth-enhancing institution. For if those rights were not enforced, open trade and the huge benefits of competition and comparative advantage would be seriously and dramatically impeded ... The presumption of individual property ownership and the legality of its transfer must be deeply embedded in the culture of a society for free-market economies to function effectively.”<sup>10</sup>

The logical conclusion to these steps in the theories which justify free market liberalism is that state or regulatory intervention is undesirable. It is the market that should be left

---

<sup>8</sup> Margaret M. Blair and Lynne A. Stout, ‘A Team Production Theory of Corporate Law’ (1999) 85 Va. L. Rev. 248.

<sup>9</sup> Michael C. Jensen and Kevin J. Murphy, ‘Performance Pay and Top-Management Incentives’ (1990) 98 J. Polit. Econ. 225.

<sup>10</sup> Alan Greenspan, *The Age of Turbulence: Adventures in a New World* (Allen Lane 2007) 251-252 (hereinafter Greenspan, *The Age of Turbulence*).



to regulate the conduct of participants and, thereby, corporations<sup>11</sup>; market discipline and market-driven codes of governance continue to characterise Anglo-American firm regulation.<sup>12</sup> Private market actors are in possession of the greatest incentives to deliver services and ensure corporations pursue the most desirable objectives, thus protecting investors, preserving capital value and leading to greater economic efficiencies.

Neoclassical economists in general contend that the corporation, as an embodiment of capitalist organization, ought to be afforded special treatment by the legal system.<sup>13</sup> In short, certain corporate freedoms must be regarded as absolutely inviolable if the free market capitalist system and its benefits are to be guaranteed.<sup>14</sup> Two of the key principles that this freedom appertains to are freedom of incorporation and freedom of contract.<sup>15</sup> The company is therefore defined by its operation: it operates under contracts freely entered into and should be run in the interests of its incorporators and owners.

These principles are based upon the ‘rational agent’ model of human behaviour, the oft-touted *homo economicus*.<sup>16</sup> The argument postulated by the neoclassical synthesis follows the following approximation: where individuals possess free will and the ability to make choices unencumbered by external forces, they will act rationally – that is, they will make choices which improve their personal well-being. This is known as ‘utility maximisation’<sup>17</sup> and is the concept which underpins rational choice theory<sup>18</sup>:

“[Everyone] has perfect information about future events ... Wages and prices will adjust instantaneously to new conditions, because these conditions will have been anticipated and will already be incorporated in the prices which people

---

<sup>11</sup> Ludwig Von Mises, ‘Economic Calculation in the Socialist Commonwealth’ in Friedrich A. Hayek (ed), *Collectivist Economic Planning* (first published 1920, Augustus M Kelley 1975).

<sup>12</sup> Sol Picciotto, ‘Regulatory Networks and Multi-Level Global Governance’ in Olaf Dilling, Martin Herberg, and Gerd Winter (eds), *Responsible Business: Self-governance and the law in transnational economic transactions* (Hart 2008).

<sup>13</sup> Brian R. Cheffins, *Company Law: Theory, Structure and Operation* (Clarendon Press 1996) 4.

<sup>14</sup> See Richard A. Posner, *Economic Analysis of Law* (7<sup>th</sup> edn, Aspen Publishers 2007).

<sup>15</sup> David Harvey, *A Brief History of Neoliberalism* (2<sup>nd</sup> edn, OUP 2007).

<sup>16</sup> “[E]conomic human, is the figurative human being characterized by the infinite ability to make rational decisions.” See [www.investopedia.com/terms/h/homoeconomicus.asp#ixzz20yAhRyDJ](http://www.investopedia.com/terms/h/homoeconomicus.asp#ixzz20yAhRyDJ) accessed 17/07/12.

<sup>17</sup> For a detailed discussion of this concept see Faud Aleskerov, Denis Bouyssou & Bernard Monjardet, *Utility Maximization, Choice and Preference* (2<sup>nd</sup> edn, Springer 2007).

<sup>18</sup> Critiqued *infra*. Chapter 4.

charge and expect to pay for their services. No departure from real long-term values is possible even in the short run.”<sup>19</sup>

Rational choice theory contends that individual agents possess unbounded rationality; that is, investors’ financial decisions are based upon full assimilation of all available information and agents do not make systematic mistakes. Thus, predictions made under this model look no different to market equilibrium. Market efficiency is achieved in equilibrium, and so government intervention is eschewed.<sup>20</sup> Rational choice theory thus provides the basis for market-driven Anglo-American financial regulation: “[L]egislative design may in principle be used to promote ‘market’ solutions and private contractual orderings which may provide means of overcoming or neutralising market failure without the need for narrowly prescriptive legal control.”<sup>21</sup>

This has direct and significant consequences for the corporate governance arrangements employed at Anglo-American firms and, by proxy, the remuneration structures that subsist in these markets. The ‘light-touch’ regulatory approach taken toward the design and enforcement of executive compensation contracts is one consequence of the view of the market adopted by neoclassical economists. This aspect of corporate governance shall be addressed later in the thesis.<sup>22</sup>

### **2.1.2 Contractarian Theory**

The tenets described above led corporate law theorists to build upon neoclassical assumptions of rational choice theory, utility maximisation and free markets to formulate a theory of the firm based on contract law: the firm as a nexus of contracts (or contractarianism). This nexus of contracts governs relations between the firm and its

---

<sup>19</sup> Robert Skidelsky, *Keynes: The Return of the Master* (Penguin 2009) 32.

<sup>20</sup> Robert E. Lucas, ‘Econometric Policy Evaluation: A Critique’, in Karl Brunner and Allan H. Meltzer (eds), *The Phillips Curve and Labor Markets*, Carnegie-Rochester Conference Series on Public Policy 1 (Elsevier 1976).

<sup>21</sup> Simon Deakin and Alan Hughes, ‘Economic Efficiency and the Proceduralisation of Company Law’ ESRC Centre for Business Research University of Cambridge Working Paper No. 133 (June 1999) 6 (hereinafter Deakin and Hughes, *Economic Efficiency*).

<sup>22</sup> *Infra*. Chapter 3.

employees, managers, shareholders, creditors and others,<sup>23</sup> with the firm acting as a common counterparty between the various stakeholders in the company as a “single contracting party that is distinct from the various individuals who own or manage the firm.”<sup>24</sup> The foundations of the contractarian view of the firm are based upon the ideological standpoint that ‘the market knows best’ and any attempt by regulators to interfere in private contractual negotiation are firstly, unwarranted in philosophical terms and, secondly, ultimately worthless because no state or authority can perform the role of regulator in a better fashion than the market itself, because the market is in possession of the most information.<sup>25</sup>

Anglo-American corporate law is premised to a great extent on contractarianism. If the company may be presented as a mere vehicle, (and the market as a forum), for individuals to meet, exchange obligations and bargain freely, it follows that its irreducible obligation is to serve the interests of its shareholders, thus giving rise to the concept of shareholder primacy. As Easterbrook and Fischel note in their seminal work: “The [corporation] ... does not create substantial third-party effects – that is, does not injure participants who are not voluntary participants in the venture ... Investors, employees, and others can participate or go elsewhere.”<sup>26</sup>

The relationship between the managers and shareholders of a public firm is thus posited as contractual. The corporate contract is comprised of a company’s constitution and by the corporate law the firm selects by choosing to incorporate in a particular state or territory.<sup>27</sup> Market forces are expected to create optimal corporate contracts; if the contracts were not optimal, rational agents would renegotiate them until they were. Thus, instead of providing legal rules to govern corporate exchange, the law ought simply to “[complete] open-ended contracts”<sup>28</sup> and rely on market discipline to regulate conduct and governance. As noted by Deakin and Hughes, “[the] essential message is

---

<sup>23</sup> Deakin and Hughes, *Economic Efficiency*.

<sup>24</sup> Reinier Kraakman, John Armour, Paul Davies and Luca Enriques, *The Anatomy of Corporate Law* (2<sup>nd</sup> edn, OUP 2009) 6.

<sup>25</sup> Greenspan, *The Age of Turbulence* 256.

<sup>26</sup> Frank H. Easterbrook & Daniel R. Fischel, *The Economic Structure of Corporate Law* (Harvard University Press 1991) 17 (hereinafter Easterbrook and Fischel, *Economic Structure*).

<sup>27</sup> Michael Klausner, ‘The Contractarian Theory of Corporate Law: A Generation Later’ (2006) 31 J. Corp. L. 779. See also Sol Picciotto, ‘Regulatory Networks and Global Governance’ *W.G Hart Legal Workshop: The Retreat of the State: Challenges to Law and Lawyers* (London, 27-29 May 2006).

<sup>28</sup> Easterbrook and Fischel, *Economic Structure* 35.

that bargaining, though costly, is likely to be efficient, and that the role of the law is confined to oiling the wheels of corporate self-regulation by avoiding unnecessary costs.”<sup>29</sup> Thus no regulation of any internal corporate relationships – including compensation systems – ought to be permissible. However, where existing rules and contracts do not regulate risk adequately, what is the role of regulation (particularly where the relevant sector is crucial to economic stability)? This question shall be addressed later in the thesis.<sup>30</sup>

## 2.2 SHAREHOLDER VALUE & AGENCY THEORY

### 2.2.1 Shareholder Value Theory

The contractarian view of the firm lends theoretical support to what has become known as ‘shareholder value theory’, which has become the dominant paradigm in directing management decisions in Anglo-American markets.<sup>31</sup> Since the ascent of the Chicago School in the US<sup>32</sup>, the purpose of the Anglo-American firm has been underpinned by shareholder value theory. This dictates that corporations ought to be run in the financial interests of their owners: the chief objective for the corporation is “the conduct of business activities with a view toward enhancing corporate profit and shareholder gain.”<sup>33</sup> Shareholder value theory derives its power from the premise that shareholders, as the owners and ultimate risk-bearers of corporations, have the greatest incentives to maximise the value of the corporation.<sup>34</sup> Thus, their interests ought to be prioritised by

---

<sup>29</sup> Deakin and Hughes, *Economic Efficiency* 13.

<sup>30</sup> *Infra.* Chapters 5 and 6.

<sup>31</sup> A standard textbook definition might argue that shareholder value is based on “maximiz[ing] the current value per share of existing stock.” Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan, *Fundamentals of Corporate Finance* (5<sup>th</sup> edn, McGraw-Hill 2000) 11. For some of the leading academic works on the principle see Jill E. Fisch ‘Measuring efficiency in corporate law: the role of shareholder primacy’ (2006) 31 J. Corp. L. 637; D. Gordon Smith, ‘The shareholder primacy norm’ (1998) 23 J. Corp. L. 277; Ross Grantham, ‘The doctrinal basis of the rights of company shareholders’ (1998) 57 Cam. L. J. 554.

<sup>32</sup> An economic school of thought which demonstrates “A deep commitment to rigorous scholarship and open academic debate, an uncompromising belief in the usefulness and insight of neoclassical price theory, and a normative position that favors and promotes economic liberalism and free markets.” See David Mitch, ‘Chicago and the development of twentieth century labor economics’ in Ross B. Emmett (ed), *The Elgar Companion to the Chicago School of Economics* (Elgar, 2010) 133.

<sup>33</sup> American Law Institute, *Principles of Corporate Governance: Analysis and Recommendations* (1994) s.2.01(a).

<sup>34</sup> Prior to the passage of the Companies Act 2006 in the UK, a minister commented that: “The Company Law Review considered and consulted on two main options. The first was “enlightened shareholder

fiduciaries of the firm.<sup>35</sup> Management ought to run the firm in the interests of shareholders only – they ought to be accountable to the owners of the firms they manage and to no further constituencies: “a manager told to serve two masters (a little for the equity holders, a little for the community) has been freed of both and is answerable to neither.”<sup>36</sup> By proxy, the pursuit of shareholder value is viewed as a method of creating more efficient firms:

“There is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits ... Few trends could so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their stockholders as possible”.<sup>37</sup>

### 2.2.2 Agency theory

Agency theory results from shareholder value theory. A basic issue in corporate governance is how shareholder interests may be protected under conditions of market-based regulation. Shareholders in large companies are forced to delegate their decision-making powers to managers; the corporations’ magnitude, obligations and agreements cannot be administered by the stockholders. Stockholders, for their part, do not generally have the expertise or the desire to engage in the active management of a company; they delegate their powers of control to firm management and retain the voting rights attached to the shares.

---

value”, under which a director must first act in the way that he or she considers, in good faith, would be most likely to promote the success of the company for its members ... The Government agrees this is the right approach. It resolves any confusion in the mind of directors as to what that the interests of the company are, and prevents any inclination to identify those interests with their own. It also prevents confusion between the interests of those who depend on the company and those of the members”. See comments of Lord Goldsmith, Lords Grand Committee, *Company Law Reform Bill* (HL 2005-06, 190-I) 255. .

<sup>35</sup> Daniel Attenborough, ‘Giving purpose to the corporate purpose debate: an Equitable Maximisation and Viability principle’ (2012) 32 Leg. Stud. 4.

<sup>36</sup> Easterbrook and Fischel, *Economic Structure* 38.

<sup>37</sup> Milton Friedman, *Capitalism and Freedom* (40<sup>th</sup> Anniversary Edition, University of Chicago Press 2002) 133.

Thus, it is contended by theorists<sup>38</sup> that managers (agents) are in a position to exploit shareholders (principals) by exercising their control over firm resources to benefit themselves. Berle and Means<sup>39</sup> highlighted this facet of the corporation in 1932: directors in joint-stock companies, they argued, could not be expected to be as careful with other peoples' money as they were with their own.<sup>40</sup> This led financial economists such as Jensen and Meckling<sup>41</sup> to research agency costs theory. One of the findings of Jensen and Meckling's work was that managers will seek to engage the firm in activities that are not in the firm's best interests, in financial terms, in order to maximize their own wealth. These private benefits are not enjoyed by stockholders in the firm and, in this way, can be viewed as 'excess'.<sup>42</sup> The conflict arises because of the differing priorities placed on the objectives of the firm by the owners and management. Principals are compelled to expend financial resources to monitor their agents, which reduces their return on investment. This not only deprives shareholders of potential dividends but reduces allocative efficiency in the economy, as valuable resources are diverted from increasing the competitiveness of firms to the supervision of management. Appropriate governance structures thus ought to be effectuated to reduce the requirement for monitoring and to prevent managers from abusing their status. This led theorists to further conject that agents ought to be judged on the basis of the value they created for their principals, and the most appropriate measure of that value was the stock price of the firms they managed (higher stock prices increase stockholder wealth):

---

<sup>38</sup> See George P. Baker, Michael C. Jensen and Kevin J. Murphy, 'Compensation and Incentives: Practice vs. Theory' (1988) 43 J. Fin. 593; David S. Scharfstein, 'The Disciplinary Role of Takeovers' (1988) 55 Rev. Econ. Stud. 185; Michael C. Jensen, 'The Agency Costs of Free Cash Flow: Corporate Finance and Takeovers' (1986) 76 Am. Econ. Rev. 323 (hereinafter, *Agency Costs*); Eugene F. Fama and Michael C. Jensen, 'Separation of Ownership and Control' (1983) 26 J. L. Econ. 301 (hereinafter Fama and Jensen, *Separation*); Michael C. Jensen and William H. Meckling, 'Theory of the Firm: Managerial Behaviour, Agency Costs, and Ownership Structure' (1976) 3 J. Fin. Econ. 305 (hereinafter Jensen and Meckling, *Agency Costs*); Stephen A. Ross, 'The Economic Theory of Agency: The Principal's Problem' (1973) 63 Am. Econ. Rev. 134.

<sup>39</sup> Adolf A. Berle and Gardiner C. Means, *The Modern Corporation and Private Property* (MacMillan 1932) (hereinafter Berle and Means, *The Modern Corporation*).

<sup>40</sup> Steve Letza, Xiuping Sun and James Kirkbride, 'Shareholding versus Stakeholding: A Critical Review of Corporate Governance' (2004) 12 Corp. Gov. 242, 248 (hereinafter Letza et al, *Shareholding versus Stakeholding*); Raaj K. Sah and Joseph E. Stiglitz, 'The Architecture of Economic Systems: Hierarchies and Polyarchies' (1986) 76 Am. Econ. Rev. 716.

<sup>41</sup> Jensen and Meckling, *Agency Costs*.

<sup>42</sup> Sanjai Bhagat and Roberta Romano, 'Reforming Executive Compensation' (2009) 26 Yale J. Reg. 359; Marianne Bertrand and Sendhil Mullainathan, 'Agents With and Without Principals' (2000) 90 Am. Econ. Rev. 203; Harold Demsetz and Kenneth Lehn, 'The Structure of Corporate Ownership: Causes and Consequences' (1985) 93 J Polit. Econ. 1155.

“That ultimate control over the corporation should rest with the shareholder class; the managers of the corporation should be charged with the obligation to manage the corporation in the interests of its shareholders; ... and the market value of the publicly traded corporation’s shares is the principal measure of the shareholders’ interests.”<sup>43</sup>

Thus, shareholder value was the most effective way of solving the agency problem because it revealed the extent to which shareholders were benefitting from firm ownership. Executive remuneration structures which rewarded shareholder gains were thus instigated and stock prices became the metric of success.

Because “only shareholders have profit incentive and investment-risk awareness to ensure the most efficient and effective governance arrangements to protect their interests,”<sup>44</sup> investors ought to be facilitated in the buying and selling of shares. Agency theorists contend that it is the market mechanism which is best placed to regulate the conflict between managers and principals by exposing management to the disciplining effects of the market and ensuring their interests are aligned with their principals.<sup>45</sup> In the absence of an active market mechanism, the agents would continue to extract rents from their principals without fear of removal. However, investors are able to exert indirect pressure on managers through stock trades by engaging in takeovers, thus displacing inefficient managers, and through signalling to markets that managers are inefficient by having them removed or by selling shares of underperforming companies.<sup>46</sup> The prevailing market structure thus requires an active ‘market for corporate control’ where shares may be freely traded.<sup>47</sup> Managers of poorly performing firms will be acutely aware of the possibility that new investors in a firm may decide to remove them for underperformance. This is an efficient method of monitoring management in comparative terms; creditors and other investors are often in a better position to perform diligence on the performance of management than the stockholders in a firm whose shareholding is widely dispersed. Removing restrictions on the market

---

<sup>43</sup> Henry Hansmann and Reinier Kraakman, ‘The End of History for Corporate Law’ (2001) 89 *Georg. L. J.* 439-468.

<sup>44</sup> Letza et al, *Shareholding versus Stakeholding* 248.

<sup>45</sup> Eugene F. Fama, ‘Agency Problems and Residual Claims’ (1980) 26 *J. Law Econ.* 327.

<sup>46</sup> Lynne L. Dallas, ‘Two Models of Corporate Governance: Beyond Berle and Means’ 22 (1988) *U. Mich. J.L. Reform* 19, 23-24.

<sup>47</sup> See for example, Larry E. Ribstein, ‘Market vs Regulatory Responses to Corporate Fraud: A Critique of the Sarbanes-Oxley Act 2002’ (2002) 28 *J. Corp. L.* 1.

for corporate control<sup>48</sup> therefore ought to improve corporate governance as it will expose managers of poorly performing firms to external discipline.<sup>49</sup>

## **2.3 LIMITS TO SHAREHOLDER VALUE AND AGENCY THEORY**

Whilst shareholder value theory and agency theory appear to provide a strong theoretical basis for the purpose and operation of corporations, much research highlights the inconsistencies in legal and commercial environments which undermine these concepts and provide practical limits to their operation.<sup>50</sup> Modern corporate governance theories cannot adequately explain the failure of firm owners to discipline ineffective boards and underperforming executives. There are three key factors which undermine agency theory: (i) limits to shareholder power; (ii) board ineffectiveness; and (iii) inefficiencies in the market for control. The following sections shall address the structural limits to corporate governance.

### **2.3.1 Limits to shareholder power**

Shareholders, as the owners of firms, are regarded as the ultimate disciplining force with which to balance the power of management. Indeed, shareholder power and influence in disciplining management is positively correlated with superior firm performance: firms with stronger shareholder rights have higher firm values, higher profits, higher sales growth, lower capital expenditures and make fewer corporate acquisitions.<sup>51</sup> However, shareholder power, as a risk reducing mechanism, is limited in practical terms.<sup>52</sup> There are four major limits to shareholder power: cost; dispersal; institutional investment; and legal provisions.

---

<sup>48</sup> Oliver Hart, 'Corporate Governance: Some Theory and Implications' (1995) 105 *Econ. J.* 678.

<sup>49</sup> Eugene F. Fama, 'Agency Problems and the Theory of the Firm' 88 (1980) *J. L. Econ.* 288.

<sup>50</sup> Lynn A. Stout 'Bad and Not-So-Bad Arguments for Shareholder Primacy' (2002) 75 *S. Cal. Law Rev.* 1189-1209; Margaret M. Blair and Lynn A. Stout 'A Team Production Theory of Corporate Law' (1999) 85 *V'a. Law Rev.* 247-328.

<sup>51</sup> Paul A. Gompers, Joy L. Ishii and Andrew Metrick, 'Corporate Governance and Equity Prices' (2003) 118 *Q. J. Econ.* 107.

<sup>52</sup> Lucian A. Bebchuk, 'The Myth of the Shareholder Franchise' (2007) 93 *Va. L. Rev.* 675.



The first barrier to successfully monitoring the activities of agents by principals is cost. Principals are subject to a financial incentive to monitor the performance of their agents – but only to a certain point. The most cost-effective way to ensure adequate monitoring is the alignment of principal and agent interests. These costs (referred to as ‘bonding costs’<sup>53</sup>) will include accounting policies and surveillance fees together with the costs of any other efforts to ‘control’ the behaviour of the agent through budget restrictions, compensation policies, operating rules and other such factors.<sup>54</sup> The financial cost of the reduction in welfare which the principal experiences is an agency cost which ought to be incorporated into the share price of a firm through the operation of the capital market.<sup>55</sup> At a certain point, it becomes cost-inefficient for a principal to monitor the performance of his agent: “agency costs will be incurred only if the benefits to the owner-manager from their creation are great enough to outweigh them.”<sup>56</sup> Therefore, it is generally impossible for the principal or the agent to ensure at zero cost that the agent will make optimal decisions in relation to the interests of the principal: “In most agency relationships the principal and the agent will incur positive monitoring and bonding costs (non-pecuniary as well as pecuniary), and in addition there will be some divergence between the agent’s decisions and those decisions which would maximize the welfare of the principal.”<sup>57</sup> As boundedly rational<sup>58</sup> constituencies shareholders (particularly institutional shareholders) lack the information, time, and incentives to perform comprehensive due diligence on their investments.<sup>59</sup>

---

<sup>53</sup> Some of these costs include auditing, formal control systems, budget restrictions, and the introduction of incentive compensation systems.

<sup>54</sup> Jensen and Meckling, *Agency Costs* 308.

<sup>55</sup> *Id.* 323.

<sup>56</sup> *Id.* 328.

<sup>57</sup> *Id.* 308. Jensen and Meckling note further at 328: “The magnitude of the agency costs discussed above will vary from firm to firm. It will depend on the tastes of managers, the ease with which they can exercise their own preferences as opposed to value maximization in decision making, and the costs of monitoring and bonding activities.”

<sup>58</sup> Bounded rationality has been summarised thus: “Bounded rationality asserts that decision makers are intendedly rational; that is, they are goaloriented and adaptive, but because of human cognitive and emotional architecture, they sometimes fail, occasionally in important decisions.” See Bryan D. Jones, ‘Bounded Rationality’ (1999) 2 *Ann. Rev. Pol. Sci.* 297. It is discussed in detail *infra*. Chapter 4.

<sup>59</sup> See Emiliou Avgouleas, *The Mechanics and Regulation of Market Abuse: A Legal and Economic Analysis* (OUP 2005) 30-32 (hereinafter Avgouleas, *Mechanics and Regulation*). Avgouleas notes in the context of behavioural finance, discussed in detail *infra*. Chapter 4, at 66: “[I]ndividuals typically make decisions by using ‘heuristics’ also called ‘rules of thumb’, instead of incorporating all available information. [One of these] is the ‘availability heuristic’. This holds that individuals estimate the frequency of an event by recalling recent instances of its occurrence, even if these instances are normally rare or infrequent when viewed from a longer-term perspective ... According to this approach, where the stock market has experienced extraordinary returns for a considerable period of time and the memory of

Secondly, the dispersed ownership structure of Anglo-American companies further renders concerted shareholder activism largely redundant. A key tenet of the principal-agent framework is that the principal should retain the ultimate sanction of the removal of the agent in the event of underperformance: “If the shareholders are displeased with the action of their elected representatives the powers of corporate democracy are at their disposal to turn the board out.”<sup>60</sup> However, in research conducted into the frequency of shareholder utilization of this crucial prerogative in the realm of board elections,<sup>61</sup> it was found that instances of the exercise of the powers of dismissal or censure of board members were few:

“[E]lectoral challenges to incumbent directors are rare. Aside from attempts to have the company taken over or sold, contests over directors occurred in fewer than 80 companies – among the thousands that are publicly traded – during the seven-year period 1996-2002. Furthermore, these businesses were usually small, with fewer than 15 having a market capitalisation exceeding \$200million. Even directors whose company performed poorly over a long period of time were highly unlikely to face an electoral challenge.”<sup>62</sup>

Thirdly, institutional investment hampers effective shareholder engagement with company management. In both the UK and the US, large investors typically hold their shares for an average of just seven months.<sup>63</sup> This compares with an average holding period of four years 30 years ago, and eight years 70 years ago. Further, computer-driven high-frequency trading (‘HFT’) has become ubiquitous on global stock exchanges. HFTs account for 70 percent of daily equity trades on the world’s largest

---

such returns is fresh, because they occurred in the relatively recent past, individuals will (probably) overestimate the likelihood of such extraordinary gains continuing, at least in the near future.” For discussion of this behavioural bias in the context of institutional investors, see Brad M. Barber and Terrance Odean, ‘All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors’ (2008) 21 Rev. Fin. Stud. 785.

<sup>60</sup> *Unocal Corp. v Mesa Petroleum Co.*, 493 A. 2d 946, 949 (Del. 1985).

<sup>61</sup> Lucian A. Bebchuk, ‘The Case for Shareholder Access to the Ballot’ (2003) 59 Bus. Law. 43.

<sup>62</sup> Summary of research conducted at Harvard University, cited in Lucian A. Bebchuk, ‘Why Shareholders Must Have More Power’ *Financial Times* (London, 22 October 2003) 24.

<sup>63</sup> Andrew G. Haldane, ‘Patience and Finance’ Speech given at Oxford China Business Forum, Beijing, China (2 September 2010) available at [www.bankofengland.co.uk/publications/Documents/speeches/2010/speech445.pdf](http://www.bankofengland.co.uk/publications/Documents/speeches/2010/speech445.pdf) accessed 15/07/12. See also James Montier, ‘Mind Matters: The tao of investing’ Societe Generale Global Strategy Research, 24 February 2009 available at <http://latrobefinancialmanagement.com/Research/Individuals/Montier%20James/The%20Tao%20of%20Investing.pdf> accessed 12/07/12.

stock exchange, the NYSE (New York Stock Exchange). In Europe, HFTs account for between 30-40 percent of daily equity trades.<sup>64</sup> This of course removes any dialogue between principals and agents and might crowd out investors who could make an impact on executive behaviour.

The structure of institutional investors also prevents effective dialogue between owners and agents. Mutual funds<sup>65</sup>, for example, are a form of collective investment scheme that pool money from many different investors and entrusts the investors' wealth to an asset management company, which itself constructs the contracts between the fund and the investors. Investors hold shares in the fund in proportion to the value of their investment. These investors have no direct relationship with any of the companies that the collective investment scheme to which they belong invests in.<sup>66</sup> This insulates directors and executives from the force of shareholder activism. At an individual level, fund managers are in competition with other fund managers and the performance of their funds is normally benchmarked. They will therefore have very few incentives to actively invoke their ability to discipline management or to launch takeover action.<sup>67</sup> Further, the investment horizons of fund managers are usually not long-term; their performance is often evaluated annually and they do not therefore have incentives to engage in destabilising battles to oust management.<sup>68</sup> This limits the effectiveness of blockholders in reforming the governance structures which are used to incentivise management<sup>69</sup> and hastens the move towards short-termism.

The fourth limit to the shareholder franchise is provided by legal restrictions on shareholder rights. Despite the emphasis placed on shareholder value theory, legal provisions do not reflect the notion that shareholder interests are the over-riding legal consideration for directors of public companies. For example, as noted by Stout, Anglo-

---

<sup>64</sup> Paul Farrow, 'How long does the average share holding last? Just 22 seconds' *The Daily Telegraph* (London, 18 January 2012) available at [www.telegraph.co.uk/finance/personalfinance/investing/9021946/How-long-does-the-average-share-holding-last-Just-22-seconds.html](http://www.telegraph.co.uk/finance/personalfinance/investing/9021946/How-long-does-the-average-share-holding-last-Just-22-seconds.html) accessed 12/07/12.

<sup>65</sup> Mutual funds may be categorised as open-end, unit investment trust or closed-end.

<sup>66</sup> Avgouleas, *Mechanics and Regulation* 33.

<sup>67</sup> Avgouleas, *Mechanics and Regulation* 32.

<sup>68</sup> Discussed *infra*. Chapter 4.

<sup>69</sup> John C. Coffee, 'Liquidity versus Control: The Institutional Investor as Corporate Monitor' (1991) 91 Col. L. Rev. 1277 (hereinafter Coffee, *Liquidity versus Control*); Ronald J. Gilson & Reinier Kraakman, 'Reinventing the Outside Director: An Agenda for Institutional Investors' (1991) 43 Stan. L. Rev. 863; Bernard S. Black, 'Shareholder Passivity Reexamined' (1990) 89 Mich. L. Rev. 520.

American jurisdictions remain ‘director-centric’ and directors are not required to act in the interests of shareholders at all times.<sup>70</sup> Thus, the U.S. system of corporate governance is more accurately described as “director primacy” than “shareholder primacy”<sup>71</sup>, a position mirrored in the UK.<sup>72</sup> Despite the notion of shareholder supremacy dominating the approach to Anglo-American corporate law, beyond certain limited powers that shareholders have the right to exercise<sup>73</sup>, most corporate power is ceded to the board: “Corporations are run by boards of directors, not by shareholders.”<sup>74</sup> Under Anglo-American law, for example, shareholders do not enjoy the right to reject or approve individual executive compensation plans<sup>75</sup> and their powers are confined largely to electoral and enforcement powers. Legal interpretation in Anglo-American jurisdictions does not provide shareholders to practical legal recourse in the event of disagreements over board decisions.<sup>76</sup>

This view of shareholder primacy has important implications for the regulation of corporate governance and executive remuneration. Shareholders are provided with governance rights because they are the residual claimants to the value of the shares and

---

<sup>70</sup> Lynn A. Stout, ‘New Thinking On “Shareholder Primacy”’ UCLA School of Law, Law-Econ Research Paper No. 11-04 (February 2011) available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1763944](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1763944) accessed 17/07/12 (hereinafter Stout, *New Thinking*).

<sup>71</sup> Stephen M. Bainbridge, ‘Director Primacy and Shareholder Disempowerment’ (2006) 119 Harv. Law Rev. 1735.

<sup>72</sup> For example, director duties are not exclusively owed to shareholder in the UK: “For the first time, the [Companies Act 2006] includes a statutory statement of directors’ general duties. It provides a code of conduct that sets out how directors are expected to behave. That enshrines in statute ... “enlightened shareholder value”. It recognises that directors will be more likely to achieve long term sustainable success for the benefit of their shareholders if their companies pay attention to a wider range of matters ... Directors will be required to promote the success of the company in the collective best interest of the shareholders, but in doing so they will have to have regard to a wider range of factors, including the interests of employees and the environment”. See comments of Alistair Darling, HC Deb 6 June 2006, vol 461 col 125.

<sup>73</sup> These rights include *inter alia*, voting rights, certain rights to sue directors for breaches of duty and the rights to appoint and remove directors from the board and, of course, the right to sell their shares.

<sup>74</sup> Stout, *New Thinking* 7 [emphasis in original].

<sup>75</sup> Randall S. Thomas and Kenneth J. Martin, ‘The Determinants of Shareholder Voting on Stock Option Plans’ (2000) 35 Wake F. L. Rev. 46. As of 2004, only 1 percent of collective options plans put to a vote had ever failed to obtain shareholder approval. The position of binding shareholder votes on executive remuneration packages in the UK is currently under review. See *Executive Pay: Shareholder Voting Rights Consultation*, Department of Business, Innovation and Skills (March 2012); Jill Treanor, ‘Vince Cable moves to give shareholders binding vote on executive pay’ *The Guardian* (14 March 2012). These issues will be discussed further *infra*. Chapter 6.

<sup>76</sup> The ‘business judgment rule’ in the US provides that courts may not interfere with the decisions of boards of directors of public companies provided that the correct processes have been adhered to. Derivative actions are available to shareholders in both the US and UK but are regarded in most cases as too costly to be effective. See Michael P. Dooley, ‘Two Models of Corporate Governance’ (1992) 47 Bus. Law. 461, 467.

have the most appropriate incentives to ensure that the firm is run profitably.<sup>77</sup> However, practical constraints and Anglo-American legal provisions reflect the notion that, despite the prevalence of shareholder primacy in academic literature, regulation places limits on shareholders' ability to force directors to adhere to particular conduct. This is crucial when one considers the capacity of executive pay to align the interests of shareholders and managers. If shareholder power to discipline management is limited, it is unclear that instigating alignment of principal and agent interests will be effective.

### 2.3.2 Ineffective boards

Boards of directors, in Anglo-American companies, typically have legal authority to manage the corporation on behalf of the shareholders. The theoretical paradigm of the board of directors as a monitoring system to discipline managers suffers from several practical constraints<sup>78</sup> which may be summarised in the following two inter-related points.<sup>79</sup>

Firstly, although directors are granted the power to influence corporate direction, this 'power' is often ineffective. Directors do not have the time nor the information required to monitor all managerial decisions to satisfy themselves and investors that shareholders are benefiting.<sup>80</sup> 'Independence' and 'autonomy' amongst directors is often the focus of academic and industrial research into governance, instead of awarding directors sufficient power<sup>81</sup> to govern: "[i]n truth ... the directors' only power advantage is their capacity to act as a group by reaching a consensus, but doing this requires group cohesion and time for discussion, often scarce commodities in the typical boardroom."<sup>82</sup> As Lorsch and MacIver contend: "The directors, in essence, gain the power to govern

---

<sup>77</sup> Jensen, *Agency Costs*.

<sup>78</sup> See, in particular, Lucian A. Bebchuk and Jesse M. Fried, *Pay Without Performance: The Unfulfilled Promise of Executive Compensation* (2<sup>nd</sup> edn, Harvard University Press 2004) (hereinafter Bebchuk and Fried, *Pay Without Performance*).

<sup>79</sup> Jay W. Lorsch and Elizabeth MacIver, *Pawns or Potentates: Reality of America's Corporate Boards* (Harvard Business School Press 1990) (hereinafter Lorsch and MacIver, *Pawns or Potentates*).

<sup>80</sup> David Yermack, 'Higher Market Valuation for Firms with a Small Board of Directors' (1996) 40 *J. Fin. Econ.* 185.

<sup>81</sup> James Kirkbride and Steve Letza, 'The CEO in Law and in Practice: a study of categorisation and control' (2002) 10 *Corp. Gov.* 136.

<sup>82</sup> Lorsch and MacIver, *Pawns or Potentates* 13.

through the consent of the governed.”<sup>83</sup> This consent may be withdrawn at any time and is an unsatisfactory legal basis for corporate regulation.

The board of directors ought to be composed of a wide-ranging pool of executives, investors and outsiders.<sup>84</sup> In particular, to mitigate the agency problem, a significant proportion of directors ought to be independent of management and firms ought to appoint outside members to assist in the governance process.<sup>85</sup> Board independence in Anglo-American systems has increased.<sup>86</sup> Research also confirms that firms with better corporate governance systems are more profitable.<sup>87</sup> However, especially in the United States, recommendations for greater board independence have not been universally heeded. For example, boards in the US are still not overtly encouraged to split the role of CEO and Chairman.<sup>88</sup> This problem is compounded by information asymmetry between top management and the board. The CEO and executive management of a firm have greater knowledge and information regarding its business than the directors.<sup>89</sup> The result is that in firms in which role separation has not been ordered, the CEO controls both the strategic decisions of the firm and the board meetings convened to discuss those decisions. Top executives are in a position to increase inaccuracies caused by non-public information or by a misinterpretation of information. Managers may hide information from the public to benefit from increased equity prices.<sup>90</sup>

This, moreover, augments the debate surrounding the problems associated with managerial power, the second drawback to effective boards.<sup>91</sup> The governance of Anglo-American corporations is characterised to a great degree by a hierarchical culture

---

<sup>83</sup> *Id.*

<sup>84</sup> Jeffrey A. Sonnenfeld, ‘What makes great boards great’ (2002) 80 Harv. Bus. Rev. 106, 126.

<sup>85</sup> Benjamin E. Hermalin and Michael S. Weisbach, ‘The Effects of Board Composition and Direct Incentives on Firm Performance’ (1991) 20 Fin. Man. 101.

<sup>86</sup> National Association of Corporate Directors, *Public Company Governance Survey* (November 2001) 7-9.

<sup>87</sup> Ira M. Millstein & Paul W. MacAvoy, ‘The Active Board of Directors and Performance of the Large Publicly Traded Corporation’ (1998) 11 J. Appl. Corp. Fin. 8.

<sup>88</sup> As of 2010, approximately 60 percent of S&P500 firms retain the joint CEO-Chairman model. See Deloitte, *Board Leadership: A Global Perspective* (Deloitte Global Center for Corporate Governance, 2010).

<sup>89</sup> Raaj K. Sah and Joseph E. Stiglitz, ‘The Quality of Managers in Centralized versus Decentralized Organizations’ (1991) 106 Q. J. Econ. 289. See also Charu G. Raheja, ‘Determinants of Board Size and Composition: A Theory of Corporate Boards’ (2005) 40 J. Fin. Quant. An. 283.

<sup>90</sup> Marcel Kahan, ‘Securities Laws and the Social Costs of “Inaccurate” Stock Prices’ (1992) 41 Duke L.J. 977 (hereinafter Kahan, *Social Costs of “Inaccurate” Stock Prices*).

<sup>91</sup> Lucian A. Bebchuk and Alma Cohen, ‘The Cost of Entrenched Boards’ (2005) 78 J. Fin. Econ. 409.

based on subservience to corporate leadership and the CEO sits atop the hierarchy.<sup>92</sup> It is a commonly held view that the dominance of boards by CEOs continues to the present day.<sup>93</sup> The danger that CEO dominance presents to the governance process is critical: where boards feel unable to constructively challenge the decisions of the CEO, risks may be overlooked and strategic errors may be made.<sup>94</sup> This weakens considerably the governance framework: the board is a shareholder-appointed monitor of corporate management with the goal of minimizing risk to investment. Managers use their power to extract rents – value that is excess to what managers would obtain under arms-length bargaining.<sup>95</sup> The board thus assumes a crucial role in safeguarding the value of the company shareholding. Where a board is dominated by the CEO and/or management teams, and the board becomes passive – that is, without “independent leadership that can act without relying only on management’s initiative”<sup>96</sup> – the risk to shareholder equity intensifies, thus undermining the entire contractarian notion of the firm.

Managerial power manifests in many ways.<sup>97</sup> Directors are under a financial incentive to be re-elected and the economic benefits they receive are likely to be economically significant.<sup>98</sup> They will therefore not wish to incur the hostility of the CEO. Further, the CEO will have been instrumental in selecting many of the directors; they have

---

<sup>92</sup> Arijit Chatterjee and Donald C. Hambrick, ‘It’s all about me’: Narcissistic CEOs and their effects on company strategy and performance’ (2007) 52 *Admin. Sci. Q.* 351.

<sup>93</sup> For example the report into the failure of the British bank, RBS, states that: “During 2003 and 2004, prior to the Review Period, the FSA had identified a risk created by the perceived dominance of RBS’s CEO. While it was recognised that the CEOs of large firms tended to be assertive, robust individuals, the FSA’s view was that, in the case of RBS, the ‘challenging management culture led by the CEO’ raised particular risks that had to be addressed.” See Financial Services Authority, *The failure of the Royal Bank of Scotland* (December 2011) 608.

<sup>94</sup> Renee B. Adams, Heitor Almeida and Daniel Ferreira, ‘Powerful CEOs and Their Impact on Corporate Performance’ (2005) 18 *Rev. Fin. Stud.* 1403; Marianne Bertrand and Antoinette Schoar, ‘Managing with Style: The Effect of Managers on Firm Policies’ (2003) 118 *Q. J. Econ.* 1169.

<sup>95</sup> Bebchuk and Fried, *Pay Without Performance* 61.

<sup>96</sup> NYSE/NASDAQ, *Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees* (1999) 6.

<sup>97</sup> Where a CEO is central to a firm’s operating and management processes, firm performance is compromised. CEO centrality is correlated with “(i) lower (industry-adjusted) accounting profitability, (ii) lower stock returns accompanying acquisitions announced by the firm and higher likelihood of a negative stock return accompanying such announcements, (iii) higher odds of the CEO’s receiving a “lucky” option grant at the lowest price of the month, (iv) greater tendency to reward the CEO for luck due to positive industry-wide shocks, (v) lower performance sensitivity of CEO turnover, and (vi) lower firm-specific variability of stock returns over time.” See Martin Cremers, Lucian A. Bebchuk and Urs C. Peyer, ‘CEO Centrality’ Harvard Law and Economics Discussion Paper No. 601 (May 2008).

<sup>98</sup> As noted: “In [the US in] 2002, director compensation averaged \$152,000 in the largest 200 companies.” See Bebchuk and Fried, *Pay Without Performance* 26. See also Rajesh K. Aggarwal and Andrew A. Samwick, ‘Performance Incentives within Firms: The Effect of Managerial Responsibility’ (2003) 58 *J. Fin.* 1613.

considerable influence over the nomination process.<sup>99</sup> Even CEOs who do not serve on the nomination committee may have some residual influence over appointments.<sup>100</sup> Whilst the SEC rules in the US require companies to disclose the composition of their director nomination committees, there is no legal requirement that the committee be entirely independent.<sup>101</sup> CEOs retain influence beyond the nomination or remuneration of directors. CEOs enjoy significant control over the resources of the firms they manage and their financial influence on directors may remain substantial.<sup>102</sup> Perquisites are routinely awarded to both executive and non-executive directors in large public corporations. Director and CEO interlocking<sup>103</sup> remains common<sup>104</sup> and places indirect pressure on outside directors to placate CEOs who may sit on the boards of firms they manage.<sup>105</sup> Of course, CEOs and their fellow senior executives may undermine the governance process by obtaining for themselves favourable remunerative conditions. CEOs, as “the fulcrum of governance”<sup>106</sup> are often in a position to maximise their own financial rewards at the expense of stockowners.<sup>107</sup> CEOs may use their discretion to engage in ‘empire building’.<sup>108</sup> They may undertake corporate expansion in the

---

<sup>99</sup> Benjamin E. Hermalin and Michael S. Weisbach, ‘Endogenously Chosen Boards of Directors and Their Monitoring of the CEO’ (1998) 88 Am. L. Rev. 96; Brian G. Main., Charles A. O’Reilly III and James Wade, ‘The CEO, the Board of Directors, and Executive Compensation: Economic and Psychological Perspectives’ (1990) 11 Ind. Corp. Change 302 (hereinafter Main et al, *Psychological Perspectives*).

<sup>100</sup> Cynthia A. Montgomery and Rhonda Kaufman, ‘The Board’s Missing Link’ (2003) Harv. Bus. Rev. 81.

<sup>101</sup> SEC Final Rule No. 33-8340, *Disclosure Regarding Nominating Committee Functions and Communications between Security Holders and Boards of Directors* (November 24, 2003). For the adopting release see [www.sec.gov/rules/final/33-8340.htm](http://www.sec.gov/rules/final/33-8340.htm) accessed 12/01/12.

<sup>102</sup> John Core, Robert W. Holthausen and David F. Larker, ‘Corporate Governance, CEO Compensation, and Firm Performance’ 51 (1999) J. Fin. Econ. 371 (hereinafter Core et al, *Corporate Governance*).

<sup>103</sup> Where a director is an executive at a firm on whose board the CEO sits. If the CEO sits on the nomination or compensation committees at the firm of the director, he/she has an indirect influence on the director’s employment position.

<sup>104</sup> Kevin F. Hallock, ‘Dual Agency: Corporate Boards with Reciprocally Interlocking Relationships’ in Jennifer Carpenter and David Yermack (eds), *Executive Compensation and Shareholder Value: Theory and Evidence* (Kluwer 1999) 58; Kevin F. Hallock, ‘Reciprocally Interlocking Boards of Directors and Executive Compensation’ (1997) 32 J. Fin. Quant. An. 331.

<sup>105</sup> See for example, The High Pay Commission, *Cheques With Balances: why tackling high pay is in the national interest* (2010).

<sup>106</sup> *Federal Reserve’s Second Monetary Policy Report for 2002 Before S. Comm. Banking, Housing, & Urban Affairs*, 107th Cong. 7–32 (2002) (statement of Alan Greenspan, Chairman, Bd. of Governors of the Fed. Reserve Sys.).

<sup>107</sup> Fama and Jensen, *Separation*.

<sup>108</sup> Oliver E. Williamson, *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm* (Prentice Hall 1964). Research confirms that firms which have stronger antitakeover provisions and whose management is therefore not as exposed to the discipline of the market for corporate control are more likely to engage in ‘empire building’. See also Ronald C. Masulis, Cong Wang, and Fei Xie, ‘Corporate Governance and Acquirer Returns’ (2007) 62 J. Fin. 1851.



knowledge that acquisitions will provide opportunities for higher remuneration.<sup>109</sup> They may fail to distribute excess cash when the firm does not have viable investment opportunities.<sup>110</sup> They may even institute structures to entrench themselves in their position.<sup>111</sup>

Academic research also shows that in firms with boards with a larger-proportion of CEO-appointed directors and directors with greater commitments extraneous to the firm, greater levels of CEO compensation are awarded.<sup>112</sup> Firms in which CEOs are ‘overpaid’ also tend to pay other senior executives at excess levels which may protect the CEO from censure.<sup>113</sup> Passive boards are less likely to recommend the dismissal of the CEO; in most cases only very poor corporate performance over a protracted period of time results in a shorter CEO tenure.<sup>114</sup> In extreme cases, the dominance of CEOs may be a contributory factor to firm collapse.<sup>115</sup> Bebchuk and Fried show that efforts to incentivise executives by providing a link between pay and performance have been undermined by the governance structures of US corporations.<sup>116</sup> These structures, which are themselves designed to reduce agency problems, actually contribute to them. Their study showed that the aim of divorcing senior management from the board of directors to lessen the risk of conflict of interests is practically impossible, due to the machinations of managerial power theory. In the context of this thesis, management often determines the format of corporate remuneration packages. This suggests that:

---

<sup>109</sup> Lucian A. Bebchuk and Yaniv Grinstein, ‘Firm Expansion and CEO Pay’ Harvard Law School John M. Olin Center for Law, Economics and Business Discussion Working Paper 533 (November 2005); Mathew L.A. Hayward and Donald C. Hambrick, ‘Explaining the Premiums Paid for Large Acquisitions: Evidence of CEO Hubris’ (1997) 42 Admin. Sci. Q. 103; Randall A. Morck, Andrei Shleifer, and Robert W. Vishny, ‘Do Managerial Objectives Drive Bad Acquisitions?’ (1990) 45 J. Fin. 31. Research demonstrates that takeovers reduce the wealth of acquirers. See Gregor Andrade, Mark Mitchell and Erik Stafford, ‘New Evidence and Perspectives on Mergers’ (2001) 15 J. Econ. Persp. 103.

<sup>110</sup> Jensen, *Agency Costs*.

<sup>111</sup> Andrei Shleifer and Robert W. Vishny ‘Large Shareholders and Corporate Control’ (1986) 94 J. Polit. Econ. 461. Further studies based on entrenchment provisions derived from governance ratings demonstrate that firms with entrenched management experience lower valuations and abnormal negative shareholder returns. See Lucian A. Bebchuk, Alma Cohen and Allen Ferrell, ‘What Matters in Corporate Governance’ (2009) 22 Rev. Fin. Stud. 783.

<sup>112</sup> Core et al, *Corporate Governance*.

<sup>113</sup> Main et al, *Psychological Perspectives* 302-3.

<sup>114</sup> Jerold B. Warner, Ross L. Watts & Karen H. Wruck, ‘Stock Prices and Top Management Changes’ 20 (1988) J. Fin. Econ. 461, 487-8.

<sup>115</sup> See generally Stephen M. Bainbridge ‘Why a Board? Group Decision-Making in Corporate Governance’ (2002) 55 Vand. L. Rev. 51, 54 (discussing *Smith v. Van Gorkem*, 488 A.2d 858 (Del. 1985), and the manipulation of the board in that case to get the board to approve an unfair merger); Marleen A. O’Connor ‘The Enron Board: The Perils of Groupthink’ (2003) 71 U. Cin. L. Rev. 1233 (discussing the Enron scandal and the ways in which the board were influenced by the company’s executives).

<sup>116</sup> Lucian A. Bebchuk and Jesse M. Fried, ‘Executive Compensation as an Agency Problem’ (2003) 17 J. Econ. Persp. 71 (hereinafter Bebchuk and Fried, *Agency Problem*).

“The greater managers’ power, the greater their ability to extract rents. There are limits to what directors will accept and what markets will permit, but these constraints do not prevent managers from obtaining arrangements more favorable than those obtainable under arm’s length bargaining.”<sup>117</sup>

### **2.3.3 Limits to the market for control**

The power of the market for corporate control is in disciplining executives at firms with poor performance: the threat of replacement or takeover ought to incentivize incumbent managers to improve their efficiency.<sup>118</sup> In theory, disciplining competition from other firms ought to force investors and management into the introduction of monitoring devices to assess the performance of individuals and the firm holistically.<sup>119</sup> Additionally, individuals face the discipline of the market for their services from both internal and external labour markets.<sup>120</sup> Pressure from external labour markets will result in managerial sensitivity to the “responsiveness of the system in rewarding performance”<sup>121</sup> and where performance is not adequately compensated for firms will lose the services of the most talented managers. Internal monitoring of colleagues (superiors or otherwise) also takes place within firms; under the nexus of contracts view of the firm, “each manager is concerned with the performance of managers above and below him since his marginal product is likely to be a positive function of theirs.”<sup>122</sup> This, however, does not expose top management to true disciplining effects; lower management have little power to monitor them.<sup>123</sup> In terms of intra-market competition, it is in the interests of managers to create information asymmetries in relation to other management teams<sup>124</sup>: by doing so, competition in the market for managers is reduced. The information and knowledge of the firm that incumbent management possess mean that dismissal is not always a viable option. Moreover, if a potential takeover will have the effect of increasing firm productivity, it will correspondingly increase its market value, so stockholders are financially advantaged by holding on to their shares rather

---

<sup>117</sup> *Id.* 76.

<sup>118</sup> Michael C. Jensen and Richard S. Ruback, ‘The market for corporate control: The scientific evidence’ (1983) 11 *J. Fin. Econ.* 5.

<sup>119</sup> Armen A. Alchian, ‘Uncertainty, Evolution and Economic Theory’ (1950) 58 *J. Polit. Econ.* 211.

<sup>120</sup> Eugene F. Fama, ‘Agency Problems and the Theory of the Firm’ (1980) 88 *J. Polit. Econ.* 288; Fama and Jensen, *Separation*.

<sup>121</sup> *Id.* 292.

<sup>122</sup> *Id.* 293.

<sup>123</sup> Randall Morck, Andrei Shleifer and Robert W. Vishny, ‘Alternative Mechanisms for Corporate Control’ (1989) 7 *Am. Econ. Rev.* 842.

<sup>124</sup> Andrei Shleifer and Robert W. Vishny, ‘Management Entrenchment: The Case of Manager-Specific Investments’ (1989) 25 *J. Fin. Econ.* 123.

than tendering them.<sup>125</sup> Forcing management to act in the interest of shareholders is thus a vital means of exerting control over the executive contingent to ensure that agency costs are kept to a minimum.

The market for corporate control suffers from several limitations to its effectiveness. The most serious is institutional shareholder passivity; there are limited incentives for institutional investors to launch takeover bids for firms or to remove poorly performing management.<sup>126</sup> Institutional funds' main disciplining powers are derived from the ability to sell shares where they disapprove of corporate management or strategy<sup>127</sup>:

“Investors' capacity to discipline management is ... in their freedom to buy or sell the shares of the company, influencing the stock price and market perception of the company. When a company is thought to be badly managed, shareholders can respond by selling shares and thereby depressing the share price to appoint where the company becomes a ready target for hostile takeover.”<sup>128</sup>

Equity owners of public firms are much more likely to sell their securities than press management for change in strategy in situations where opinions between owners and management diverge.<sup>129</sup> The justification for the preference of 'exit over voice'<sup>130</sup> is that it is cheaper to sell stock than engage in costly attempts to rein in or restructure management. Investors normally only hold minority shareholdings, and therefore stand only to benefit from increased corporate profits in proportion to the amount of stock that they own in the firm. An active institutional investor will bear the full costs of monitoring, yet only receive a fraction of any benefit: the so-called 'free-rider' problem.<sup>131</sup>

---

<sup>125</sup> Aaron S. Edlin and Joseph E. Stiglitz, 'Discouraging Rivals: Managerial Rent-Seeking and Economic Inefficiencies' (1995) 85 Am. Econ. Rev. 1301.

<sup>126</sup> Gregory Jackson, 'A New Financial Capitalism? Explaining the persistence of voice over exit in contemporary corporate governance' (2008) 5 Eur. Man. Rev. 23 (hereinafter Jackson, *New Financial Capitalism*).

<sup>127</sup> This is known as 'The Wall Street Rule'.

<sup>128</sup> This refers to the 'market for corporate control' which is a crucial aspect of shareholder value theory and is discussed *infra* at section 2.2.3; see Clarke (ed), *International Corporate Governance* 130-131.

<sup>129</sup> Jackson, *New Financial Capitalism*.

<sup>130</sup> Albert O. Hirschmann, *Exit, Voice and Loyalty: Responses to Decline in Firms, Organisations and States* (Harvard University Press 1970). As Hirschmann explains at 4: "Voice is costly and conditioned on the influence and bargaining power customers and members can bring to bear within the firm from which they buy or the organisations to which they belong."

<sup>131</sup> Anat R. Admati, Paul C. Pfleiderer, and Josef Zechner, 'Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium' (1994) 102 J. Polit. Econ. 1097.

Of course, the threat to sell a large stockholding in a company may have disciplining effects on management because of the signal it sends to the market about the stockholders' opinion of the company and its management.<sup>132</sup> However, the right to sell shares *en masse* is not available to investors because of the reduction in share price this would induce.<sup>133</sup> Most investors, it seems, would rather jettison the costs of engagement with management than attempt to initiate potentially worthless dialogue on corporate direction.<sup>134</sup> For example, institutional investors were unable or unwilling to perform due diligence on the strategies of the firms they had invested in prior to the GFC, mainly due to the perceived cost of ensuring greater transparency.<sup>135</sup> The power to discipline management through takeovers was also restricted severely by several legal developments, most notably; the 'poison-pill' defence<sup>136</sup> and the introduction of antitakeover statutes in Anglo-American markets.<sup>137</sup> Even in a highly developed capital market such as found in the United States, asymmetries in favour of management lead companies to often include substantial anti-takeover provisions when they go public.<sup>138</sup> These additional factors further mean that meaningful reform to corporate governance structures (and therefore executive remuneration) is often difficult to achieve.<sup>139</sup> Where

---

<sup>132</sup> Anat R. Admati and Paul C. Pfleiderer, 'The 'Wall Street Walk' and Shareholder Activism: Exit as a Form of Voice' (2009) 22 *Rev. Fin. Stud.* 2445.

<sup>133</sup> Stout, *New Thinking* 9.

<sup>134</sup> Coffee, *Liquidity versus Control*.

<sup>135</sup> "Thus, the apparent acceptance of a significant degree of lack of transparency, especially in the financial sector and among the majority of alternative investments violated a core concept of corporate governance advocated by universal owners and others: that transparency is critical to accountability which in turn is critical to a well governed firm in relation to its owners." See *The UN-backed Principles for Responsible Investment Conference – Institutional Investors, Risk/Return and Corporate Governance Failures: Practical Lessons from the Global Financial Crisis*, San Francisco, US (October 5-7 2009). See [www.unpri.org/files/ConferenceDescription-Elfenworks.pdf](http://www.unpri.org/files/ConferenceDescription-Elfenworks.pdf) accessed 01/03/11. The results of this research are supported by empirical studies into the failure of institutional investors to protect the value of the funds by their refusal to pursue restitutionary settlements in US securities class actions. See James D. Cox and Randall S. Thomas, 'Letting Billions Slip Through Your Fingers: Empirical Evidence and Legal Implications of the Failure of Financial Institutions to Participate in Securities Class Action Settlements' (2005) 58 *Stan. L. Rev.* 411.

<sup>136</sup> A poison pill is a "strategy used by corporations to discourage hostile takeovers. With a poison pill, the target company attempts to make its stock less attractive to the acquirer. There are two types of poison pills: 1. A "flip-in" allows existing shareholders (except the acquirer) to buy more shares at a discount. 2. A "flip-over" allows stockholders to buy the acquirer's shares at a discounted price after the merger." See <http://www.investopedia.com/terms/p/poisonpill.asp#axzz20tLoIGHx> accessed 17/07/12.

<sup>137</sup> See Guhan Subramanian, 'The Influence of Antitakeover Statutes on Incorporation Choice: Evidence on the "Race" Debate and Antitakeover Overreaching' (2002) 150 *U. P'a. Law Rev.* 1795.

<sup>138</sup> Lucian A. Bebchuk, 'Asymmetric Information and the Choice of Corporate Governance Arrangements' Harvard University Law School Discussion Paper No. 398 (December 2002); Sanford J. Grossman and Oliver D. Hart 'Takeover Bids, The Free-Rider Problem, and the Theory of the Corporation' (1980) 11 *Bell J. Econ.* 42.

<sup>139</sup> Despite strong political support for reforms to executive compensation, institutional shareholders have been accused of being slow to respond to calls for greater executive pay restrictions. See Andrew G. Haldane and Richard Davies, 'The Short Long' Speech at the 29th Société Universitaire Européenne de

little threat exists to management from large shareholders, agency costs often rise and governance breaks down.<sup>140</sup> In fact, institutional investors may actively encourage risky strategies and the appointment of risk-taking managers, if they believe they will be able to sell shares at a premium and walk away with profit.<sup>141</sup>

## 2.4 CONCLUSION

This chapter has discussed the economic role of companies and the role of law and regulation in managing relationships between firms and both insider and outsider constituencies. It found that company regulation is predicated in Anglo-American economies on the concept of shareholder primacy. Shareholders, as owners of firms, are in a position to implement the governance structures that they believe to be appropriate. The medium that they may utilise to procure optimum governance arrangements is the market. If they fail to achieve this, they may exercise their proprietary right to sell their shares. Thus, the Anglo-American approach to governance is based upon rational choice theory: market actors exercise financially self-interested decision-making powers and market discipline is deemed preferable to prescriptive legal rules.

As noted in this chapter, however, the shareholder primacy paradigm suffers from a multitude of conflicts which prevent its efficient operation. Agency problems arise because the residual claimants to firm wealth are usually not those in control of the firm. In particular, shareholder engagement issues, ineffective boards which depart significantly from the theoretical model of independent influence, and inefficient market control structures render serious blows to the current system of corporate governance.

---

Recherches Financières Colloquium: New Paradigms in Money and Finance? (Brussels, May 2011); Richard Lambert, 'Sir Ralph's lessons on short-termism' *Financial Times* (London, 22 May 2011); David Bolchover, 'Business as usual on executive pay?' *Financial Times* (London, 9 June 2009).

<sup>140</sup> For example, research suggests that institutional investors are unlikely to oppose a management-backed stock compensation plan, even where it is inefficient. See David Parthiban, Rahul Kochar and Edward Levitas, 'The Effect of Institutional Investors on the Level and Mix of CEO Compensation' (1998) 41 *Acad. Man. J.* 200.

<sup>141</sup> Remarks of John C. Coffee, 'Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium' Columbia Business School (27-28 March 2010) Recommendation 1a, available at [www4.gsb.columbia.edu/rt](http://www4.gsb.columbia.edu/rt) accessed 20/06/12.

One particular weakness of shareholder primacy, particularly in the context of this thesis, is that it assumes that markets are fundamentally efficient<sup>142</sup>; that is, that stock prices reflect underlying value. Shareholder value theory is based on the notion that share prices reflect value. If, however, one considers the findings of disciplines such as behavioural finance,<sup>143</sup> and the distortions that excessive focus on stock price may induce, it becomes clear that shareholder value theory, and the executive compensation plans derived from it, may provide a poor model for corporate governance:

“If ... stock prices can depart dramatically from rational estimates of fundamental value, the possibility arises that business strategies that raise share price in the short term can harm firm value and shareholder wealth over the long term. The result is a conflict of interest between short-term investors (e.g., hedge funds and mutual funds) and investors who expect to hold shares for longer periods.”<sup>144</sup>

There is therefore a strong justification that firms are not run purely in the interests of shareholders, especially where those interests diverge and where some investors encourage short-termism.<sup>145</sup> Further, as shareholder primacy is predicated on the notion that market prices are efficient, research which contradicts that notion undermines the legitimacy of shareholder value theory for directing corporate governance. Paradoxically, market discipline cannot be relied upon in an inefficient market to correct price distortions where firms have become overvalued,<sup>146</sup> because bidders “cannot buy up an overvalued firm, eliminate the overvaluation and make money.”<sup>147</sup> This theme shall be explored in great detail later in the thesis.<sup>148</sup>

A possible solution to these issues has been to align the interests of agents with their principals by tying their individual and collective reward schemes to the value they create for firm owners, principally through compensation awards. This theme encapsulates the topic of executive remuneration, which is the subject of Chapter Three, to which this thesis now turns.

---

<sup>142</sup> A concept discussed in detail *infra*. Chapter 4.

<sup>143</sup> Discussed *infra*. Chapter 4.

<sup>144</sup> Stout, *New Thinking* 15.

<sup>145</sup> *Id.*

<sup>146</sup> Avgouleas, *Mechanics and Regulation* 95.

<sup>147</sup> Michael C. Jensen, ‘Agency Costs of Overvalued Equity’ (2005) 34 *Fin. Man.* 5.

<sup>148</sup> *Infra*. Chapters 3, 4 and 5.

## **CHAPTER THREE – EXECUTIVE COMPENSATION AS AN AGENCY PROBLEM**

### **INTRODUCTION**

The previous chapter noted that corporate theory provides an intellectual structure to determine optimal governance structures and, based on free market principles, market discipline is expected to regulate firm conduct. It also recognised however, that conflicts of interest may still arise, particularly due to principal-agent problems. One solution to these principal-agent problems might be the structure of executive remuneration and this is the topic of this chapter, which considers the first question posed in the introduction to the thesis: How the dominant view of the firm in economic theory influences remuneration systems in publicly-listed companies and determines the use of stock-based compensation schemes.

Section One of the chapter analyses the remuneration mechanisms that have been developed to attempt to mitigate the agency problems that exist between principals and agents at public corporations. These mechanisms in general seek to align the interests of company management with those of the shareholders to ‘incentivise’ management to pursue policies that are in the interests of the shareholders. It shall be noted that incentive-based pay often takes one of two forms, or a mixture of both: (i) stock performance-based bonuses, or (ii) direct granting of stock options/awards. These remunerative packages each approach the agency problem from a shared perspective: that some element of executive pay ought to be related to corporate performance and/or the firm’s market capitalization. These packages often contain explicit linkages between remuneration and share-price performance, notwithstanding the analysis which shall be conducted later in this thesis concerning the credibility of stock prices.<sup>1</sup> This section concludes with a discussion of the LBO explosion in Anglo-American markets in the 1980s which led to the widespread adoption of linking pay to share-price performance and ushered in an era of high executive pay levels in both private and public firms.

Section Two of the chapter highlights some of the practical objections to the use of stock-based compensation in Anglo-American markets. Despite attempts by investors to

---

<sup>1</sup> *Infra.* Chapter 4.

instigate solutions to the principal-agent problems through the use of stock options and stock-based bonuses, a multitude of damaging behaviours are encouraged by their use. This section will discuss these concerns; these arrangements may contribute to *additional* conflicts, as executives may recognise that the market pricing of shares is imperfect and/or contribute to market inefficiencies by manipulating corporate reporting and, by proxy, share prices themselves. The section thus discusses the corporate collapse of Enron, which exposed the devastating consequences which may result from tying pay to stock price levels. When market-based regulation of corporate affairs failed (particularly in the 1990s and 2000s) lawmakers were forced to subject companies to external monitoring devices. In relation to executive compensation, regulators demanded the implementation of certain governance arrangements to discourage obsession with short-term performance targets and focus instead on accurate corporate financial disclosure. The result was the Sarbanes-Oxley Act 2002 ('SOX'), which is analysed briefly at the end of this section. It shall note that SOX failed to adequately address the issues raised by distortions which do *not* result from fraud or misstatements.

Section Three critiques the flawed link between executive compensation and market prices. Concerted objections as to the nature and implementation of performance-based remuneration are based on the notion that managers are often rewarded for short-term performance or even for being 'lucky'; critics contend that managers are being rewarded simply on the basis that the firms that they control are benefiting from rising markets rather than any individually-driven performance. The section will also will introduce into the analysis the concept of a deeper fault in the dominant corporate governance paradigm: an intrinsically flawed market pricing mechanism, which undermines the entire notion of rational market behaviour. The dominant framework for deciding levels of pay may only command veracity if its central assumption – that market prices accurately and consistently reflect value – is correct. The final section of this section of the chapter will challenge that notion, and lead into the substantive critical analysis of efficient market pricing, which is the subject of Chapter Four.



### 3.1 THE ROLE OF EXECUTIVE COMPENSATION IN CORPORATIONS

As noted in Chapter Two<sup>2</sup>, conflict may occur between managers and owners, if their interests are not aligned. The interests of stockholders generally revolve around the attainment of financial gain. Stockholders may appoint persons to managerial roles whom they perceive to best achieve this broad objective, whether this is realized through direct appointment, or via the board of directors. However, this might not produce complete alignment between managerial and stockholder interests. Managers, as employees, will still retain the central, selfish objectives of procuring personal benefits from the firm, even if these benefits are acquired through the promotion of the firm's interests as a whole. For example, it is to be expected that managers of firms will be interested in higher salaries, enhanced status, or job security, which are all potential dangers to stockholder wealth.<sup>3</sup> The agency function of management conflicts with the interests of the stockholders where managers' interests are dictated by policies or strategies through which emphasis is placed on the aim of extracting rents from the company. This is a detriment to the stockholders because firm profits are denuded by managerial remuneration and other financial benefits enjoyed by executives. Balancing these considerations has proved difficult and, judging by the several examples of recent financial collapse,<sup>4</sup> the corporate body as a whole has failed to adequately reconcile this issue.<sup>5</sup> Short-termist attitudes to corporate performance have led to a severe threat to the financial health of companies in Anglo-American markets. This theme will be analysed later in this chapter,<sup>6</sup> and later in the thesis.<sup>7</sup> For now the focus shall remain on the incentivising role of executive pay.

---

<sup>2</sup> *Id.*

<sup>3</sup> Jean Teall, *Governance and the Market for Corporate Control* (Routledge 2007) 5.

<sup>4</sup> Discussed in detail *infra*. Chapter 5.

<sup>5</sup> For a discussion of this in relation to the financial sector, see Lucian A. Bebchuk, Alma Cohen and Holger Spamann, 'The Wages of Failure: Executive Compensation at Bear Stearns and Lehman 2000-2008' (2010) 27 *Yale J. Reg.* 257; Lucian A. Bebchuk and Jesse M. Fried, 'Paying for Long-Term Performance' (2010) 158 *U. of Penn. Law Rev.* 1915.

<sup>6</sup> *Infra*. Section 3.3.

<sup>7</sup> *Infra*. Chapter 4.

### 3.1.1 Incentive-Based Pay

This section of the chapter reviews the mechanisms used to mitigate agency problems and the solutions that companies might employ to regulate executive pay. The topic of optimal composition of executive remuneration is analysed in every major piece of corporate governance literature issued by respected national and supra-national governance authorities.<sup>8</sup> As discussed in Chapter Two,<sup>9</sup> the relationship between executive performance and shareholder returns is crucial; shareholders' interests, as residual risk-bearers and firm owners, are deemed to be the supreme consideration in invoking corporate governance arrangements.<sup>10</sup> One of the key functions of governance thus is to link individual and collective executive remuneration to corporate performance, which is often equated with shareholder value. Most companies employ executive remuneration settlements which include an explicit link between stock price performance and the compensation that an executive receives. This notion is partially designed to mitigate the agency costs that were addressed in the previous chapter<sup>11</sup>; it also is designed to provide a framework under which appropriate levels of remuneration may be calculated, allowing the market to set a rate of executive pay.<sup>12</sup>

Executive compensation may be viewed as both an agency risk and a solution to the agency problem. It is a solution because it may be designed in an appropriate fashion to align the interests of equity owners in the firm with those of company management.<sup>13</sup> It is a risk because, if designed inappropriately, it may exacerbate the tendency of management to sacrifice long-term performance to secure short-term rewards. Owners wish to maximise the return on their equity by structuring CEO pay to reward profits yet also wish to avoid paying the CEO more than is required.<sup>14</sup> Compensation is normally depicted as an *ex post* settling up; in other words, reward for past performance. This

---

<sup>8</sup> Marco Becht, Patrick Bolton and Ailsa Roell, 'Corporate Governance and Control' ECGI Finance Working Paper No. 02/2002 (August 2005) 45.

<sup>9</sup> *Supra*. Chapter 2.

<sup>10</sup> James E. Heald, 'Executive Compensation: Perspective of the Institutional Investor' (1995) 63 U. Cin. L. Rev. 749.

<sup>11</sup> *Supra*. Chapter 2.

<sup>12</sup> BRT, *Principles*, Commentary on Principle 1.

<sup>13</sup> Randall Morck, Andrei Shleifer and Robert W. Vishny, 'Management Ownership and Market Valuation: An Empirical Analysis' (1998) 20 J. Fin. Econ. 293.

<sup>14</sup> Henry L. Tosi, Jr. and Luis Gomez-Mejia, 'The decoupling of CEO pay and performance: An agency theory perspective' (1989) 34 Admin. Sci. Q. 169.

augments the sensitivity of pay to performance<sup>15</sup> and remains the dominant approach to setting executive pay levels principally because a substantial body of research into US companies reveals a statistically significant link between the pay of CEOs and corporate performance.<sup>16</sup> Thus, linking managerial compensation to shareholder interests in some way has received support from notable financial economists<sup>17</sup> and has found its way into compensation schemes in every large publicly-listed firm in Anglo-American securities markets.<sup>18</sup> The less stock that a manager owns in a firm, the greater the

---

<sup>15</sup> Michael C. Jensen and Kevin J. Murphy, 'Performance Pay and Top-Management Incentives' (1990) 98 J. Polit. Econ. 225 (hereinafter Jensen and Murphy, *Performance Pay*); Eugene F. Fama, 'Agency Problems and the Theory of the Firm' (1980) 88 J. Polit. Econ. 288.

<sup>16</sup> See John F. Boschen, Augustine Duru, Lawrence A. Gordon and Kimberly J. Smith, 'Accounting and Stock Price Performance in Dynamic CEO Compensation Arrangements' (2003) 78 Acc. Rev. 143; Kevin J. Murphy, 'Executive Compensation' in Orley Ashenfelter and David Card (eds), *Handbook of Labor Economics* (Elsevier, 1999) (hereinafter Murphy, *Executive Compensation*); Brian J. Hall and Jeffrey B. Liebman, 'Are CEOs Really Paid Like Bureaucrats?' (1998) 113 Q. J. Econ. 653 (hereinafter Hall and Liebman, *CEO Bureaucrats*); John F. Boschen and Kimberly J. Smith, 'You Can Pay Me Now and You Can Pay Me Later: The Dynamic Response of Executive Compensation to Firm Performance' (1995) 68 J. Bus. 577; Jensen and Murphy, *Performance Pay*.

<sup>17</sup> See Jensen and Murphy, *Performance Pay*. See also Michael C. Jensen and Kevin J. Murphy, 'CEO Incentives: It's Not How Much You Pay But How' (1990) 3 Harv. Bus. Rev. 138.

<sup>18</sup> For example, the Business Roundtable ('BRT'), an "association of chief executive officers of leading corporations with a combined workforce of 10 million and \$4 trillion in annual revenues", has published extensively on governance practices related to executive pay. One of the key proposals that the Roundtable endorses is that executive compensation should be linked to company performance and thus executive pay packages ought to "include significant performance-based criteria related to long-term shareholder value and should reflect upside potential and downside risk." See Business Roundtable, *Executive Compensation: Principles and Commentary* (January 2007) Principle 1 (hereinafter BRT, *Principles*). The Organization for Economic Co-operation and Development ('OECD') published their guide to governance principles in 2004, calling for corporations to adopt rules to ensure that "[the] equity component of compensation schemes for board members and employees [is] subject to shareholder approval. It is important for shareholders to know the specific link between remuneration and company performance when they assess the capability of the board and the qualities they should seek in nominees for the board. In the case of equity-based schemes, their potential to dilute shareholders' capital and to powerfully determine managerial incentives means that they should be approved by shareholders..." See OECD, *Principles of Corporate Governance* (2004) 34. The Council of Institutional Investors, a body representing pension funds worth in excess of \$3 trillion, places director and executive compensation at the centre of its governance recommendations, deeming that "The Council endorses reasonable, appropriately structured pay-for-performance programs that reward executives for sustainable, superior performance over the 'long-term', consistent with a company's investment horizon ... While the Council believes that executives should be well paid for superior performance, it also believes that executives should not be excessively paid ... poorly structured awards permit excessive or abusive pay that is detrimental to the company and to shareowners." See The Council of Institutional Investors, *Corporate Governance Policies* (2008) 9-12. The report of the International Corporate Governance Network ('ICGN') addresses the issue of executive compensation in the following terms: "Executive pay should incentivise value creation within companies and should effectively align the interests of executives with those of shareholders ... [and] ... every company should have and disclose a policy concerning ownership of shares of the company by senior managers and executive directors with the objective of aligning the interests of these key executives with those of shareholders." See International Corporate Governance Network, *Statement on Global Corporate Governance Principles: Revised 2009* (November 2009) 5.1, 5.5. CalPERS (California Public Employees' Retirement System) pension fund, one of the largest institutional investors in the world and respected actor in corporate governance circles directs that companies desirous of investment from its fund should adhere to the ICGN policy on remuneration which

incentive for him to appropriate private benefits; if he has a shareholding, he must share the benefits accrued with his fellow shareholders and any profits made by the company, whereas any private benefits he extracts are not shared and therefore, are his to keep.<sup>19</sup> The tools used in compensation structures shall now be discussed.

### 3.1.1.1 Stock performance-based pay

Performance-based pay has received Congressional approval in the US as an appropriate mechanism with which to align principal and agent interests.<sup>20</sup> It is acknowledged that ‘performance-based pay’ may comprise a wide array of remunerative methods<sup>21</sup> and may be judged based on several metrics:

“Internal measurements could be based on budgeted targets, absolute standards, and/or strategic milestones. External measurements could be based on total shareholder return and/or a designated performance measurement versus an appropriate peer group of companies.”<sup>22</sup>

This thesis is concerned with a narrow substratum of each category: the internal measurement of performance of the company based upon its market capitalization, and the external measurement of performance based upon its position relevant to other companies in its peer group:

“These measurements are typically relative to own company performance and could use any of the measurements identified internal to the company ... An excellent example of this is the stock chart required to be included in the company proxy statement for publicly traded companies. It could be a company-defined group of companies, an industry sub-set within the appropriate stock

---

requires that remuneration be aligned with stockholder interests. See CalPERS, *Global Principles of Accountable Corporate Governance* (2007) 11.

<sup>19</sup> Lucian A. Bebchuk and Yaniv Grinstein, ‘The Growth of Executive Pay’ (2005) 21 *Ox. Rev. Econ. Pol.* 283; Luis Gomez-Mejia and Robert M. Wiseman, ‘Reframing Executive Compensation: An Assessment and Outlook’ (1997) 23 *J. Man.* 291.

<sup>20</sup> The incentive function of executive compensation was recognised in the elimination of corporate income tax deductions for executive salaries in excess of \$1million, since the limitation applied only to non-incentive-based remuneration. See I.R.C § 162 (m) (2006).

<sup>21</sup> The list of performance measurement standards is too exhaustive to list here. For a full discussion of these measurements see Bruce R. Ellig, *The Complete Guide to Executive Compensation* (McGraw-Hill 2007) (hereinafter Ellig, *Complete Guide*) 51-69.

<sup>22</sup> *Id.* 548.

exchange, or the composite performance of the entire stock exchange. Such measurements are for shareholder value.”<sup>23</sup>

Compensation theory predicts that optimal incentive-based pay ought to depend on variables under the control of firm management, rather than on factors beyond management control.<sup>24</sup> A model which supports this notion would reward firms for firm performance, both in a relative and absolute sense. Performance-based pay is one such model and “[m]ost executive pay packages contain four basic components: a base salary, an annual bonus tied to accounting performance, stock options, and long-term incentive plans (including restricted stock plans and multi-year accounting-based performance plans)”.<sup>25</sup>

The latter two factors quoted (stock options and long-term performance plans) are the most appropriate in relation to this thesis because they are most associated with the share price of companies: “a firm's stock price is often used as a performance measure in determining management compensation because incentive devices based on the stock price directly align management's interests with the equity-holders”.<sup>26</sup> In practice, they are also the aspects of executive remuneration which are most contingent on performance.<sup>27</sup> These measurements usually inform the award of both short and long-term incentives and, for the purposes of this thesis, include cash bonus payments based on the performance of the company's stock (in absolute or relative terms) and/or the award of stock.<sup>28</sup>

---

<sup>23</sup> Ellig, *Complete Guide* 67.

<sup>24</sup> Michael Weisbach, ‘Optimal Executive Compensation versus Managerial Power: A Review of Lucian Bebchuk and Jesse Fried's Pay Without Performance: The Unfulfilled Promise of Executive Compensation’ (2007) 45 J. Econ. Lit. 419.

<sup>25</sup> Kevin J. Murphy, ‘Executive Compensation’ Marshall School of Business Working Paper (June 1999) 3.

<sup>26</sup> Gerald A. Feltham & Martin G.H. Wu, ‘Incentive Efficiency of Stock Versus Options’ (2001) 6 Rev. Acct. Stud. 77.

<sup>27</sup> Geoffrey Stapledon, ‘The Pay for Performance Dilemma’ University of Melbourne Legal Studies Research Paper No. 83 (May 2004).

<sup>28</sup> This is a stock purchase with a 100 percent discount (in other words, the beneficiary receives the stock at no financial cost).

### 3.1.1.2 Stock-options

In the context of management/executive employment, the use of stock options has been widely encouraged in order to ensure managers adequately appreciated the implications of corporate strategy on stock price.<sup>29</sup> This is achieved through the granting of stock options to management, rather than cash, as reward for service. Research suggests that sensitivity of pay to performance is augmented through the use of stock options.<sup>30</sup> Jensen and Murphy's research<sup>31</sup> found that stock options are an effective tool with which to link pay to firm performance more closely. A traditional stock option is a privilege granted to an employee by a company which gives the buyer the right (not the obligation) to purchase a stock at a price agreed<sup>32</sup> on at the date the option is granted. In practice, this usually means that an option is granted to an executive at a firm at the market value of the share at the time the option is granted.<sup>33</sup> An option is regarded as a long-term incentive because the period in which it vests rarely comprises a minimum period of less than one year.

With a traditional option plan, when the options vest and become exercisable, the executive is required to pay the exercise price for each option; that is, the strike price as agreed at the date the option was granted. It is the manager's choice when to 'cash the stock in'. If the stock price increases during the intervening period between the grant and the right to sell the option, the manager might realise substantial financial rewards; the executive will, of course, only exercise the option if the stock price has appreciated between the date of the grant and the exercise date. This, it is argued, aligns management incentives with those of stockholders; the higher the stock price, the greater the financial rewards for each party and options are therefore cited as the most appropriate instrument with which to align executive interests with those of firm owners.<sup>34</sup> The rationale for this is threefold:

“(1) the executive must put up some of his/her own money, (2) the value, like the shareholder's, is at risk with the price of the company stock, and (3)

---

<sup>29</sup> Lucian A. Bebchuk, 'How to Fix Bankers' Pay' (2010) 139 *Daedalus* 52.

<sup>30</sup> Hall and Liebman, *CEO Bureaucrats*.

<sup>31</sup> Jensen and Murphy, *Performance Pay*.

<sup>32</sup> This is known as the 'strike price'.

<sup>33</sup> The option itself has a value. The value is usually determined by the Black-Scholes option-pricing formula. For further details on the pricing of options, please see [www.black-scholes.co.uk](http://www.black-scholes.co.uk) accessed 23/03/12.

<sup>34</sup> Cynthia E. Devers, Albert A. Cannella Jr., Gregory P. Reilly and Michele E. Yoder, 'Executive Compensation: A Multidisciplinary Review of Recent Developments' (2007) 33 *J. Man.* 1016.

assuming no discount, there is no charge to corporate earnings. Options are a form of profit sharing that link the professional manager's financial success to that of the shareholder."<sup>35</sup>

A variation on the traditional option is the use of 'restricted stock'.<sup>36</sup> This involves no payment from the executive to the company at the date of the option grant; instead the executive is granted 'performance shares' which are frozen for a period, preventing the executive from trading them. If agreed performance targets are met by the end of the agreed 'freeze' period, the executive will become entitled to the restricted stock – in practical terms, he/she will be given the right to sell the shares in question and receive the profits.

The market value of these options at the exercise date may be many multiples of the base salary that an executive receives.<sup>37</sup> The rationale for these plans is clear: options are only of value to an executive if the company's stock price at the date of vesting is higher than it was on the date the options were granted. Thus, executives are under a financial incentive to boost the share price of the firms that employ them. This ought to be compliant with the demands of shareholders who desire the value of their stock to increase. Thus, in theory, stock options provide a practical solution to the issue of shareholder value creation.

### **3.1.2 Financial Market Liberalisation: The Leveraged Buy-Out Boom**

The use of stock-based performance incentives was given practical credence by the Leveraged Buy-Out ('LBO') revolution which cemented the role of stock-based compensation in both public and private companies. By this time, as noted in the previous chapter<sup>38</sup>, shareholder value theory had become the dominant mantra for corporate management in Anglo-American markets. The focus on stock-based remuneration was partially the result of a dramatic increase in corporate buyout activity. Between 1979 and 1989 the number of LBOs in the US exceeded 2,000 and they were

---

<sup>35</sup> Ellig, *Complete Guide* 457.

<sup>36</sup> Stacey R. Kole, 'The complexity of compensation contracts' (1997) 43 *J. Fin. Econ.* 79.

<sup>37</sup> For example, the CEO of Lehman Brothers, Dick Fuld, received a base salary of \$750,000 in 2008 yet earned \$26,620,000 in the exercise of stock options. See: [www.forbes.com/lists/2008/12/](http://www.forbes.com/lists/2008/12/) accessed 18/01/12.

<sup>38</sup> *Supra.* Chapter 2.

valued in excess of \$250 billion.<sup>39</sup> LBOs, it was argued, would expose inefficient corporate management to market discipline; the takeover mechanism would improve managerial incentives and reduce agency costs in the process.<sup>40</sup> Financing of projects by companies creates an agency problem: payouts to shareholders in the form of dividends reduce managerial budgets which forces them to seek out external financing thus incurring a second round of monitoring costs (from the capital market).<sup>41</sup> Further, management are under incentives to grow their firms beyond optimal size, reducing shareholder value in the process; growth increases power by increasing the resources under management control.<sup>42</sup>

Of course, the effects on corporate governance following LBOs were pronounced. Management incentives were changed by providing them with a substantial equity share in the bought-out company.<sup>43</sup> Debt encouraged managers to be more efficient and forced disgorgement of excess cashflow that might otherwise be invested unwisely.<sup>44</sup> In most cases, the shareholders comprised exclusively the management teams and board of directors.<sup>45</sup> It was the realization of corporate buyout chiefs that large personal financial gains could be realized from acquisitions that drove the market. Thanks to lucrative stock plans, management could share in the gains made by companies that had been restructured. Buyout chiefs justified the LBOs by claiming that the buyouts and restructurings complied with shareholder value theory: by ensuring that management owned the shares in the companies they ran, the agency problems associated with the separation of ownership from control were eliminated. Corporate management in public companies and institutional investors, mutually impressed by the (often short-term) price increases following LBOs in the 1980s, were attracted to pay-for-performance compensation structures. Executive remuneration structures were established which rewarded management in public companies with options tied to the stock of the

---

<sup>39</sup> Tim Opler and Sheridan Titman, 'The Determinants of Leveraged Buyout Activity: Free Cash Flow vs. Financial Distress Costs' (1993) 48 J. Fin. 1985.

<sup>40</sup> See for example, Gordon Donaldson, *Corporate Restructuring* (Harvard Business School Press 1994); Michael C. Jensen, 'Takeovers: Their Causes and Consequences' (1988) 2 J. Econ. Persp. 21; Gordon Donaldson and Jay W. Lorsch, *Decision-Making at the Top* (Basic Books 1983).

<sup>41</sup> Michael C. Jensen, 'Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers' (1986) 76 Am. Econ. Rev. 323 (hereinafter Jensen, *Agency Costs*).

<sup>42</sup> *Id.*; Kevin J. Murphy, 'Corporate Performance and Managerial Remuneration: An Empirical Analysis' (1985) 7 J. Acc. Econ. 11.

<sup>43</sup> Bengt R. Holmström and Steven N. Kaplan, 'Corporate Governance and Merger Activity in the U.S.: Making Sense of the 1980s and 1990s' (2001) 15 J. Econ. Persp. 121.

<sup>44</sup> Michael C. Jensen, 'Eclipse of the Public Corporation' (1989) 67 Harv. Bus. Rev. 61.

<sup>45</sup> *Id.*



companies they managed. This led to “a massive, broad-based shift in the philosophy of executive compensation.”<sup>46</sup>

Whilst many companies were reorganized successfully after LBOs and became more profitable<sup>47</sup>, the leveraged buyout boom led to a saturation effect<sup>48</sup> and by the late 1980s, the industry collapsed.<sup>49</sup> It also resulted in the “impos[ition of] short-term profit maximization strategies ... at the expense of research, development, and capital investment.”<sup>50</sup> Supporters of the LBO, however, claimed that opposition to private equity was driven by political factors rather than any fundamental economic analysis<sup>51</sup> and that profitability and shareholder value increased remarkably.<sup>52</sup>

Moreover, the pay-performance approach to corporate governance had been established. The LBO experience of the 1980s (which was followed by another in the 1990s and 2000s) provided corporate management with the justification to push for stock-related remuneration. By closely tying managerial rewards to firm performance, groups engaged in LBOs had successfully improved corporate efficiency and increased shareholder returns. Institutional investors and corporate managers were each impressed by the apparently massive returns generated through the focus on stock price appreciation in LBOs and the mechanisms of tying managerial interests to those of firm owners in order to achieve them. This model of executive compensation, governance theorists argued, ought to be adopted by all public – as well as private – companies.

### **3.1.3 Summary of incentive-based plans linked to stock-price performance**

Where the performance of a company is, either in part or in full, measured through reference to its market capitalisation, an executive’s compensation may be said to be contingent on the financial performance of the company’s stock. This theoretically

---

<sup>46</sup> Joseph Fuller and Michael C. Jensen, ‘Just Say No to Wall Street: Putting a Stop to the Earnings Game’ (2002) 14 J. Appl. Corp. Fin. 41, 42.

<sup>47</sup> Steven N. Kaplan, ‘The Effects of Management Buyouts on Operating Performance and Value’ (1989) 24 J. Fin. Econ. 217 (hereinafter Kaplan, *Management Buyouts*).

<sup>48</sup> Steven N. Kaplan and Jeremy C. Stein, ‘The Evolution of Buyout Pricing and Financial Structure in the 1980s’ (1983) 108 Q. J. Econ. 313.

<sup>49</sup> In 1980, the market for LBOs was worth \$1 billion; by 1988, this had risen to \$60 billion; by 1990, it had dropped to \$4 billion. See *Id.*

<sup>50</sup> Martin Lipton, ‘Corporate Governance: Major Issues for the 1990’s’, Address to the Third Annual Corporate Finance Forum at the J. Ira Harris Center for the Study of Corporate Finance, University of Michigan School of Business (6 April 1989).

<sup>51</sup> Michael C. Jensen, ‘Corporate Control and the Politics of Finance’ (1991) 4 J. App. Corp. Fin. 13.

<sup>52</sup> Brian J. Hall, ‘Six Challenges in Designing Equity-Based Pay’ (2003) 15 J. App. Corp. Fin. 21, 23.

aligns the interests of management with shareholders as executives are provided with an incentive to pursue strategies which will result in the appreciation of the share price, thus contributing to shareholder value. As evidence for this, the use of equity as a reward mechanism rather than cash payments grew quickly throughout the 1990s.<sup>53</sup> Between 1992 and 2002, stock options rose from 5 percent of the outstanding shares in US public equity markets to 15 percent.<sup>54</sup> In relation to the 2000 largest firms listed on US exchanges, the value of these options rose from \$50 billion in 1997 to \$162 billion in 2000. The incentives to boost stock price to capture ephemeral value were therefore, pronounced.<sup>55</sup> As Coffee notes: "...if \$162 billion is the value of all options in these 2,000 companies, aggressive accounting policies that temporarily raise stock prices by as little as ten percent create a potential gain for executives of over \$16 billion – a substantial incentive."<sup>56</sup> Thus, forces were unleashed which were "very difficult to control and ... [would] ... almost certainly destroy value."<sup>57</sup> These flaws to shareholder value governance in Anglo-American markets shall now be addressed.

## **3.2 FLAWS IN THE PAY-FOR-PERFORMANCE PARADIGM**

### **3.2.1 Introduction**

The use of stock options or stock-based performance bonuses is flawed in many practical ways. This section shall discuss the paradigm failure in using stock based awards to remedy the opportunistic behaviour of executives. Granting these compensation awards has not always proven to be in the best interests of company stockholders; the link between remuneration and stock prices has often provided further incentive problems, such as the adoption of excessive risk or short-term investment

---

<sup>53</sup> John C. Coffee, Jr., 'Understanding Enron: It's About the Gatekeepers, Stupid' Columbia Law School, The Center for Law and Economic Studies Working Paper No. 207 (July 2002) (hereinafter Coffee, *Understanding Enron*).

<sup>54</sup> See Gretchen Morgenson, 'Corporate Conduct: News Analysis; Bush Failed to Stress Need to Rein in Stock Options' *New York Times* (New York, 11 July 2002); see also Gretchen Morgenson, 'Market Watch: Time For Accountability At the Corporate Candy Store' *New York Times* (New York, 3 March 2002).

<sup>55</sup> Patrick Bolton, Jose Scheinkman and Wei Xiong, 'Executive Compensation and Short-Termist Behaviour in Speculative Markets' (2006) 73 Rev. Econ. Stud. 577.

<sup>56</sup> Coffee, *Understanding Enron* n42.

<sup>57</sup> Michael C. Jensen, 'Agency Costs of Overvalued Equity' (2005) 34 Fin. Man. 5, 7 (hereinafter Jensen, *Overvalued Equity*).

strategies.<sup>58</sup> The section begins with an analysis of three practical flaws in the use of stock options<sup>59</sup> and moves to discuss the way in which short-term obsession with stock price levels linked to performance awards may lead to market manipulation and price distortion. This shall provide a basis for a further critique of pay-for-performance, which is derived from the observation that managers who are rewarded on the basis of stock price levels may benefit either from general price movements unrelated to their effectiveness, or from persistent equity price distortions. Each of these factors reduces the utility of stock-based compensation.

### 3.2.1.1 The near-uniform use of ‘at-the-money’ options<sup>60</sup>

Options are economically inefficient because ascertaining their market value is difficult. Studies demonstrate that CEOs value stock options at approximately half their market value. Thus, it is twice as costly to pay a CEO in options as it is in cash.<sup>61</sup> Based on empirical research, it has been noted that too many options are granted to top executives; that is, the incentive benefits of some of the options granted to CEOs are worth less to shareholders than the costs of granting them.<sup>62</sup> Of course, the purpose of options is to motivate executives to choose the most appropriate decisions for the firm, adjusted for risk.<sup>63</sup> Research suggests that CEOs who are paid more and are less ‘pressured’ by shareholders take less risk.<sup>64</sup> Whether an option encourages an incentive-driven executive to assume an appropriate amount of risk depends on the amount he/she stands to gain financially from the strategy relative to the risk attached to the strategy. Thus, the exercise price of the option is a critical factor in motivating executive decision-making.<sup>65</sup> The optimal exercise price depends on several factors, and research

---

<sup>58</sup> Discussed *infra*. Chapters 5 & 6.

<sup>59</sup> For a full discussion see Lucian A. Bebchuk and Jesse M. Fried, *Pay Without Performance: The Unfulfilled Promise of Executive Compensation* (2<sup>nd</sup> Ed. Harvard University Press 2006) 159-173 (hereinafter Bebchuk and Fried, *Pay Without Performance*).

<sup>60</sup> An ‘at-the-money option’ is one where the stock price and the strike price are the same.

<sup>61</sup> Murphy, *Executive Compensation*.

<sup>62</sup> Michel A. Habib and Alexander Ljungqvist, ‘Firm Value and Managerial Incentives: A Stochastic Frontier Approach’ (2005) 78 J. Bus. 2053.

<sup>63</sup> Kevin J. Murphy, ‘Performance Standards in Incentive Contracts’ (2001) 30 J. Acc. Econ. 273 (hereinafter Murphy, *Performance Standards*).

<sup>64</sup> Carl R. Chen, Thomas L. Steiner and Ann Marie Whyte, ‘Does Stock-Option-Based Compensation Induce Risk-Taking? An Analysis of the Banking Industry’ (2006) 30 J. Bank. Fin. 915.

<sup>65</sup> Rajesh Aggarwal and Andrew Samwick, ‘The Other Side of the Trade-Off: The Impact of Risk on Executive Compensation’ (1999) 107 J. Polit. Econ. 65; David Yermack, ‘Good timing: CEO stock

in financial economics suggests that it is highly unlikely that a standard option design is efficient.<sup>66</sup> However, almost all stock options are granted to CEOs ‘at-the-money’; that is, with a strike price equal to the company’s stock price on the date of the grant.<sup>67</sup> This is despite the fact that ‘out-of-the-money’ options – that is, options with a strike price at a higher level than the market value – generate much greater pay-for-performance sensitivity than do conventional options.<sup>68</sup>

Exercise prices of stock options are rarely – if ever – adjusted for the vesting period.<sup>69</sup> This has the consequence that, particularly in the case of long-term options, executives will almost always earn money from stock options, as the value of stock markets generally increases.<sup>70</sup> This consequence has the paradoxical effect of hampering further the concept of pay-for-performance; if the stock price increases due to the effects of inflation or a general bull equity market, the gains driven by executives’ individual performance become less apparent:

“Managers who receive options issued at-the-money and exercisable over a ten-year period will make money as long as the stock price goes up nominally over the ten-year period. As a result, the managers can benefit even if shareholders’ real returns were tiny or even negative.”<sup>71</sup>

Top management may even pursue strategies which shield the stock price from short or medium term negative impact to preserve the value of their remuneration.<sup>72</sup>

---

option awards and company news announcements’ (1997) 52 J. Fin. 449. This shall be discussed in-depth *infra*. Chapters 5 & 6 in relation to the use of leverage by banks prior to the GFC.

<sup>66</sup> See for example, Tom Nohel and Steven Todd, ‘Stock Options and Managerial Incentives to Invest’ (2004) 1 J. Deriv. 29.

<sup>67</sup> Murphy, *Executive Compensation* 70, Table 5.

<sup>68</sup> Radhakrishnan Gopalan, Todd T. Milbourn and Fenghua Song, ‘Strategic Flexibility and the Optimality of Pay for Luck’ (September 2008) available at [ssrn.com/abstract=1012975](http://ssrn.com/abstract=1012975) accessed 23/03/12; Shane A. Johnson and Yisong S. Tian, ‘The Value and Incentive Effects of Non-Traditional Executive Stock Option Plans’ (2000) 57 J. Fin. Econ. 3; Brian J. Hall, ‘A Better Way to Pay CEOs?’ in Jennifer Carpenter and David Yermack (eds) *Executive Compensation and Shareholder Value* (Kluwer Academic Publishers 1999); Richard A. Lambert, David F. Larcker and Robert E. Verrechia, ‘Portfolio Considerations in Valuing Executive Compensation’ (1991) 29 J. Acc. Res. 129.

<sup>69</sup> Bebchuk and Fried, *Agency Problem* 82-83.

<sup>70</sup> One notable exception to this general trend has been the performance of global equity markets since the financial crash of 2008.

<sup>71</sup> Bebchuk and Fried, *Agency Problem*.

<sup>72</sup> Bengt Holmstrom, ‘Pay Without Performance and the Managerial Power Hypothesis: A Comment’ (2005) 30 J. Corp. L. 703.

### 3.2.1.2 Reload features of options

A reload option is a feature which firms use to grant new options automatically to executives who exercise their existing options. Thus, when a manager at a firm which utilises this form of remuneration exercises his/her stock option prior to its expiration date, they are awarded both the value of the shares which relate to the option and a separate bundle of options based on the number of shares tendered in exercising the 'first generation' of options. This 'second-generation' of options will have an expiration date equal to that of the first generation of options although the exercise price of the reload options is set to the stock price on the date of the reloading. Thus, an executive may effectively 'double-up' on the options he/she holds prior to the grant date.<sup>73</sup> As the reload feature allows firm management to lock in any increase in value of the option prior to the grant date and hedges against future share price depreciation, reload options are worth more to executives than conventional options.<sup>74</sup> Moreover, reload options allow executives to profit from stock price volatility by realizing temporary gains even if, over the long-term, stock performance is flat.<sup>75</sup>

### 3.2.1.3 Option repricing & fragility

This facet of options 'management' is perhaps the most pernicious and contributes most to economic inefficiency.<sup>76</sup> Firms may engage in options repricing or 'backdoor repricing' by issuing new options at a lower exercise price. This, of course, further distorts the pay for performance model. Options repricing is most commonly undertaken when the stock price drops to levels which render the option related to the stock valueless; in this scenario, the stock is described as 'underwater'. The justification for stock option repricing is that if a stock becomes 'out of the money', the incentive effects of the stock-based compensation are removed as the sensitivity of pay and

---

<sup>73</sup> Philip H. Dybvig and Mark Loewenstein, 'Employee Reload Options: Pricing, Hedging, and Optimal Exercise' (2003) 16 Rev. Fin. Stud. 145.

<sup>74</sup> Thomas Hemmer, Steve Matsunaga, and Terry Sherlin, 'Optimal Exercise and the Cost of Granting Employee Stock Options with a Reload Provision' (1998) 36 J. Acc. Res. 234.

<sup>75</sup> Jane P. Saly, Ravi Jagannathan and Steven J. Huddart, 'Valuing the Reload Features of Executive Stock Options' (1999) 12 Acc. Horiz. 220.

<sup>76</sup> Brian J. Hall and Thomas A. Knox, 'Managing Option Fragility' NBER Working Paper No. 9059 (July 2002).

performance decreases.<sup>77</sup> However, option repricing in Anglo-American markets has been the source of many recent corporate scandals<sup>78</sup> and has achieved significant regulatory attention.<sup>79</sup>

Regulatory restrictions placed on the revaluation of options have meant that the practice of repricing has become more difficult.<sup>80</sup> Where repricing the relevant options has not been financially attractive, companies have utilised other strategies to reward executives with stock grants. The main method these firms have employed is to grant the executives with additional options with a lower exercise price.<sup>81</sup> This, of course, breaks the link between pay and performance: executives may still receive financial rewards even where their performance does not merit them. Other methods include a 'value-for-value' exchange which provides the holder of options the opportunity to dispense with 'out-of-the-money' options in exchange for an immediate grant of new shares with an exercise price equal to or less than the fair market value of the stock. This receives neutral accounting treatment and does not require the firm to expense the option.<sup>82</sup> Provided that the value of any second generation share option is below that of the exchanged option, the firm will not incur additional charges.

Repricing and other forms of backdoor grants are more prevalent at firms with poor corporate governance.<sup>83</sup> Defenders of these practices often point to the fact that repricing may be used to motivate executives whose firms lose value because of factors beyond the control of management; for example, general market swings which drag the price of a particular stock down. Repricing also frequently follows the release of good

---

<sup>77</sup> Mary E. Carter and Luann J. Lynch, 'An examination of executive stock option repricing' (2001) 61 J. Fin. Econ. 207 (hereinafter Carter and Lynch, *Stock option repricing*).

<sup>78</sup> John C. Coffee, 'A Theory Of Corporate Scandals; Why the US and Europe Differ' (2005) 21 Ox. Rev. Econ. Pol. 198 (hereinafter Coffee, *Corporate Scandals*).

<sup>79</sup> In the US, for example, the FASB now requires firms to expense repriced options, making companies reluctant to engage in repricing.

<sup>80</sup> Since 2003, shareholder approval to changes in executive compensation schemes has been required under the listing rules of the NYSE and NASDAQ. Shareholders must be made aware of the reasoning behind any exchange offer and may require full disclosure of the impact of any proposed change. Furthermore, the adoption of accounting rule FAS 123R increased the accounting cost of a one-for-one option exchange and eliminated any accounting advantage that stock options had over other forms of equity compensation.

<sup>81</sup> Justin Fox, 'Amazing Stock Option Sleight of Hand' *Fortune* (London, 25 June 2001) 86.

<sup>82</sup> White & Case LLP, 'Repricing Underwater Stock Options' (October 2008). Available at [www.whitecase.com/alert\\_cmsecurities\\_fmd\\_underwater\\_stock\\_options\\_101608](http://www.whitecase.com/alert_cmsecurities_fmd_underwater_stock_options_101608) accessed 11/05/12.

<sup>83</sup> Donald M. Chance, Raman Kumar and Rebecca B. Todd, 'The 'Re-pricing' of Executive Stock Options' (2000) 57 J. Fin. Econ. 148.

or bad firm-specific news.<sup>84</sup> However, most option repricing is not driven by market or sector performance but follows the poor performance of the specific individual firms which engage in it.<sup>85</sup>

### 3.2.2 Market Manipulation

The previous sections discussed how the use of stock options endures practical inefficiencies. This section analyses how the use of stock-based performance compensation might induce sub-optimal behaviour to affect the stock price based on manipulation of market information, rather than through tampering with the option itself.

Corporate management may have serious incentives to engage in earnings management if they are compensated through stock-related remuneration.<sup>86</sup> The effects of market manipulation are to “lead the price of [financial] investments to an artificial level and/or enable the perpetrators of the behaviour to materialize, from interests held in the specific or related investments, financial gains that would not be possible, in the absence of such behaviour.”<sup>87</sup> It is clear that many cases of market manipulation occur during stock ‘bubbles’<sup>88</sup>; in this environment as investors become accustomed to high stock prices and strong earnings, it appears they are more likely to believe that market prices are valid.<sup>89</sup>

---

<sup>84</sup> Sandra Renfro Callaghan, P. Jane Saly and Chandra Subramaniam, ‘The Timing of Option Repricing’ (2004) 59 J. Fin. 1651 (hereinafter Callaghan et al, *The Timing of Option Repricing*).

<sup>85</sup> Menachem Brenner, Rangarajan K. Sundaram, and David Yermack, ‘Altering the terms of executive stock options’ (2000) 57 J. Fin. Econ. 103; Carter and Lynch, *Stock option repricing*.

<sup>86</sup> *Supra*. Chapter 2, Section 2.3. The accounting irregularities at WorldCom, for example, which collapsed in 2003 in the world’s largest bankruptcy (at that time), occurred largely as a result of accounts reflecting operating expenses as capital expenditures and, by proxy, net income was overstated. See Gregory J. Sidak, ‘The Failure of Good Intentions: The WorldCom Fraud and the Collapse of American Telecommunications after Deregulation’ (2003) 20 Yale J. Reg. 207.

<sup>87</sup> Emiliios Avgouleas, *The Mechanics and Regulation of Market Abuse: A Legal and Economic Analysis* (OUP 2005) 116 (hereinafter Avgouleas, *Mechanics and Regulation*).

<sup>88</sup> Discussed *infra*. Chapter 4.

<sup>89</sup> For example, sixteen of the seventeen Wall street analysts covering Enron maintained ‘buy’ or ‘strong buy’ recommendations until shortly before its bankruptcy. See ‘Statement of Frank Torres, Legislative Counsel, Consumers Union, Before the United States Senate Committee on Governmental Affairs, on the Collapse of Enron: The Role Analysts Played and the Conflicts They Face’, 27 February 2002, 6. 2002 WL2011028. As Avgouleas notes in the context of the 1990s stock market bubble: “[Thus], the ... stock market bubble was not the result of conspiracy or coordinated action to perpetrate a massive scale fraud ... nevertheless, it incubated the right conditions for the perpetration of market abuse: it created an environment where corporate fraud would go undetected, leading to large scale manipulation.” See

As noted in the previous section, accounting techniques may be used by management to reprice options at favourable levels in order for them to reap financial rewards associated with volatility in stock prices.<sup>90</sup> An alternative method executives may employ to revalue options is to engage in accounting misstatements (often corrected at later dates). The aim of these techniques is, of course, for management to benefit from the fraudulent reporting by cashing out their stock before the fraud is identified.<sup>91</sup> Executive compensation practices at firms which focus on short-term price movements, of course, exacerbate the potential for market manipulation.<sup>92</sup> This has serious

---

Avgouleas, *Mechanics and Regulation* 91. This may a consequence of the operation of the ‘availability heuristic’, discussed *infra*. Chapter 4.

<sup>90</sup> In 2004, for example, Shell misstated its proven oil and gas reserves by inflating its volumes by approximately 30 percent. The SEC and FSA fined Shell \$120million and the FSA £17million, respectively, for what the FSA termed “disseminat[ing] false or misleading information as to the true extent of its proved reserves.” See FSA, ‘Final Notice: The “Shell” trading and Transport Co., p.l.c.’ (24 August 2004) available at: [www.fsa.gov.uk/pubs/final/shell\\_24aug04.pdf](http://www.fsa.gov.uk/pubs/final/shell_24aug04.pdf) accessed 11/05/12. Comment at the time reflected the view that “[s]hareholders [had] suggested that the executive bonus system might have encouraged managers to overbook the reserves.” See Bernard Taylor, ‘Shell Shock: why do good companies do bad things?’ (2006) 14 Corp. Gov. 181.

<sup>91</sup> Estimates based on available statistics suggest that the 689 publicly traded companies which announced financial restatements between January 1997 and March 2002 lost over \$100 billion in market capitalisation. See Huron Consulting Group, *2004 Annual Review of Financial Reporting Matters: Final Report* (March 2005) available at [www.huronconsultinggroup.com/library/Huron\\_2004\\_Review\\_of\\_Financial\\_Reporting\\_Matters.pdf](http://www.huronconsultinggroup.com/library/Huron_2004_Review_of_Financial_Reporting_Matters.pdf) accessed 26/04/12. Financial restatements are indicators of – amongst other things – flawed internal financial structures, inappropriate audit controls, and substandard reporting mechanisms, and the market views them with distaste. A restatement typically results in an immediate negative return on shareholder value of nine percent. See Zoe-Vonna Palmrose, Vernon J. Richardson, and Susan Scholz, ‘Determinants of Market Reactions to Restatement Announcements’ (2004) 37 J. Acc. Econ. 59, 61. Further research indicates that over a three day window surrounding the corporate restatements, a firm stands to lose 11 percent of its previous value and, if one examines the median share price of a firm encompassing the 120 days prior to, and following, the accounting readjustment, “firms lose on average 25 percent of market value over the period examined and this is concentrated in a narrow window surrounding the announcement of the restatement”. See Scott A. Richardson, Irem A. Tuna and Min Wu, ‘Predicting Earnings Management: The case of earnings restatements’ (October 2005) 4 available at [ssrn.com/abstract=338681](http://ssrn.com/abstract=338681) accessed 28/03/12.

<sup>92</sup> The former chair of the SEC, Arthur Levitt, has commented: “[i]n the zeal to satisfy consensus earnings estimates and project a smooth earnings path, wishful thinking may be winning the day over faithful presentation. As a result, I fear that we are witnessing an erosion in the quality of earnings, and therefore, the quality of financial reporting. Managing may be giving way to manipulation; integrity may be losing out to illusion ... A gray area where the accounting is being perverted; where managers are cutting corners; and, where earnings reports reflect the desires of management rather than the underlying financial performance of the company”. Remarks by SEC Chairman Arthur Levitt, ‘The Numbers Game’ NYU Centre for Law and Business (28 September 1998) available at [www.sec.gov/news/speech/speecharchive/1998/spch220.txt](http://www.sec.gov/news/speech/speecharchive/1998/spch220.txt) accessed 28/03/12. In the US, 10 percent of listed companies were forced to restate their financial statements at least once between 1997 and 2004. Statistics indicate that the actual number of corporate restatements rose from 91 in 1998, to 330 in 2002. The number of companies listed on the three US exchanges decreased by 20 percent in this period, from 9,275 in 1997 to 7,446 in 2002, resulting in a larger proportion of public companies being forced to restate their financial accounts. By 2004, the number of restatements had risen to 414. See U.S. Gen. Accounting Office, Pub. No. 03-138, *Financial Statement Restatements: Trends, Market Impacts, Regulatory Responses and Remaining Challenges* (October 2002) 4 (hereinafter U.S Gen. Accounting Office, *Financial Statement Restatements*). For further discussion, see Coffee, *Corporate Scandals*.



implications for the principal-agent relationship of the firm. Due to the dispersed ownership structures prevalent in Anglo-American markets, and based on the explanation for the species of scandal that generally affects firms with these ownership arrangements, many of the corporate crises that have been experienced in the US and UK have involved management manipulation of accounts and financial statements to extract increased wealth from corporate profits, or to ensure that firms were able to satisfy the strict borrowing requirements insisted upon by capital markets.<sup>93</sup>

Stock options create incentives for this sort of short-term manipulation of financial statements. Executives are aware that, unless a company collapses, it is unlikely that an accounting restatement will affect them negatively.<sup>94</sup> There is a strong link between equity-based compensation and market manipulation.<sup>95</sup> For example, there is a strong correlation between higher levels of equity compensation and earnings management and financial restatements.<sup>96</sup> Where firm CEO pay is comprised of a significant fraction<sup>97</sup> of stock options, the likelihood of a financial restatement rises by 55 percent.<sup>98</sup> A significant positive relationship exists between a firm's use of stock options and securities fraud allegations being levelled against the firm.<sup>99</sup> Further, corporate managers who hold a high proportion of options which they are likely to exercise in the short-term are more likely to report earnings that meet – or just exceed – analyst expectations and are more likely to engage in accounting management.<sup>100</sup> Evidence also exists that managers adopt disclosure practices which increase 'sentiment-driven overvaluation' to generate short-term spikes in a stock price in order to capture the

---

<sup>93</sup> John C. Coffee, 'What Caused Enron?: A Capsule Social and Economic History of the 1990s' (2004) 89 *Corn. L. Rev.* 269.

<sup>94</sup> See J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers, Robert J. Waldmann, 'Positive Feedback Investment Strategies and Destabilising Rational Speculation' (1990) 45 *J. Fin.* 379. Exceptions to this are contained in the Sarbanes-Oxley Act 2002, discussed *infra*. Section 3.2.3.

<sup>95</sup> Lucian A. Bebchuk and Oren Bar-Gill, 'Misreporting Corporate Performance', Harvard Law School Discussion Paper 400 (December 2002).

<sup>96</sup> Shane A. Johnson, Harley E. Ryan and Yisong S. Tian, 'Managerial Incentives and Corporate Fraud: The Sources of Incentives Matter' (2009) 13 *Ox. Rev. Fin.* 115.

<sup>97</sup> Options worth 20 times his/her base salary.

<sup>98</sup> Jap Efendi, Anup Srivastava and Edward P. Swanson, 'Why Do Corporate Managers Misstate Financial Statements? The Role of Option Compensation and Other Factors' (2007) 85 *J. Fin. Econ.* 667.

<sup>99</sup> David J. Denis, Paul Hanouna and Atulya Sarin, 'Is there a dark side to incentive compensation?' (2006) 12 *J. Corp. Fin.* 467.

<sup>100</sup> Qiang Cheng and Terry B. Warfield, 'Equity Incentives and Earnings Management' (2005) 80 *Acc. Rev.* 441.

windfalls from exercising their options.<sup>101</sup> The use of stock options has been shown to increase firm-risk and systemic risk.<sup>102</sup>

Where insider conduct is not mitigated due to the structural obstacles to market discipline discussed earlier,<sup>103</sup> strong incentives exist for them to engage in market manipulation; they may use their inside information to exploit their investment advantages over outside investors. Insiders may prevent the dissemination of information to the market in order to extract the full value of their informational advantage.<sup>104</sup> Or, insiders may conceal price-sensitive information which will affect their rewards negatively.<sup>105</sup> As noted by Avgouleas:

“Insiders’ involvement in corporate misreporting or dissemination of false information is, of course, one of the most potent and successful forms of market manipulation. In addition, such behaviour by insiders seriously inhibits not only the integrity, but also the efficiency of financial markets.”<sup>106</sup>

The issue is exacerbated if one also considers the effects of managerial power theory, also discussed in the previous chapter.<sup>107</sup> CEOs and other top executives will have substantial discretion over the timing of information disclosure and release which may affect the price of their company stock and thereby the value of their options. Several studies find systematic links between the timing of information disclosure and options grants.<sup>108</sup> Managers, in general, time voluntary announcements which reduce the stock price of their firms to produce the optimal return to them from the exercise of their grants.<sup>109</sup> Research also confirms that option grant timing strongly favours the board members at firms; CEOs and independent directors receive an abnormally high number

---

<sup>101</sup> Nicholas Seybert and Holly I. Yang, ‘The party’s over: The role of earnings guidance in resolving sentiment-driven overvaluation’ (2012) 12 *Man. Sci.* 308.

<sup>102</sup> Chris S. Armstrong and Rahul Vashishtha, ‘Executive Stock Options, Differential Risk-Taking Incentives, and Firm Value’ (2012) 104 *J. Fin. Econ.* 70.

<sup>103</sup> *Supra.* Chapter 2.

<sup>104</sup> Jesse M. Fried, ‘Reducing the Profitability of Corporate Insider Trading through Predating Disclosure’ (1998) 71 *S. Cal. L. Rev.* 303, 315; J. Seligman, ‘The Reformulation of Federal Securities Law Concerning Nonpublic Information’ (1985) 73 *Geo. L. J.* 1083, 1095-1096.

<sup>105</sup> Callaghan et al, *The Timing of Option Repricing.*

<sup>106</sup> Avgouleas, *Mechanics and Regulation* 97.

<sup>107</sup> *Supra.* Chapter 2.

<sup>108</sup> David C. Cicero, ‘The Manipulation of Executive Stock Option Exercise Strategies: Information Timing and Backdating’ (2009) 64 *J. Fin.* 2627 (hereinafter Cicero, *Manipulation of Options*); David Aboody, John S. Hughes, Jing Liu, and Wei Su, ‘Are executive stock option exercises driven by private information?’ (2008) 13 *Rev. Acc. Stud.* 551; David Yermack, ‘Good timing: CEO stock option awards and company news announcements’ (1997) 52 *J. Fin.* 449.

<sup>109</sup> David Aboody and Ron Kasznik, ‘CEO stock option awards and the timing of corporate voluntary disclosures’ (2000) 29 *J. Acc. Econ.* 73.

of grants at the lowest price of any particular month. These so-called ‘lucky’ grants “are associated with higher CEO compensation from other sources, and are correlated with a lack of majority independent directors on the board, no independent compensation committee with an outside blockholder, or a long-serving CEO.”<sup>110</sup> Further, executives may use private information to maximise the value of those grants; Cicero finds “strong evidence that executives [time] option exercises relative to private information to enhance the returns from [their] exercise strategies...”<sup>111</sup> Bebchuk and Fried summarise thus: “Like managers with control over the timing of their option grants, managers with control over the timing of disclosures and earnings accruals receive options with an exercise price below the company’s true value at the grant date.”<sup>112</sup>

It is, of course, the preoccupation with short-term price movements in financial markets which leads to concerted efforts to manipulate earnings, manage accounting figures or time the announcement of price-sensitive information. Incentive problems in contracts mean that the management of firms attempt to present information in the most beneficial light possible.<sup>113</sup> The link between the stock price of the relevant firm and executives’ personal enrichment is contingent on the quality of information disseminated to the market; thus, executives may use bogus or selective information to artificially augment prices. Equity-based compensation thus contains incentives which engender market manipulation. That both earnings restatements and equity-based compensation increased significantly throughout the 1990s indicates a link between short-termism in markets and information quality and “corroborates [the] interpretation that managerial behaviour changed, because [of] a significant change in motive.”<sup>114</sup> Stock options and other performance-based compensation awards were designed to mitigate the problems inherent in the principal-agent relationship; instead, they provide executives with the incentives to manage information and engage in practices which, over the long-term are destructive to shareholder value. This has serious implications for market efficiency and the integrity of the market pricing mechanism.

---

<sup>110</sup> Lucian A. Bebchuk, Yaniv Grinstein and Urs Peyer, ‘Lucky CEOs and Lucky Directors’ (2010) 65 J. Fin. 2363.

<sup>111</sup> Cicero, *Manipulation of Options* 2628.

<sup>112</sup> Bebchuk and Fried, *Pay Without Performance* 164.

<sup>113</sup> Lucian A. Bebchuk, Jesse M. Fried and David I. Walker, ‘Managerial Power and Rent Extraction in the Design of Executive Compensation’ Harvard Law School Discussion Paper No. 366 (June 2002).

<sup>114</sup> John C. Coffee, ‘Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms’ (2004) 84 B.U. L. Rev. 301, 315.

The next section of the chapter shall discuss how adherence to a strict view of enhancing shareholder value (often through distorted reporting of corporate performance) when combined with reliance on market discipline to regulate conduct resulted in the destruction of billions of dollars in stockholder value in the most infamous corporate scandal in history: Enron. As Stout notes, there “[are] ironic aspects ... to [the] prediction that [the focus on shareholder value] would prove permanent. For one thing ... Enron’s collapse provided a dramatic object lesson in the perils of management obsession with share price.”

### 3.2.2.1 The Enron story

The story of Enron provides a clear example of the failure of Anglo-American governance to effectively regulate the governance processes in modern corporations and the short-circuiting of performance-based executive compensation. The Enron collapse of 2002 is probably the most discussed corporate scandal in history. It was also one of the costliest – Enron had, at its peak, a market capitalization of \$70 billion.<sup>115</sup> The collapse occurred after the company admitted that financial reporting irregularities existed in relation to its accounts from 1997 to 2000. These accounting irregularities were largely in relation to Special Purpose Entities (‘SPEs’) that Enron used to boost its revenues through an artificial accounting technique.<sup>116</sup> Exploiting inconsistencies in US accounting rules, Enron managed to prevent the debts of its SPEs from being included in its consolidated financial statements. These gave the appearance that Enron had substantially greater cashflows than was truly the case, whilst simultaneously enhancing its perceived capital reserves.<sup>117</sup> This garnered for the company a number of fiscal benefits which it would not otherwise have enjoyed, particularly the investment-grade

---

<sup>115</sup> As at August, 2000.

<sup>116</sup> Steven L. Schwarcz, ‘Enron and the Use and Abuse of Special Purpose Entities in Corporate Structures’ (2002) 70 U. Cin. L. Rev. 1309.

<sup>117</sup> As noted by Powers: “the Raptors [Enron’s SPEs] were designed to make use of forecasted future growth of Enron’s stock price to shield Enron’s income statement from reflecting future losses incurred on merchant investments’ such as the Rhythms shares ... [However] [t]his strategy of using Enron’s own stock to offset losses runs counter to a basic principle of accounting and financial reporting: except under limited circumstances, a business may not recognize gains due to the increase in the value of its capital stock on its income statement.” See William C. Powers, Jr., Raymond S. Troubh and Herbert S. Winokur, *Report of Investigation by the Special Investigative Committee of the Board of Directors of Enron Corp.* (1 February 2002) 98.

credit rating it received from the bond-rating agencies.<sup>118</sup> Its access to borrowing was therefore more easily facilitated and it received more generous credit terms than if the true extent of its liabilities had been known. The manipulation of corporate accounts allowed senior management to perpetuate their conduct and continue to extract wealth from the company, largely through the utilization of stock options, gains from which were generated through an illusory stock price.<sup>119</sup>

### 3.2.2.2 The role of executive compensation at Enron

Enron is a first-rate exposition of the problems of an incentive systems focused on share price performance; excessive compensation of executives based on the short-term creation of shareholder value with the approval of the Enron board was highlighted as a fundamental driver of the company's failure.<sup>120</sup> Whilst Enron's share price performed remarkably until 2001, the stock value was based to a great extent upon false and misleading financial information. Yet, until recent reforms were made to the regulation of compensation systems,<sup>121</sup> even after a company conceded errors in its accounts, executives were permitted, in most cases, to keep their compensation.<sup>122</sup>

Enron's remuneration culture mimicked the dominant compensation trend of the 1990s; it was geared to rewarding executives by stock-performance-based pay, especially

---

<sup>118</sup> Enron's credit rating in early 2001 was classed as Baa1 by Moody's and BBB by Standard & Poors. Whilst these are at the lower range of the investment-grade level, it is submitted that had Enron's true financial position been revealed, these ratings would have been much lower. Sources: Loren Fox, *Enron: The Rise and Fall* (Wiley 2003) 130 (hereinafter Fox, *Enron: The Rise and Fall*); William H. Niskanen (ed), *After Enron: Lessons for Public Policy* (Rowman & Littlefield 2007) 201 (hereinafter Niskanen (ed), *After Enron*).

<sup>119</sup> Jerry W. Markham, *A Financial History of Modern US Corporate Scandals: From Enron to Reform* (Sharpe 2006).

<sup>120</sup> "The Enron Board of Directors approved excessive compensation for company executives, failed to monitor the cumulative cash drain caused by Enron's 2000 annual bonus and performance unit plans, and failed to monitor or halt abuse by Board Chairman and Chief Executive Officer Kenneth Lay of a company-financed, multi-million dollar, personal credit line." See *The Role of the Board of Directors in Enron's Collapse*, Report prepared by the Permanent Subcommittee on Investigations of the Committee in Governmental Affairs, United States Senate, 107<sup>th</sup> Congress 2d Session, Report 107-70 (8<sup>th</sup> July 2002) 3 (hereinafter US Senate, *The Role of the Board of Directors in Enron's Collapse*).

<sup>121</sup> Discussed *infra*. Chapter 6.

<sup>122</sup> In relation to Enron, prior to its eventual collapse, Enron's senior executives sold over \$1.1 billion in stock between 1999 and 2001. In the case of Enron, very few executives ever returned the financial gains they received as the result of accounting manipulation. One exception was Enron's former President Jeff Skilling, who sold almost \$60 million of his stake in the company in 2001. In 2006, Skilling was sentenced to 24 years and four months in prison, and fined \$45 million. See Alexei Barrionuevo, 'Enron Chiefs Guilty of Fraud and Conspiracy' *New York Times* (New York, 25 May 2006).

through the use of options<sup>123</sup>, thus theoretically complying with the mantra of shareholder value theory. The object for Enron management was to ensure that the stock price would rise, as their personal rewards were often linked to the firm's share price.<sup>124</sup> To do this, Enron focused on increasing its revenues to promote the appearance of high growth.<sup>125</sup> Where the company exceeded analysts' earnings expectations for growth, the stock price would normally rise. As a result, a pathological obsession with meeting or exceeding analysts' expectations developed, as well as for finding new avenues through which to expand. A 'cut-throat'<sup>126</sup> corporate culture developed at the corporation, where employees were subject to a system of incentives and sanctions which emphasised the importance of enhancing earnings.

Under this pressure to increase earnings, Enron's average annual revenue growth amounted to 65 percent, which translated into significant stock price appreciation<sup>127</sup> and thereby contributed to large employee compensation.<sup>128</sup> Incentives at Enron were "designed to tie executive performance directly to the creation of shareholder wealth"<sup>129</sup> yet share price increases were based on fictitious data and the proceeds from the

---

<sup>123</sup> Andrew Cornford, 'Enron and Internationally Agreed Principles for Corporate Governance and the Financial Sector' (hereinafter Cornford, *Enron and Internationally Agreed Principles*) in Paul H. Dembinski, Carole Lager, Andrew Cornford and Jean-Michel Bonvin (eds), *Enron and World Finance: A Case Study in Ethics* (Palgrave MacMillan 2006) 27.

<sup>124</sup> "Enron's board increased the incentives for executives to bet shareholders' money on speculative ventures by granting huge numbers of options." See Frank Partnoy, *Infectious Greed: How Deceit and Risk Corrupted the Financial Markets* (Profile 2003) 306. In 1998 alone, Enron awarded 16 million stock options. See Enron Annual Report 2000, 45.

<sup>125</sup> "Enron used revenues – not profits – as its primary financial objective, performance driver, and measure of success." See Bala G. Dharan and William R. Bufkins, 'Red Flags in Enron's Reporting of Revenues and Key Financial Measures' (hereinafter Dharan and Bufkins, *Red Flags at Enron*) in Nancy Rapoport and Bala G. Dharan (eds) *Enron: Corporate Fiascos and Legal Implications* (Foundation Press 2004).

<sup>126</sup> John Dobson, 'Enron: The Collapse of Corporate Culture' in Paul H. Dembinski, Carole Lager, Andrew Cornford and Jean-Michel Bonvin (eds), *Enron and World Finance: A Case Study in Ethics* (Palgrave MacMillan 2006).

<sup>127</sup> Enron was, at its peak, the seventh largest listed company in the United States.

<sup>128</sup> Enron's remuneration committee in 2001 awarded 65 executives a total of \$750 million in 2000, which compared with Enron's net income in that year of \$975 million. See Michael Useem, 'Corporate governance is directors making decisions: reforming the outward foundations for inside decision-making' (2003) 7 J. Man. Gov. 241, 246. This was justified on the basis that: "Enron is increasing earnings per share and continuing our strong returns to shareholders. Recurring earnings per share have increased steadily since 1997 and were up 25 percent in 2000. The company's total return to shareholders was 89 percent in 2000, compared with a negative 9 percent returned by the S&P 500. The 10-year return to Enron shareholders was 1,415 percent compared with 383 percent for the S&P 500." See Enron Annual Report 2000, 4.

<sup>129</sup> Enron Corp. Definitive Proxy Statement, 2001, 14.

exercise of stock options was excessive.<sup>130</sup> The focus on short-term profiteering is epitomised by an extract from an Enron training manual on derivatives trading:

“Reported earnings follow the rules and principles of accounting. The results do not always create measures consistent with underlying economics. However, corporate management’s performance is generally measured by accounting income and not underlying economics.”<sup>131</sup>

The message to company management from such tutelage was clear: accounting figures could be presented in a manner to provide a fillip for reported earnings income, even if these figures did not accurately represent the true economic position of the company.<sup>132</sup> Moreover, this extract condones the notion that the presentation of economic data need not be faithful where it will appear to impinge on corporate management’s performance.<sup>133</sup> Enron’s gross profit margins, in contrast to its revenues, declined from 21.2 percent in 1996 to 6.2 percent in 2000, despite its reported earnings increasing by 750 percent over the same period.<sup>134</sup> Net profits at the company were, in fact, illusory: Enron’s profits of 2000 were revealed by its bankruptcy examiner to have been overstated by 95 percent.<sup>135</sup> Enron’s return on equity (profits per share) was the lowest

---

<sup>130</sup> Stephen G. Driggers, ‘Executive Compensation and Employee Retirement Plans at Enron’ in Julia K. Brazelton and Janice L. Ammons (eds) *Enron and Beyond: Technical Analysis of Accounting, Corporate Governance and Securities Issues* (Commerce Clearing House 2002).

<sup>131</sup> This quote is derived from Paradigm Associates Group, the authors of an Enron Capital & Trade Resources Training Manual 1996-97, ‘Derivatives I: Introduction’ cited in Fox, *Enron: The Rise and Fall* 130.

<sup>132</sup> “The Enron Board of Directors knowingly allowed Enron to conduct billions of dollars in off-the-books activity to make its financial condition appear better than it was, and failed to ensure adequate public disclosure of material off-the-books liabilities that contributed to Enron’s collapse.” US Senate, *The Role of the Board of Directors in Enron’s Collapse* Finding 4. Enron’s use of mark-to-market accounting allowed it to artificially present future revenues from trades as current revenues: “...Enron reported the entire value of each trade on which it was a counterparty as its revenue, rather than reporting as revenues only its trading or brokerage fees. Traditional trading firms such as Goldman Sachs and Merrill Lynch use a more conservative ‘agent model’ of revenue reporting, in which only the trading or brokerage fee would be reported as revenue ... The ... effect of [this] was that Enron’s revenues and cost of goods sold, reported in the income statement were increased as much as fifty times compared to what they would have been under more traditional accounting...[If Enron had used the more conservative accounting model its] reported revenues [would have dropped] to \$6.3 billion in 2000 instead of the reported \$100.8 billion.” See Dharan and Bufkins, *Red Flags at Enron* 102-103.

<sup>133</sup> “The Enron Board of Directors knowingly allowed Enron to conduct billions of dollars in off-the-books activity to make its financial condition appear better than it was and failed to ensure adequate public disclosure of material off-the-books liabilities that contributed to Enron’s collapse.” US Senate, *The Role of the Board of Directors in Enron’s Collapse*.

<sup>134</sup> Enron Annual Report, 2000; Enron Annual Report, 1996.

<sup>135</sup> Second Interim Report of Neal Batson, Court-Appointed Examiner, In re. Enron Corp., No. 01-16034 (Bankr. S.D.N.Y Jan. 21, 2003).

amongst its peer group, yet executive compensation appreciated year-on-year because of its focus on ‘earnings per share’ rather than on net profit.<sup>136</sup>

The rewards at stake were considerable.<sup>137</sup> The average total compensation in 2002 for a CEO of a \$100 billion company was \$25 million.<sup>138</sup> In contrast, Ken Lay, CEO of Enron received \$40.8 million in 2000, a package 62 percent higher than the average for his peer group.<sup>139</sup> Further, “[m]any of the transactions associated with ... manipulation were also associated with self-dealing by Enron executives, leading to substantial personal enrichment.”<sup>140</sup> Perversely therefore, the incentive systems at Enron led management to engage in long-term value-destroying actions to maintain overvalued the company’s overvalued stock price in the short run.<sup>141</sup> As an example of this, the financial strategy that Enron embarked upon in 2001 – and the market valuation that supported this – required the company to grow its free cash flow by 91 percent every year for six years.<sup>142</sup> This pursuit of market valuation was driven by increasing earnings which directly impacted on compensation levels. The only way Enron’s management could achieve this sort of growth was to engage in earnings management. Moreover, the board of directors was complicit in allowing these practices to take root and flourish: the board failed to constructively challenge management or attend to its duties<sup>143</sup> demonstrating an acute failure of market-based regulation:

---

<sup>136</sup> “Enron is laser-focused on earnings per share, and we expect to continue strong earnings performance.” Enron Annual Report 2000, 2.

<sup>137</sup> For example, the company entered into deals with several external partnerships which were, in reality, puppets of the Chief Financial Officer, Andrew Fastow. These deals involved sales by Enron to ‘related parties’ at overinflated values. Enron’s CFO earned commission on the sales; Fastow’s compensation from these partnerships was \$45 million in just two years (this figure did not include his remuneration from Enron itself). This compensation was based on sales to the partnerships which were, ultimately, financially neutral and did not create any value for shareholders: “Despite clear conflicts of interest, the Enron Board of Directors approved an unprecedented arrangement allowing Enron’s Chief Financial Officer to establish and operate the LJM private equity funds which transacted business with Enron and profited at Enron’s expense. The Board exercised inadequate oversight of LJM transaction and compensation controls and failed to protect Enron shareholders from unfair dealing.” US Senate, *The Role of the Board of Directors in Enron’s Collapse* Finding 3.

<sup>138</sup> Hewitt Associates, *Total Compensation Measurement, Executive Long-Term Incentives and Regression Analysis Report, 2002* (April 2002).

<sup>139</sup> Enron Annual Report, 2000.

<sup>140</sup> *Id.* 21.

<sup>141</sup> “The Enron Board of Directors approved excessive compensation for company executives, failed to monitor the cumulative cash drain caused by Enron’s 2000 annual bonus and performance unit plans, and failed to monitor or halt abuse by Board Chairman and Chief Executive Officer Kenneth Lay of a company-financed, multi-million dollar, personal credit line.” See US Senate, *The Role of the Board of Directors in Enron’s Collapse* Finding 5.

<sup>142</sup> Jensen, *Overvalued Equity*.

<sup>143</sup> Enron’s auditor, Arthur Andersen, also failed to monitor effectively the corporation’s financial transactions. See John C. Coffee, *Gatekeepers: The Professions and Corporate Governance* (OUP 2006);



“Much of what was wrong at Enron was not concealed from its Board of Directors. High-risk accounting practices, extensive undisclosed off-the-books transactions, inappropriate conflict of interest transactions, and excessive compensation plans were known to and authorized by the Board.”<sup>144</sup>

### 3.2.2.3 Lessons from Enron

The failure of Enron and other companies highlighted the shortcomings of the model of corporate governance adopted in Anglo-American markets and the problems associated with reliance on market discipline. The use of compensation targets overtly-focused on short-term performance provided incentives for management of a multinational company to engage in accounting malpractice, earnings management and fraud. As noted by Jensen, Enron could have been a successful company had its proposed expansion rates not been pursued so aggressively.<sup>145</sup> One of the prime motivations for executives at the firm to engage in this pursuit was the substantial remuneration available at the company. The shackles in management compensation, released following the LBO revolution, produced an environment in which market short-termism incentivised corporate employees to engage in value-destroying strategies and severely corroded faith in public securities markets.

The factors just discussed lend credence to the notion that financial incentives can lead to serious distortions in the efficiency of market valuation of firms thanks to an excessive over-reliance on short-term performance targets. Shareholder value theorists had contended that external monitoring of corporations was unnecessary in capital markets because managerial incentives, shareholder monitoring of executives, and the market for corporate control would replicate the effects of external regulation.<sup>146</sup> However, excessive focus on the share performance of companies leads to damaging

---

Christine Earley, Kate Obadashian and Michael Willenborg, ‘Corporate Governance and Professional Ethics Post-Enron: Some Thoughts on the Audit Failure at Enron, the Demise of Andersen and the Ethical Climate of Public Accounting Firms’ (2003) 35 Conn. L. Rev. 1013.

<sup>144</sup> US Senate, *The Role of the Board of Directors in Enron’s Collapse* 14.

<sup>145</sup> “My guess is that at the time of Enron’s peak market value of \$70 billion, the company was actually worth about \$30 billion. It was a good, viable business; the company was a major innovator. But senior managers’ efforts to defend the \$40 billion of excess valuation (which was nothing but a mistake that was going to go away anyway) effectively destroyed the \$30 billion core value.” See Jensen, *Overvalued Equity* 4.

<sup>146</sup> The weaknesses of this view were discussed *supra*. Chapter 2.

short-termism.<sup>147</sup> Share-price governance promoted an “[e]xcessive focus on quarterly results, scarce attention to value-creation strategies, and failure to probe deeply enough into long-term performance...”<sup>148</sup> This can result in overvalued equity<sup>149</sup> which rewards management in the short-term but penalizes shareholders in the long-term. Where executives are able to inflate short-term earnings through accounting techniques such as premature revenue recognition, they will be able to capture short-term appreciations in stock price and exercise their options to sell. This will leave the residual shareholders as bearers of the losses when the stock price invariably deflates.<sup>150</sup> This may not only impair executives’ view of the long-term health of the company but may also encourage them to engage in behaviour which undermines the system of pay-for-performance.<sup>151</sup>

The result is often distortion of information provided to investors by companies and, in some cases, the collaboration of analysts with this distortion.<sup>152</sup> It also drives management to pursue strategies which are not in the long-term interests of the company. For example, projects at companies which guarantee short-term income streams might be favoured over other projects which might be more sustainable yet would not impact on company share-price over the short-term. The problems that this causes for business in Anglo-American markets are significant: market short-termism “undermines confidence in the soundness of the underlying economy, favors opacity on strategic goals, and encourages opportunistic behaviors by a few to the detriment of the many.”<sup>153</sup> This has led some theorists to reject the predominant remuneration paradigm:

“[We] must give employees and managers a structure that will help them resist the temptation to maximize short-term financial performance (as typically measured by accounting profits or, even worse, earnings per share). Short-term profit maximization at the expense of long-term value creation is a sure way to destroy value.”<sup>154</sup>

---

<sup>147</sup> Other massive corporate governance failures occurred at around the same time as Enron’s collapse. WorldCom, Parmalat, Tyco and Global Crossing were amongst the most notable.

<sup>148</sup> Matteo Tonello, ‘Revisiting Stock Market Short-Termism’ *The Conference Board Research Report No. R-1386-06-RR* (April 2006) 5 (hereinafter Tonello, *Revisiting Short-Termism*).

<sup>149</sup> A concept discussed in detail *infra*. Chapter 4.

<sup>150</sup> *Id.* 20.

<sup>151</sup> Michael C. Jensen, ‘Corporate Budgeting is Broken – Let’s Fix It’ (2001) *Harv. Bus. Rev.* 94.

<sup>152</sup> Gene D’Avolio, Efi Gildor and Andrei Shleifer, ‘Technology, Information Production, and Market Efficiency’ Harvard Institute of Economic Research Paper No. 1929 (September 2001).

<sup>153</sup> Tonello, *Short-Termism* 5.

<sup>154</sup> Michael C. Jensen, ‘Value Maximization, Stakeholder Theory, and the Corporate Objective Function’ (2001) 14 *J. Appl. Corp. Fin.* 8, 16.

### 3.2.3 The Sarbanes-Oxley Act 2002

The response to corporate governance scandals was to demand further scrutiny of the relationships between board members and firm executives, and a renewed emphasis on the importance of accurate financial disclosure, which led to the Sarbanes-Oxley Act 2002<sup>155</sup> ('SOX'). The corporate malaise in the U.S was deemed so dangerous that "Congress was prepared to ignore entirely such best practice notions and rely on an entirely different model of corporate governance when it saw a clear need to control specific types of management opportunism."<sup>156</sup> In relation to the compensation of corporate officers and directors, the following explicit provisions were enacted:

- (a) SOX prohibits outright any publicly held corporation from making loans to its directors or officers;<sup>157</sup>
- (b) SOX forces the executive and financial officers of every public company to certify each periodic report filed or submitted to the SEC.<sup>158</sup> SOX amended the U.S Criminal Code to require each periodic report containing financial statements to be certified by the CEO and CFO of the company;<sup>159</sup> this statement must "fairly present in all material respects the financial conditions and results of operations of the issuer"<sup>160</sup> and makes it a federal crime to do so "knowing" that the financial statements are inaccurate<sup>161</sup>;
- (c) SOX forces the CEO and CFO of any publicly held corporation that is required to file a financial restatement "due to the material non-compliance of the issuer, as a result of misconduct, with any financial reporting requirement under the securities laws" to reimburse the corporation for any bonuses received or profits from stock sales realized in the 12 month period following the restatement;<sup>162</sup>
- (d) SOX prohibits directors and executive officers from selling company stock<sup>163</sup> during benefit plan 'black-out periods'<sup>164</sup>;
- (e) SOX makes it unlawful for any officer or director to pursue conduct "to fraudulently influence, coerce, manipulate, or mislead" the corporation's auditor.<sup>165</sup>

---

<sup>155</sup> Public Company Accounting Reform and Investor Protection Act of 2002, Pub. L. No. 107-204, 116 Stat. 745 (July 30, 2002) (hereinafter *Sarbanes-Oxley Act 2002*).

<sup>156</sup> Alton B. Harris and Andrea S. Kramer, 'Corporate Governance: Pre-Enron, Post-Enron' in Niskanen (ed), *After Enron* 72.

<sup>157</sup> Sarbanes-Oxley Act 2002 § 402.

<sup>158</sup> *Id.* § 302.

<sup>159</sup> *Id.* § 906.

<sup>160</sup> *Id.* § 302.

<sup>161</sup> *Id.*

<sup>162</sup> *Id.* § 304.

<sup>163</sup> *Id.* § 306.

<sup>164</sup> In relation to stock options, a black-out period is one in which there is a restriction on exercising the right to sell an option.

<sup>165</sup> Sarbanes-Oxley Act 2002, § 303.

The Sarbanes-Oxley Act 2002 was thus envisaged to bring greater protection to investors in public companies by improving disclosure channels and punishing officer and director complicity or negligence in the preparation of corporate accounts. The purpose of the Act was envisaged to be the "...protect[ion] [of] investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws..."<sup>166</sup> One of the key measures of SOX was that it required claw-back of incentive-based compensation in the event of a financial restatement. This was designed of course to promote the accuracy of corporate accounts.<sup>167</sup> However, as the GFC demonstrated, the legislative response did not address the fundamental weaknesses in corporate governance in American Anglo-American markets.

One cause of SOX's failure to alter conduct was that following its passage, "many firms went private to avoid the scrutiny of compensation"<sup>168</sup> required by the law. However, its fundamental flaw was that it focused entirely on improving corporate disclosure by penalizing conduct which might give rise to accounting misstatements. This focus was too narrow: there are many ways of producing short-term profits which do not involve accounting tricks or fraudulent financial reporting. Thus, SOX missed the salient weakness in executive compensation contracts which manifested prior to the GFC; these contracts provided incentives for executives to pursue strategies which would allow them to benefit from short-term positive changes in firm value whilst generating latent issues which might cripple their firms in later years. SOX ought to have focused on reforming the methods through which executives were paid; instead it provided severe penalties for individuals engaging in accounting manipulation.<sup>169</sup>

Therefore, less than a decade after Enron and the passage of SOX, Anglo-American markets experienced yet another crisis in corporate governance – the GFC – in which investors in public companies lost trillions of dollars. Many of the symptoms of the

---

<sup>166</sup> Sarbanes-Oxley Act 2002 (Long Title).

<sup>167</sup> Sanjai Bhagat and Roberta Romano, 'Reforming Executive Compensation: Focusing and Committing to the Long-Term' (2009) 26 Yale J. Reg. 359. This had the perverse effect of decreasing pay-for-performance; in lieu of forfeitable bonus compensation, executives were granted larger base salaries. See Daniel A. Cohen, Aiyesha Dey and Thomas Z. Lys, 'The Sarbanes-Oxley Act of 2002: Implications for Compensation Structure and Managerial Risk-Taking' (November 2007) available at [ssrn.com/sol3/papers.cfm?abstract\\_id=568483](http://ssrn.com/sol3/papers.cfm?abstract_id=568483) accessed 10/05/12.

<sup>168</sup> Remarks of Hamid Mehran, 'Columbia Symposium, Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium' Columbia Business School (27-28 March 2010) available at [www4.gsb.columbia.edu/rt](http://www4.gsb.columbia.edu/rt) accessed 20/06/12.

<sup>169</sup> Alton B. Harris and Andrea S. Kramer, 'Corporate Governance: Pre-Enron, Post-Enron' in Niskanen (ed), *After Enron* 77.

Enron crisis were present in the GFC (albeit, on a much larger scale), for example: excess executive compensation; poorly designed incentives; dubious risk-management; short-termist attitudes to corporate performance; accounting malpractice; and extreme leverage.<sup>170</sup> The GFC revealed that the principles which operated to regulate corporate conduct, derived as they were from codes of best practice rather than prescriptive legal controls, had failed. SOX did not tackle the incentive problems created by executive compensation, which permitted executives to continue to extract rents from their principals based largely on the achievement of short-term performance targets and an inadequate market pricing mechanism, which shall be discussed in detail in Chapters Four and Five.<sup>171</sup> This resulted in the conduct of firm executives to remain largely unfettered until the banking collapses of 2008.

The following section addresses further weaknesses in the use of stock options and stock-based performance awards which are based not on failures to address behavioural opportunism by corporate managers, but are driven by the distortions which arise in the operation of equity markets.

### **3.3 IMPERFECT MARKETS: A DEEPER FLAW IN STOCK PRICE-BASED GOVERNANCE**

The previous sections have highlighted the theoretical justification for the advent of performance-based pay and discussed some the obstacles to the effective implementation of measures designed to support this paradigm. The obstacles discussed previously are largely related to the power that senior management enjoys over the company as a direct consequence of the operation of the firm or flaws in the design of compensation contracts. In other words, they comprise behavioural factors relating to executive pay arrangements.

This section shall address the concept that managerial pay is decoupled from performance due to factors beyond the control of management, the board of directors or the shareholders, due either to the operation of global or regional stock markets, or

---

<sup>170</sup> Discussed *infra*. Chapter 5.

<sup>171</sup> *Infra*. Chapters 4 and 5.

through stock prices which are fundamentally inefficient.<sup>172</sup> The first weakness is that executives often capture windfalls through stock-related compensation which are not firm-specific; instead they are derived from rising equity markets or sector-specific increases in firm valuations. Where these pay awards are not bench-marked to competitor companies, executives may capture remuneration which is unrelated to their performance. The second weakness is the concept of intrinsically-flawed market pricing, which provides a deep fissure in the pay-for-performance paradigm. The second part of this section shall introduce this factor, before a substantive critique of market pricing is conducted in subsequent chapters.<sup>173</sup>

### 3.3.1 Sector-wide rather than firm-specific performance

Managers may be rewarded for increased stock prices which are not a consequence of their performance, but instead are driven by sector-wide trends. As noted by Bebchuk and Fried: “While connecting pay to executives’ relative performance can provide good incentives, tying pay to stock price or earning increases that are unrelated to executives’ effort does not.”<sup>174</sup> The share price of a firm may seem a useful tool for evaluating executive performance; however, changes in the stock price of a firm may not necessarily reflect the performance of senior executives.<sup>175</sup>

Criticisms of this system abound; why ought individual firm corporate management benefit from sector-wide price increases? A company’s stock price may rise or fall based on a plethora of interdependent factors.<sup>176</sup> External factors which drive executive pay may be strongly associated with the stock price of firms in sectors which experience

---

<sup>172</sup> See *infra*. Chapter 4 for a full discussion of this concept.

<sup>173</sup> See *infra*. Chapters 4 & 5.

<sup>174</sup> Bebchuk and Fried, *Pay Without Performance* 123.

<sup>175</sup> Warren Buffett, one of the world’s leading investors commented in his Letter to Shareholders in Berkshire Hathaway, 1985 that: “Of course, stock options often go to talented, value-adding managers and sometimes deliver them rewards that are perfectly appropriate. (Indeed, managers who are really exceptional almost always get far less than they should.) But when the result is equitable, it is accidental. Once granted, the option is blind to individual performance. Because it is irrevocable and unconditional (so long as a manager stays in the company), the sluggard receives rewards from his options precisely as does the star ... Ironically, the rhetoric about options frequently describes them as desirable because they put managers and owners in the same financial boat. In reality, the boats are far different. No owner has ever escaped the burden of capital costs, whereas a holder of a fixed-price option bears no capital costs at all. An owner must weigh upside potential against downside risk; an option holder has no downside. In fact, the business project in which you would wish to have an option frequently is a project in which you would reject ownership.”

<sup>176</sup> Interest rate rises, for example, reduce stock market value as investors move funds from stocks into savings accounts.

growth which is due to factors extrinsic to the actions of any manager or firm.<sup>177</sup> CEO pay, for example, is at least as sensitive to exogenous factors ('luck') as to individual performance ('skill').<sup>178</sup> One study indicates that only 30 percent of the movement of a company's stock price is driven by corporate performance; the remaining 70 percent is reflective of general market conditions.<sup>179</sup> Rappaport<sup>180</sup> provides further support for this. In relation to the bull market of 1995-97, he notes: "Executives with fixed-price options enjoyed a huge windfall from the long-running bull market that was fueled not only by corporate performance but also by factors beyond management control, such as declining inflation and lower interest rates."<sup>181</sup> However, equity-based compensation is rarely corrected for industry or market sector stock index movements.<sup>182</sup> The structure of executive compensation in most firms results in the potential for executives to be rewarded for average or mediocre performance. This is because, in most cases, the exercise price of the option is fixed at the date of the grant and remains fixed for the entire option period; often as much as ten years. Executives holding options cash in on the gains if the share price rises above the exercise price. Therefore, fixed-price options reward executives for any increase in the stock price of their firms, even if the increase is below or only comparable to their competitor firms or the market as a whole.<sup>183</sup>

Of course, markets may experience negative movements entirely unrelated to the performance of a particular executive or CEO which impacts their potential remuneration.<sup>184</sup> However, as noted by Bebchuk and Fried, "At worst negative shocks would make the managers' options worthless. On the other hand, positive shocks can boost the value of options by an unlimited amount ... On average, market and sector

---

<sup>177</sup> Perhaps the most apposite example of this was the growth in the technology market around the year 2000, often referred to as the 'dot.com boom', which is discussed *infra*. Chapter 4.

<sup>178</sup> Marianne Bertrand and Sendhil Mullainathan, 'Are CEOs Rewarded for Luck? The Ones without Principals Are' (2001) 116 Q. J. Econ. 901.

<sup>179</sup> SCA Consulting Study cited in Simon Patterson & Peter Smith, 'How to Make Top People's Pay Reflect Performance' *The Sunday Times* (London, 9 August 1998).

<sup>180</sup> Alred Rappaport, 'New Thinking on How to Link Executive Pay With Performance' (1999) 77 Harv. Bus. Rev. 91 (hereinafter Rappaport, *New Thinking*).

<sup>181</sup> *Id.* 92.

<sup>182</sup> John E. Core, Wayne R. Guay and David F. Larcker, 'Executive Equity Compensation and Incentives: A Survey' (2003) 9 Econ. Pol. Rev. 27; Lucian A. Bebchuk, Jesse M. Fried and David I. Walker, 'Executive Compensation in America: optimal contracting or extraction of rents?' NBER Working Paper Series No. 8661 (December 2001); John M. Abowd and David S. Kaplan, 'Executive Compensation: Six Questions That Need Answering' (1999) 13 J. Econ. Persp. 145.

<sup>183</sup> *Id.* 93.

<sup>184</sup> R. Glenn Hubbard, 'Pay Without Performance: A Market Equilibrium Critique' (2005) 30 J. Corp. L. 717.

volatility adds value to managers' conventional options."<sup>185</sup> Research further shows that executives benefit more from good sector performance than they lose from poor sector performance.<sup>186</sup> It is also clear that CEOs and senior executives design compensation packages which expropriate rents from their firms which remain non-sensitive to performance.<sup>187</sup>

### 3.3.1.1 Indexed Options

One solution to this issue might be to design stock options which screen out the market trend effects exerted on stock prices<sup>188</sup> through relative performance evaluation ('RPE'), or indexed options;<sup>189</sup> that is, the price of options should be adjusted for movements in the particular sector concerned.<sup>190</sup> Under this view, payments related to the price of company stock ought to be calibrated to remove the 'noise' effects in the performance measurement of executives without removing incentives.<sup>191</sup> The exercise price ought to be indexed to appreciation of a company's share price relative to the performance of share prices in the company's peer group.<sup>192</sup>

Indexed options have clear advantages over fixed-price options. Fixed-price options contravene a central axiom of the pay-for-performance paradigm as they fail to insure agents against uncertainty from factors beyond their control whilst simultaneously failing to require superior corporate performance when benchmarked against peers.<sup>193</sup> Unlike fixed-price options, indexed options do not reward the poor relative performance of executives in situations where the market is rising generally. This would make

---

<sup>185</sup> Bebchuk and Fried, *Pay Without Performance* 139.

<sup>186</sup> Gerald T. Garvey and Todd Milbourn, 'Asymmetric Benchmarking in Compensation: Executives are Rewarded for Good Luck But Not Penalized for Bad' (2006) 82 J. Fin. Econ. 197.

<sup>187</sup> Carlos E. Jiménez-Angueira and Nathan V. Stuart, 'CEO Bonuses, Relative Performance Evaluation, and Pay-for-Luck' (September 2010) available at [ssrn.com/abstract=1691154](http://ssrn.com/abstract=1691154).

<sup>188</sup> Ana. M. Albuquerque, 'Peer firms in relative performance evaluation' (2009) 48 J. Acc. Econ. 69.

<sup>189</sup> Robert Gibbons and Kevin J. Murphy, 'Relative Performance Evaluation for Chief Executive Officers' (1990) 43 Ind. Lab. Rel. Rev. 30.

<sup>190</sup> Bebchuk and Fried, *Agency Problem*.

<sup>191</sup> Bengt Homstrom, 'Moral Hazard in Teams' (1982) 13 Bell J. Econ. 74.

<sup>192</sup> Mark A. Clawson and Thomas C. Klein, 'Indexed Stock Options: A Proposal for Compensation Commensurate with Performance' (1997) 3 Stan. J. L. Bus. & Fin. 31 (hereinafter Clawson and Klein, *Indexed Stock Options*).

<sup>193</sup> Shane A. Johnson and Yisong S. Tian, 'Indexed Executive Stock Options' (2000) 57 J. Fin. Econ. 35, 36 (hereinafter Johnson and Tian, *Indexed Options*).



compensation more efficient and preserve shareholder value:<sup>194</sup> the costs of options which do not exclude the effects on stock price resulting from general market swings to shareholder value are as much as 41 percent.<sup>195</sup> Further, indexed options do not penalize strong relative performers in markets which are in decline.<sup>196</sup> Research has demonstrated that indexed options filter out the common risks associated with stock price movements, in both appreciating and depreciating markets.<sup>197</sup>

There are some drawbacks to their use; at present under US accounting rules, companies are not permitted to expense indexed options.<sup>198</sup> Companies would also have to ensure that management remained incentivised appropriately where the financial rewards on offer were more at risk; executives view options as riskier than cash and thus discount proportionately the value of their options.<sup>199</sup> Firms might also have to lower the exercise price of indexed options allowing executives to still profit from performance which does not exceed the market average.<sup>200</sup> This argument carries extra weight when one considers the fact that the probability of realizing a zero payout is much greater than with conventional options.<sup>201</sup> Supporters of indexed options concede that to compensate executives for this increased risk, boards would have to reward executives with more options of this type than conventional options.<sup>202</sup>

Despite these criticisms of indexed options, however, it has been noted:

“While there are a variety of stock option structures designed to accomplish a number of different objectives, the most rational approach attempts to capture the benefits of private company options by creating incentives for the executive to influence the value of the option without transferring unearned value to the

---

<sup>194</sup> Rajesh Aggarwal and Andrew Samwick, ‘Executive Compensation, Strategic Competition, and Relative Performance Evaluation: Theory and Evidence’ (1999) 54 J. Fin. 1999.

<sup>195</sup> James J. Angel and Douglas M. McCabe, ‘Market-Adjusted Options for Executive Compensation’ (2005) 4 Gl. Econ. Rev. 1.

<sup>196</sup> Rappaport, *New Thinking* 94.

<sup>197</sup> Johnson and Tian, *Indexed Options*.

<sup>198</sup> Accounting Principles Board, ‘Opinion 25: Accounting for Stock Issued to Employees’ (October 1972) superseded by FASB Statement 123r, para. D7. See Brian J. Hall and Kevin J. Murphy ‘The Trouble with Stock Options’ (2003) 17 J. Econ. Persp. 49.

<sup>199</sup> Executive indexed stock options have an average value of 34 percent of conventional options when calculated on the basis of the Black-Scholes algorithm. See Johnson and Tian, *Indexed Options*; See also Kevin J. Murphy, ‘Explaining Executive Compensation: Managerial Power vs. the Perceived Cost of Stock Options’ (2002) 69 U. Chi. L. Rev. 851 (hereinafter Murphy, *Explaining Executive Compensation*).

<sup>200</sup> ‘Premium options’ may also be used. These options have an exercise price which is fixed at some percentage above the market price on the date of the grant or the exercise price increases periodically at a fixed percentage as time progresses. However, the mechanics in their use suffers from many of the same drawbacks as conventional options.

<sup>201</sup> Murphy, *Explaining Executive Compensation* 863.

<sup>202</sup> Rappaport, *New Thinking* 95.

executives ... the most rational stock option plan is to adjust the exercise price of the stock option up or down, depending on the performance of the index...”<sup>203</sup>

However, despite the apparent logic of this statement, very few firms take steps to condition the vesting of options on the achievement of performance targets. In other words, even where executives do not achieve targets for performance-based awards in other forms, their stock options still vest and, in rising markets, they may profit from increases in share prices.<sup>204</sup> “Options are a free ride for management – no cost, no risk on the down side, only wins – and in those cases where the market goes the wrong way, repricing and a new start.”<sup>205</sup> Defenders of the use of options and stock-based performance awards point to the use of benchmarking pay awards to peer performance.<sup>206</sup> However, assuming the peer company operates in the same areas of the economy as the company in question (which, if not, would seem paradoxical) this does not screen out the effects of sector-driven stock-price growth.<sup>207</sup>

### 3.3.2 Imperfect Markets

Whilst the concept of relating pay to performance is doubtless of utility, the mechanisms discussed make a fundamental assumption concerning the operation of securities markets: that prices reflect value. Each of the solutions suggested to remedy the issue of mitigating the risk generated by the principal-agent problem – even indexed options – is based on the assumptions of standard financial market theory and, by proxy, that securities prices always reflect value; that market prices are flawless. However, this thesis will move to contend that price is not always synonymous with value and that financial and asset markets are susceptible to forces which drive markets away from intrinsic value for protracted periods (resulting in periodic ‘crashes’).

---

<sup>203</sup> Clawson and Klein, *Indexed Stock Options* 47.

<sup>204</sup> In 2003, only 8.5% of US firms made the vesting of stock options in the CEO contingent on him/her meeting performance targets. See Joann S. Lublin, ‘Why the Get-Rich-Quick Days May be Over’ *Wall Street Journal* (New York, 14 April 2002).

<sup>205</sup> Robert A.G. Monks, ‘Executive and director compensation 1984 REDUX’, (1998) 6 Corp. Gov. Int. Rev. 135.

<sup>206</sup> Ellig, *Complete Guide* 70.

<sup>207</sup> Warren Buffett, one of the world’s leading investors has commented that: “There is no question in my mind that mediocre CEOs are getting incredibly overpaid. And the way it’s being done is through stock options.” See Shawn Tully, ‘Raising the Bar’ *Fortune* (London, 8 June 1998) 272.

If prices in the financial system do not always equal value, the limits of stock-based governance in financial institutions are serious and the focus on share price as a criterion of value is highly one-dimensional. The issue is vital to the stability of the financial system: stock-based remuneration provides incentives for executives to inflate the stock-price of their corporations. Executive compensation systems, including the regulation of executive stock-based compensation ignore two crucial points:

- (i) Markets often price risk inefficiently and are vulnerable to behavioural-driven swings in sentiment;
- (ii) Leverage may increase a company's stock price but it does so for the short-term and may expose the company to latent longer-term dangers.

It is because of behavioural factors, discussed in the following chapter<sup>208</sup>, that the instability created by increased leverage is not normally recognised by the market in stock or asset prices. Thus, executive compensation is fundamentally flawed. Moreover, the process is circular: governance systems provide incentives for executives to act in particular ways, but those incentives often reward increased leverage – and leverage breeds instability. Behavioural elements in financial markets limit the market's capacity to regulate the relationship between incentives and financial fragility. Regulation of executive compensation systems may therefore provide extra protection against systemic crises.

### **3.4 CONCLUSION**

This chapter has highlighted the fundamental flaws which blight the use of stock-based compensation as traditionally employed by public corporations. It has noted that incentive-based pay is theorized as a solution to the agency problems which afflict firms and may be used to align the interests of managers and owners to ensure efficient compensation contracts and induce value-enhancing behaviour. The value created by executives for shareholders is the usual yardstick with which to measure performance and therefore incentive-based pay is generally comprised of stock-based bonuses, or direct awards of company shares.

---

<sup>208</sup> *Infra.* Chapter 4.

This chapter noted that these grants have often created perverse incentives for executives to manipulate share prices, or pursue short-term price-boosting strategies that were not in the interests of long-term sustainability, in order to capture rents. This has often involved direct stock price manipulation or the manipulation of corporate disclosure. Several large corporate failures linked to these abuses – most notably in the United States – induced regulatory reform.

However, this chapter has also noted that, notwithstanding the criticisms of current compensation structures, these criticisms neglect a fundamental assumption concerning the operation of market pricing mechanism and thereby the integrity of prices. Where prices are distorted, the pay-for-performance paradigm (where based on the stock price performance of companies) breaks down. The following chapter will thus draw upon research into structural obstacles to market efficiency (transaction costs), behavioural finance and financial systems theory to provide an explanation for the contention that markets are prone to price distortion.

It is to modern finance theory, and its discontents, that this thesis now turns.

## CHAPTER FOUR – MODERN FINANCE THEORY: LIMITS AND ALTERNATIVES

### INTRODUCTION

The previous chapters conducted analyses of corporate governance systems and remunerative mechanisms designed to control risk in the modern corporation. In this chapter, the thesis will widen its focus, and consider the second question posed in its introduction in light of the previous chapters: Why the dominant view of the view in economic theory is flawed in light of alternative theories of asset and securities markets behaviour which explain how market prices may become distorted.

This chapter therefore analyses modern finance theory and the role of bank finance in contemporary economies. The objective of the chapter is to highlight the shortcomings of the prevailing economic paradigm in relation to financial markets and critique a range of methods used as the rationale for current corporate remuneration mechanisms. The focus will be on the proposition that equity markets are prone to influences which drive prices away from intrinsic value, rendering stock prices as inaccurate measures of corporate performance. Previous chapters analysed existing corporate remuneration structures and highlighted the mainstream criticisms of the systems used to calculate pay, especially stock-based compensation. Whilst these criticisms are certainly warranted they do not place the appropriate level of emphasis on market pricing imperfections. This is a most important aspect of remuneration policies as a massive portion of executive compensation is based generally on stock prices and asset price levels.

There are many non-fundamental drivers of stock markets.<sup>1</sup> Some of the most important drivers are investor irrationality,<sup>2</sup> leverage used by financial institutions, and the amount of credit circulating within an economy. As will be demonstrated later in this chapter<sup>3</sup>, leverage-based expansion often boosts stock-prices, but provides the potential for

---

<sup>1</sup> John Heaton and Deborah Lucas, 'Stock Prices and Fundamentals' in Ben S. Bernanke and Julio J. Rotemberg (eds) in *NBER Macroeconomics Annual 1999* (MIT Press, 2000).

<sup>2</sup> Maosen Zhong, Ali F. Darrat and Dwight C. Anderson, 'Do US stock prices deviate from their fundamental values? Some new evidence' (2003) 27 *J. B. Fin.* 673; John Y. Campbell and Robert J. Shiller, 'The dividend-price ratio and expectations of future dividends and discount factors' (1988) 1 *Rev. Fin. Stud.* 195; Terry A. Marsh and Robert C. Merton, 'Dividend variability and variance bounds tests for the rationality of stock market prices' (1986) 76 *Am. Econ. Rev.* 483.

<sup>3</sup> *Infra.* Section 4.4.

instability and collapse in later years. If it can be demonstrated that market prices and, *ceteris paribus*, stock prices are inefficient, this will cast doubt on the rationale for using remuneration mechanisms linked to stock-price performance or market capitalisation, at least in the form these compensation systems take presently.

Section One of the chapter will discuss modern finance theory and the ECMH, which are based upon certain assumptions about investor behaviour. In particular, the ECMH bases its predictive qualities upon the axioms that economic agents always act rationally, that investors adjust their decision-making instantaneously to the production of new information and that risk is computable.<sup>4</sup>

Section Two of the chapter will undertake a critique of the ECMH through analysis of empirical data which undermines its credibility in relation to the operation of financial markets. There has been misplaced reliance on market discipline in constraining risk and providing the basis for financial regulation. Where prices may be shown to not reflect fundamental value, this has serious consequences for the purposes of basing compensation levels on the market capitalization of companies. Impaired price efficiency has a serious distorting effect on the incentive-based element of executive compensation contracts and therefore impacts on market welfare.

Section Three of the chapter will move to consider alternative financial market theories to the ECMH propounded by behavioural economists which provide more appropriate explanations for price distortions in financial markets. These theories use principles drawn from a range of other disciplines including psychology and behaviourism to explicate the swings in asset prices which are quite frequently observed in markets. The conclusions of behavioural finance have serious implications for the use of stock-based incentives.

Section Four of the chapter will consider the rebuttal of neo-classical financial theory by Hyman Minsky, the FIH, which focuses particularly on the potential for asset prices to inflate during times of economic euphoria, leading to increased systemic fragility. The factors discussed contribute significantly to potentially destabilising accruals of

---

<sup>4</sup> In relation to the supposed futility of governmental fiscal policy, for example, neoclassical economic theory holds that "...markets will adjust instantaneously [to new information]. For because expectations are rational, optimizing agents will take predictable countercyclical government fiscal and monetary policy into account in their behaviour. Policy can only have effects if it 'surprises' agents, and rational expectations ensure that policy that systematically surprises agents is not possible." See William Outhwaite (ed), *The Blackwell Dictionary of Modern Social Thought* (Blackwell 2002) 433.

leverage within the financial system, as financial institutions extend credit and engage in financial innovation to undertake expansion. This provides an intellectual basis for speculating that market euphoria and the adoption of excessive leverage may drive markets away from fundamental value, lead to asset bubbles and hamper seriously the market pricing mechanism.

Section Five concludes by synthesizing the research in each area to provide a basis for the conjecture that financial market prices may not necessarily represent value – at least over the short-term – and may be driven by influences which are not catered for by modern finance theory.

#### **4.1 MODERN FINANCE THEORY**

Regulatory approaches to managing risk in markets are dominated by the theories of efficient markets and rational investors. These theories are predicated on certain assumptions that this thesis contends are inaccurate and misleading, and later sections of this chapter will move to discuss the work of noted researchers which would suggest that prices in markets often do not represent underlying values, and that stock markets (amongst many forms of market) are prone to irrationality and trends of both over-and-under valuation.<sup>5</sup>

The assertion that prices equal value leads to several conclusions regarding the role of the market and regulation. As the Financial Services Authority ('FSA') in the UK contends, financial markets theory "assert[s] that:

- (i) efficient and liquid financial markets deliver major allocative efficiency benefits by making possible a full range of contracts, thus enabling providers and users of funds more effectively to meet their preferences for risk, return and liquidity;
- (ii) markets are sufficiently rational as to justify a strong presumption in favour of market deregulation; and
- (iii) that even if markets are theoretically capable of irrational behaviour, policymakers will never be able to judge when and how far they are irrational with sufficient confidence to justify market intervention."<sup>6</sup>

---

<sup>5</sup> *Infra.* Section 4.3.

<sup>6</sup> Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis* (March 2009) 40 (hereinafter FSA, *Turner Review*).

These axioms support the view of regulation surveyed in Chapters Two and Three<sup>7</sup>; that the market is, in almost all circumstances, the most appropriate arbiter of corporate conduct and performance. Further, there is no room in the efficient market analysis of stock prices for long-term price deviations from the intrinsic value of securities, or ‘bubbles’.<sup>8</sup> The rationality of the market determines that any fluctuations from underlying value will be temporary and very brief.

#### 4.1.1 The Efficient Capital Market Hypothesis

The ECMH<sup>9</sup> was, until recently, widely regarded as an accurate description of the operation of developed securities markets. The central claim of the ECMH is “the simple statement that security prices fully reflect all available information.”<sup>10</sup> The hypothesis was tested empirically with much success during the 1960s and 1970s and became “the central proposition of finance for nearly thirty years.”<sup>11</sup> The ECMH is the intellectual foundation upon which is constructed a vast corpus of financial regulatory structure; it reflects the view that these systems are ‘equilibrium-seeking’ and business cycles and asset swings are the product of exogenous shocks to market processes. The logical policy extension to this position is that regulation of financial markets or of companies operating within the system is futile as nobody can anticipate an exogenous shock and all currently known liabilities and risks are incorporated into market prices.<sup>12</sup> The market has thus been trusted to deliver optimal compensation structures which contribute to market efficiency.

---

<sup>7</sup> *Supra*. Chapters 2 & 3.

<sup>8</sup> Renowned Chicago economist Eugene Fama is one of the primary advocates of the ECMH and criticises economic methods which seek to explain irrational market phenomena: “I don’t even know what a bubble means. These words have become popular. I don’t think they have any meaning ... I want people to use the term in a consistent way. For example, I didn’t renew my subscription to *The Economist* because they use the word bubble three times on every page. Any time prices went up and down—I guess that is what they call a bubble. People have become entirely sloppy.” See John Cassidy, ‘Rational Irrationality – An Interview with Eugene Fama’ *The New Yorker* (New York, 13 January 2010).

<sup>9</sup> Initially developed by Paul Samuelson in his seminal article, ‘Proof that Properly Anticipated Prices Fluctuate Randomly’ (1965) 6 I.M.R. 41. See also Benoit Mandelbrot, ‘Forecasts of Future Prices, Unbiased Markets, and Martingale Models’ (1966) 39 J. Bus. 242.

<sup>10</sup> Eugene F. Fama, ‘Efficient Capital Markets: II’ (1991) 46 J. Fin. 1575.

<sup>11</sup> Andrei Shleifer, *Inefficient Markets: An Introduction to Behavioral Finance* (OUP 2000) 1 (hereinafter Shleifer, *Inefficient Markets*); Michael C. Jensen, ‘Some Anomalous Evidence Regarding Market Efficiency’ (1978) 6 J. Fin. Econ. 95 (hereinafter Jensen, *Anomalous Evidence*).

<sup>12</sup> As noted: “even if markets are theoretically capable of irrational behaviour, policymakers will never be able to judge when and how far they are irrational with sufficient confidence to justify market intervention.” See FSA, *Turner Review* 40.



The Turner Review<sup>13</sup> outlines the two fundamental assumptions of the ECMH: (i) Market prices are good indicators of rationally evaluated economic value; and (ii) Market discipline can be used as an effective tool in constraining harmful risk taking.<sup>14</sup> The first of these propositions will be dealt with in the remainder of this chapter. The second proposition was discussed earlier in the thesis<sup>15</sup> and will be further analysed in Chapter Five<sup>16</sup> in a discussion of the recent GFC.

#### **4.1.2 Market prices as good indicators of rationally evaluated economic value**

Generally, it is posited that securities markets are highly efficient in reflecting prices and capturing value – both in relation to individual stocks and to the index holistically.<sup>17</sup> Thus, the ECMH claims that prices (including stock prices) are representative of value. In short:

“An “efficient” market is defined as a market where there are large numbers of rational, profit-maximizers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants.”<sup>18</sup>

Prices are efficient and reflect value where the following conditions are satisfied: (i) the market exhibits price stability in light of unchanged fundamentals; and (ii) investors make rational choices. The ECMH assumes these tenets are valid. The following sections discuss these claims.

##### **4.1.2.1 Price stability in light of unchanged fundamentals**

The first pillar supporting the view that market prices provide good indicators of economic value is that prices follow a reasonably stable performance trajectory over

---

<sup>13</sup> FSA, *Turner Review* 39-49.

<sup>14</sup> *Id.* 39.

<sup>15</sup> *Supra.* Chapter 2.

<sup>16</sup> *Infra.* Chapter 5.

<sup>17</sup> Burton G. Malkiel, ‘The Efficient Market Hypothesis and Its Critics’ (2003) 17 *J. Econ. Persp.* 59, 62; Eugene F. Fama, ‘Efficient Capital Markets: A Review of Theory and Empirical Work’ (1970) 25 *J. Fin.* 383.

<sup>18</sup> Eugene F. Fama ‘Random Walks in Stock Market Prices’ (1965) 21 *Fin. An. J.* 55, 56 (hereinafter Fama, *Random Walks*).

time where there is no change in the underlying fundamentals of a particular security; that the default risk associated with well-defined assets can be assessed adequately and that the distribution of returns occurs within predictable parameters. Modern finance risk management assumes that almost all events occur within a certain range (or ‘mean’) and that events farther from the mean occur less frequently. This is often known as ‘Gaussian’ or ‘bell curve’ distribution.<sup>19</sup> Under this theory, the probability of price movements in markets can be used to mitigate risk, and therefore to build portfolios. Gaussian distributions applied to financial markets and used in risk-management tools such as Value at Risk (‘VaR’)<sup>20</sup> and other derivatives, assume that certain events are so unlikely to occur that economic models should discount them from ever occurring.

#### 4.1.2.2 The Rational Investor Model

The second pillar of modern finance theory is the ‘rational investor model’, which is based upon rational choice theory<sup>21</sup>, discussed earlier in the thesis.<sup>22</sup> Neoclassical economists developed the rational investor model as justification for the corollary of dispensing with unwanted government regulation.

The theoretical application of the rational investor model to the ECMH is founded upon the following three core prepositions: (i) Investors are assumed to be rational and therefore value securities rationally; (ii) Where investors are not rational, their trades are random and therefore cancel out the trades of other, irrational, traders; and (iii) To the extent that some traders are irrational, the effect they have on prices will be arbitrated away by rational investors. It further “assumes that when processing data, practitioners use statistical tools appropriately and correctly.”<sup>23</sup> Anglo-American capital markets operate under the assumptions of the rational investor model. As noted by Avgouleas:

“US, EU, and ... UK [regulatory frameworks are] ... largely based on the rational investor model ... [This model] assumes that well-informed and educated

---

<sup>19</sup> Ioannis Karatzas and Steven E. Shreve, *Methods of Mathematical Finance* (Springer 1998).

<sup>20</sup> Discussed *infra*. Section 4.2.1.

<sup>21</sup> Also known as the Rational Expectations Hypothesis, originally developed by John F. Muth, ‘Rational Expectations and the Theory of Price Movements’ (1961) 29 *Econometrica* 315.

<sup>22</sup> *Supra*. Chapter 2.

<sup>23</sup> Hersh Shefrin, *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing* (Harvard Business School Press 2000) 4.

investors always make optimal resource allocation and wealth maximization decisions, if they are protected from fraud...”<sup>24</sup>

In practice therefore, the rational investor model bases its assumptions on each and every individual being perfectly rational and acting only in their economic interest. In this way, the aggregate of decisions that are made will be predictable, based on logic and drive the system towards equilibrium.<sup>25</sup>

#### 4.1.2.3 Consequences of price stability and rational investors

Based on the two axioms of modern finance theory outlined, the price of an asset equals its fundamental value based upon the aggregate trades of rational investors: as a consequence, security prices are the products of all available information. Hence, individual investors collectively have no chance of ‘beating’ the market; because all known information is incorporated into prices. The importance of the ECMH to the study of financial markets is summarized thus: “What makes the ECMH non-trivial, of course, is its prediction that, even though all information is not immediately and costlessly available to all participants, the market will act *as if* it were.”<sup>26</sup>

Empirical evidence for the veracity of the ECMH was, initially, very strong. There are two general predictions by the ECMH which would support the theory that markets are efficient:<sup>27</sup>

- (i) Prices should react quickly to news regarding a security and the effects of this news should be incorporated rapidly and correctly (ie. should not ‘over-react or under-react’). The crucial question for the legitimacy of market efficiency is therefore the speed with which new information is processed into prices. Relative market efficiency is therefore, calculable by reference to the speed with which the two equilibria (‘real world’ and theoretical ‘fully informed’ world) match. This velocity, by implication, can also measure the arbitrage opportunities available to investors.<sup>28</sup>

---

<sup>24</sup> Emiliios Avgouleas, ‘Reforming Investor Protection Regulation: The Impact of Cognitive Biases’ in Michael Faure and Frank Stephen (eds) *Essays in the Law and Economics of Regulation in Honour of Anthony Ogus* (Intersentia, 2008).

<sup>25</sup> Eric D. Beinhocker, *The Origin of Wealth: Evolution, Complexity and the Radical Remaking of Economics*, (Random House 2007) 118 (hereinafter Beinhocker, *The Origin of Wealth*).

<sup>26</sup> Ronald J. Gilson and Reinier H. Kraakman, ‘The Mechanisms of Market Efficiency’ (1984) 70 *V’a. L.R.* 549, 552 [emphasis in original] (hereinafter Gilson and Kraakman, *Mechanisms*).

<sup>27</sup> Shleifer, *Inefficient Markets* 5.

<sup>28</sup> Lynn A. Stout, ‘The Mechanisms of Market Inefficiency: An Introduction to The New Finance’ (2003) 28 *J. Corp. L.* 635 (hereinafter Stout, *Mechanisms of Market Inefficiency*).

- (ii) Prices should not move away from value unless the news itself related to the fundamentals of the security. In other words, news which does not affect the fundamental value of a security, should not affect its price. The ECMH excludes the potential for money to be made from ‘stale’ information; profit cannot be made from trading on yesterday’s news. This intuitively gave rise to a narrower theory of stock market price movements: the Random Walk Hypothesis (‘RWH’), which claims that stock-market prices exhibit no dependence on historical price movements.<sup>29</sup>

## 4.2 A CRITIQUE OF THE ECMH

The following section will address specific objections raised to two elements of the ECMH. Firstly, the chapter shall address the notion that market prices exhibit stability when no change in fundamentals is observed; and secondly, the obstacles to informational efficiency will be analysed.<sup>30</sup> This exercise may be described as an ‘internal critique’ of the ECMH: it analyses the shortcomings of the existing ECMH paradigm without providing alternative explanations for investor behaviour. This task shall be dealt with later in the chapter,<sup>31</sup> when a discussion of behavioural finance scholarship is undertaken. This work focuses largely on the shortcomings of the second plank of the ECMH (the rational investor model) to explain observations refuting the first plank (stable market prices).

### 4.2.1 Prices are not stable: ‘fat-tails’ and crashes

Several theoretical and empirical tests reveal that the assumption that prices remain stable in the long-term to be incorrect. Gaussian distribution models assume that, whilst wild fluctuations from the ‘norm’ or ‘mean’ can occur, they are so rare they may be regarded as inconsequential. Gaussian distribution however cannot explain the large

---

<sup>29</sup> Paul H. Cootner (ed), *The Random Character of Stock Market Prices* (MIT Press 1964); See also Louis Bachelier, ‘Theorie de la speculation’ (1900) 3 Ann. Sci. Ecole Norm. S. 21 ; Fama, *Random Walks*. Indeed, Jensen asserts that the ECMH is analogous to the RWH. See Jensen, *Anomalous Evidence*.

<sup>30</sup> Economics as a science has come under sustained recent criticism, particularly since the GFC. Willem Buiter, a distinguished former member of the Bank of England’s Monetary Policy Committee, has written of “the unfortunate uselessness of most ‘state of the art’ academic monetary economics.” See <http://blogs.ft.com/maverecon/2009/03/the-unfortunate-uselessness-of-most-state-of-the-art-academic-monetary-economics/> accessed 26/06/12.

<sup>31</sup> *Infra*. Section 4.3.

price changes which occur with regularity and falters when faced with numerous examples of acute price movements experienced since the development of sophisticated financial markets.<sup>32</sup> Whilst Gaussian theory operates efficiently in relation to certain randomness (for example, the height distributions of the human population), fundamental analysis of markets reveals that rare events may have highly significant effects on the total.

Financial market prices instead suffer from ‘fat-tails’: catastrophic events occur far more frequently than standard models based on the Gaussian copula predict.<sup>33</sup> Instead of being Gaussian, markets are fractal<sup>34</sup>; extreme events are more common than Gaussian theory would suggest, and their effects much more damaging:<sup>35</sup> “while the occasional and unpredictable large deviations are rare, they cannot be dismissed as ‘outliers’ because, cumulatively, their impact in the long-term is so dramatic.”<sup>36</sup> Commenting on the initial events of the GFC, the Turner Review noted:

“Price movements during the crisis have often been of a size whose probability was calculated by models (even using longer term inputs) to be almost infinitesimally small. This suggests that the models systematically underestimated the chances of small probability high impact events.”<sup>37</sup>

As evidence for the instability of markets, there is strong evidence that stock markets

---

<sup>32</sup> The events of 1929, 1987, 1998 and 2008 (amongst others) tend to refute the concept that prices are ‘stable’.

<sup>33</sup> Benoit B. Mandelbrot, ‘Variation of Certain Speculative Prices’ (1963) 36 J. Bus. 394.

<sup>34</sup> Benoit B. Mandelbrot, *The (mis)Behaviour of Markets: A Fractal View of Risk, Ruin and Reward* (3<sup>rd</sup> edn, Profile 2008) (hereinafter Mandelbrot, *(mis)Behaviour*). “A fractal is a geometric shape that can be separated into parts, each of which is a reduced-scale version of the whole. In finance, this concept is not a rootless abstraction but a theoretical reformulation of a down-to-earth bit of market folklore— namely, that movements of a stock or currency all look alike when a market chart is enlarged or reduced so that it fits the same time and price scale. An observer then cannot tell which of the data concern prices that change from week to week, day to day or hour to hour. This quality defines the charts as fractal curves and makes available many powerful tools of mathematical and computer analysis.” See Benoit B. Mandelbrot, How Fractals Can Explain What's Wrong with Wall Street, *Scientific American* (15 September 2008) available at [www.scientificamerican.com/article.cfm?id=multifractals-explain-wall-street&page=2](http://www.scientificamerican.com/article.cfm?id=multifractals-explain-wall-street&page=2) accessed 25/07/12.

<sup>35</sup> Mandelbrot’s research on the Dow Jones industrial average from 1916 to 2003 confirms that financial markets do not conform to Gaussian distribution. If markets operated to modern finance theory there should have been fifty-eight days during that period in which markets moved more than 3.4 percent; in fact, there were 1,001. Theory further predicts swings of more than 4.5 percent should occur on no more than six days; in fact, they occurred 366 times. And finally, standard theory predicts index swings of more than 7 percent should only occur every 300,000 years; in fact, this occurred on forty-eight separate days in the observed period. See Mandelbrot, *(mis)Behaviour* 13.

<sup>36</sup> Benoit B. Mandelbrot and Nassim N. Taleb, ‘A focus on the exceptions that prove the rule’ *Financial Times* (London, 23 March 2006).

<sup>37</sup> FSA, *Turner Review* 44.

prices do not behave as predicted by standard theory. The variation in the S&P 500 stock market index between 1970 and 2001 possessed a kurtosis<sup>38</sup> of 43.36.<sup>39</sup> A Gaussian kurtosis would measure 3. Taleb has demonstrated that in the last fifty years the ten most extreme days in financial markets account for half of all returns.<sup>40</sup> These figures imply that financial markets are not Gaussian: single observations may impact system behaviour disproportionately.

Financial modelling used to recreate the operation of financial systems in this way thus ignores the 'fat-tail' distributions that characterise financial markets. The most popular model utilised to measure risk in the financial industry is VaR.<sup>41</sup> VaR is used to estimate the probability of portfolio losses based on the analysis of historical trends in markets. A company will have a VaR value which corresponds to the most it could lose in one trading day with a probability attached (based on a 'normal' distribution). The components include measures of the probability of default, loss given default, the exposure at default and effective maturity. Operational risk, credit risk, market risk and credit risk are used to calculate an institution's VaR. Depending on the size and sophistication of the bank, VaR could be calculated in one of three ways: (i) Standardized approach (similar to the previous Basel Capital Accord<sup>42</sup>, although credit ratings were introduced to rate lower quality credits); (ii) Foundation IRB<sup>43</sup> approach (banks could use their own internal models to assess risk, although regulators set the parameters of the models); or (iii) Advanced IRB approach (where banks used their own models and set the parameters for those models, subject to regulatory approval). Sophisticated banks generally adopted the Advanced IRB. Under Basel II, commercial banks were forced to operate with a VaR of 99 percent, and the resulting VaR was multiplied by three to account for model errors or larger-than-normal variances in losses.<sup>44</sup>

---

<sup>38</sup> A statistical measure of how 'peaked' data is relative to a normal or flat distribution.

<sup>39</sup> Wim Schoutens, *Levy Processes in Finance: Pricing Financial Derivatives* (Wiley 2003).

<sup>40</sup> Nassim N. Taleb, *The Black Swan: The Impact of the Highly Improbable* (Penguin 2007) 276.

<sup>41</sup> 'Value at Risk' measures the potential loss in value of an asset or portfolio over a defined period for a given confidence interval. See Philippe Jorion, *Value at Risk: The New Benchmark for Managing Financial Risk* (3rd ed. McGraw-Hill 2006).

<sup>42</sup> Bank for International Settlements, *Basel I: International Convergence of Capital Measurement and Capital Standards* (July 1988).

<sup>43</sup> 'Internal Rating-Based'.

<sup>44</sup> Bank for International Settlements, *Basel II: International Convergence of Capital Measurement and Capital Standards – A Revised Framework* (June 2006).

Paradoxically, perhaps, Basel II reduced the amount of capital that large, sophisticated institutions were forced to hold as their models predicted that their diversification and risk management reduced the likelihood of large losses.<sup>45</sup> Further, as with most financial market models the assumptions under VaR are questionable and the methodologies have come under severe criticism. Criticisms include the use of short-term time horizons with which to estimate the probability under VaR, which introduced severe procyclicality into these models<sup>46</sup> (for example, if no large losses were observed for a period, this would ‘feed into’ the estimates of future VaR and underestimate the likelihood of large losses at a later date).<sup>47</sup> It also provides no framework for the creation of liquidity cushions within highly leveraged financial institutions, a flaw which was exposed during the 2007 credit crunch phase of the GFC.<sup>48</sup> More significant problems with VaR are associated with its probability distributions and the assumption that significant losses on consecutive trading days are unlikely. As Turner notes:

“Models frequently assume that the full distribution of possible events, from which the observed priced movements are assumed to be a random sample, is normal in shape. But there is no clearly robust justification for this assumption and it is possible that financial market movements are inherently characterised by fat-tail distributions.”<sup>49</sup>

A notable example of the failure of VaR was the collapse in 1998 of the hedge fund Long-Term Capital Management following disastrous currency price movements.<sup>50</sup> The risk models it employed, based on VaR, indicated that the most it should lose in any one day of trading was \$45 million.<sup>51</sup> In one day alone, it lost \$550million and cumulatively

---

<sup>45</sup> Stephen Valdez and Philip Molyneux, *An Introduction to Global Financial Markets* (6<sup>th</sup> edn, Palgrave MacMillan 2010) 40.

<sup>46</sup> Alan Greenspan, former US Federal Reserve Chairman, writes: “Probability distributions estimated largely, or exclusively over cycles that do not include periods of panic will underestimate the likelihood of extreme price movements ... Furthermore, joint distributions estimate over periods that do not include panics will underestimate correlations between asset returns during panics.” See Alan Greenspan, *The Age of Turbulence: Adventures in a New World* (Penguin 2007) 507.

<sup>47</sup> FSA, *Turner Review* 44; Andrew G Haldane, ‘Why Banks Failed the Stress Test’ The basis for a speech given at the Marcus-Evans Conference on Stress-Testing (9-10 February 2009) available at [www.bankofengland.co.uk](http://www.bankofengland.co.uk) accessed 28/03/12 (hereinafter Haldane, *Why Banks Failed the Stress Test*).

<sup>48</sup> Emiliios Avgouleas ‘International financial regulation, access to finance, systemic stability, and development’ Brookings World Poverty Institute Working Paper No. 49 (June 2008).

<sup>49</sup> FSA, *Turner Review* 44.

<sup>50</sup> See Roger Lowenstein, *When Genius Failed: The Rise and Fall of Long Term Capital Management* (Fourth Estate 2002).

<sup>51</sup> Joe Kolman, ‘LTCM Speaks’ *Derivatives Strategy* (New York, 4 April 1999).

in one month, the fund lost \$1.7 billion.<sup>52</sup> The odds against these losses, according to the models employed by the fund (designed by future Nobel prize-winning economists<sup>53</sup>), were approximately 800 trillion to one.<sup>54</sup> Similar experiences occurred prior to and during the GFC; banks were “seeing things that were 25-standard deviation moves, several days in a row” (events that could only occur every 10<sup>140</sup> years).<sup>55</sup> In both cases essentially the models employed predicted that the events in question could not happen.

These observations, of course, have serious implications for the use of stock-based compensation plans. As discussed in the previous chapter,<sup>56</sup> stock options are flawed in the sense that they may often reward executives for movements in general market trends rather than through the decisions they take or strategies they embark upon, reducing their utility. The flaws of market models therefore augment this problem; it is conceivable that options are often highly inefficient because, firstly, they are priced using models of doubtful empirical integrity<sup>57</sup> and, secondly, executives capture windfalls which do not result from their actions but from price movements which are not driven by fundamentals. This lends credence to the contention that the central tenets of market and risk management can be challenged<sup>58</sup> and, by implication, so may the view that prices are subject to rational and self-correcting mechanisms.

#### **4.2.2 Stock-price dependence: markets have memories**

Perhaps more significantly in the context of this thesis, research strongly contradicts the conclusions of the RWH. The RWH has been systematically dismantled by academics<sup>59</sup>,

---

<sup>52</sup> Phillippe Jorion, ‘Risk Management Lessons from Long-Term Capital Management’ (2000) 6 Eur. Fin. Manag. 277 (hereinafter Jorion, *Lessons from Long-Term Capital Management*).

<sup>53</sup> Principals of the fund included Myron Scholes and Robert Merton, Nobel-prize winners in economics in 1997.

<sup>54</sup> Jorion, *Lessons from Long-Term Capital Management* 13.

<sup>55</sup> Peter Thal Larsen, ‘Goldman pays the price of being big’ *Financial Times* (London, 13 August 2007).

<sup>56</sup> *Supra*. Chapter 3.

<sup>57</sup> In the sense that they assume market efficiency.

<sup>58</sup> For example, following the GFC, a survey of 500 risk managers by KPMG in October 2008 that 92% intended to review their risk management practices. See Haldane, *Why Banks Failed the Stress Test* 5.

<sup>59</sup> Most notably Andrew Lo and Craig McKinlay, *A Non-Random Walk Down Wall Street* (Princeton UP 1999) (hereinafter Lo and McKinlay, *A Non-Random Walk*).



particularly the claim of the RWH that stock prices exhibit no dependence on past prices.<sup>60</sup> This rejection of the RWH undermines a central plank of the ECMH:

“The classic Random Walk model makes three claims. First is the so-called martingale condition: that your best guess of tomorrow’s price is today’s price. Second is a declaration of independence: that tomorrow’s price is independent of past prices. Third is a statement of normality: that all the price changes taken together, from small to large, vary in accordance with the mild, bell-curve distribution ... [T]hat is two claims too far.”<sup>61</sup>

Empirical observations confirm that stock prices contain predictable components; between 25 and 45 percent of the variation of long-term holdings is predictable from past returns.<sup>62</sup> Analysis of weekly stock returns from the S&P500 from 1962 to 1985 rejects the RWH at all significance levels under both weekly and monthly analysis.<sup>63</sup> The variance for some weekly returns produced errors of up to 30 percent. Dependence in the short-term has been demonstrated in several studies, ascribed to a ‘momentum effect’<sup>64</sup> which causes gains in stock prices to precipitate further gains, independent of informational changes.<sup>65</sup> When analysed in monthly segments, the stocks of seventeen countries exhibited short-term dependence.<sup>66</sup> These results point to evidence of ‘herding’ or positive feedback effects, which will be analysed in detail later in this chapter.<sup>67</sup>

These conclusions have important ramifications for the design of executive compensation systems. If, as the RWH claims, past prices have no bearing on future prices, then executive compensation systems need not reflect the effects that market sentiment may have on prices. However, where share prices are demonstrably affected by historical information and stock price memory correlates with some portion of future

---

<sup>60</sup> The ‘January effect’ is evidence for this. This term describes the phenomenon in which stock prices in most stock indices demonstrably increase in January more than any other month. See Richard H. Thaler, ‘Anomalies: The January Effect’ (1987) 1 J. Econ. Persp. 197.

<sup>61</sup> Mandelbrot, (*mis*)*Behaviour* 247.

<sup>62</sup> Eugene F. Fama and Kenneth R. French, ‘Permanent and Temporary Components of Stock Prices’ (1988) 96 J. Polit. Econ. 246.

<sup>63</sup> Lo and McKinlay, *A Non-Random Walk* 28.

<sup>64</sup> Mandelbrot, (*mis*)*Behaviour* 98.

<sup>65</sup> Benoit B. Mandelbrot, ‘Long-run interdependence in price records and other economic time series’ (1970) 38 *Econometrica* 122.

<sup>66</sup> Campbell R. Harvey, ‘The World Price of Covariance Risk’ (1991) 46 J. Fin. 111.

<sup>67</sup> *Infra*. Section 4.3. Stock prices may also exhibit long-term dependence: long-term stock prices do not exhibit independent and identically distributed long-term variables. See Zhuanxin Ding, Clive W.J. Granger and Robert F. Engle, ‘A long memory property of stock returns and a new model’ (1993) 1 J. Emp. Fin. 83; Myron T. Greene and Bruce D. Fielitz, ‘Long-term dependence in common stock returns’ (1977) 4 J. Fin. Econ. 339. This is rejected by some financial economists; in particular see Andrew W. Lo, ‘Long-Term Memory in Stock Market Prices’ (1991) 59 *Econometrica* 1279.

price changes, investor perceptions of future price trajectories are crucial. In relation to work discussed later in this chapter,<sup>68</sup> the informational content of financial markets dictate that historical events, institutional memory, and the creation of knowledge *must* matter to future market performance<sup>69</sup>: “...if investors have heterogeneous expectations, the market price of a stock may change for a variety of reasons unrelated to any change in the value of the underlying company.”<sup>70</sup>

By implication, where investor memory has an effect on stock prices, executive compensation systems ought to reflect the potential for recent price increases to generate further price increases independent of the RWH predictions. Moreover, because investor memories are highly short-term,<sup>71</sup> price increases in the recent past will have more significant effects on present prices than more distant price changes. This amplifies short-termism in markets through the price distortions it creates and therefore undermines stock-based executive pay, which relies upon market prices to reflect long-run fundamental value. The following section discusses some potential structural imperfections which undermine the efficiency of the stock pricing mechanism.

### 4.2.3 Price Efficiency

The predictions of the ECMH do not, then, always result in efficient prices: “Information is reflected in prices, but not necessarily accurately or completely. There are wide differences in understanding and belief, and different perceptions of a future that can be at best dimly perceived.”<sup>72</sup> If stock market prices may divert from ‘fundamental value’ on occasion, one must address a two-stage enquiry: firstly, what is the distinction between ‘fundamental value’ and other measures of value? And, secondly, in the context of this thesis, are there occasions when the use of stock market prices as indicators of value might undermine the techniques used to align pay with performance?

---

<sup>68</sup> *Infra*. Section 4.4.

<sup>69</sup> Joseph E. Stiglitz, ‘Contributions of the Economics of Information’ (2000) 115 Q. J. Econ. 1441 (hereinafter Stiglitz, *Contributions*).

<sup>70</sup> Stout, *Mechanisms of Market Inefficiency* 646.

<sup>71</sup> Discussed in detail, *infra*. Section 4.3.

<sup>72</sup> John Kay, ‘The Map is Not the Territory: An Essay on the State of Economics’ Institute For New Economic Thinking (26 September 2011) 7, available at <http://ineteconomics.org/blog/inet/john-kay-map-not-territory-essay-state-economics> accessed 02/05/12.

#### 4.2.3.1 ‘Informational’ vs. ‘Fundamental Value’ efficiency

Market efficiency may be measured through a number of methods; however, the major distinction between the ‘value’ placed on the price of securities as encapsulated by market prices is that which determines whether prices fully reflect all available information<sup>73</sup> (‘informational efficiency’) or whether prices fully reflect the underlying fundamentals of a security (‘fundamental value efficiency’). Fundamental value efficiency may be summarised as follows:

“[T]he rapid absorption of information into price, and market prices that accurately reflect economic value ... Markets are efficient in the fundamental value sense if stock prices respond to available information not only quickly but *accurately*, so that market prices mirror the best possible estimates, in light of all available information, of the actual economic values of securities in terms of their expected risks and returns.”<sup>74</sup>

A neoclassical view of prices would contend that the informational value of price is absolute; no distinction can be made between informational and fundamental value efficiency.<sup>75</sup> Price efficiency is a foundation of the ECMH because in an informationally efficient market, arbitrage profit is impossible: prices reflect value. Because arbitrage profit is possible in markets, there must be a distinction between fundamental and informational value:<sup>76</sup> the so-called ‘Grossman-Stiglitz paradox’.<sup>77</sup> This states that if market prices reflected all available information there would be no incentive to collect information as no profit would be made: if markets were completely

---

<sup>73</sup> Information’ in this context is “data that has the capacity to alter one’s belief about the world or...one’s beliefs about the appropriate price of an asset.” See Gilson and Kraakman, *Mechanisms* 561.

<sup>74</sup> Stout, *Mechanisms of Market Inefficiency* 640 [emphasis in original].

<sup>75</sup> Ronald J. Gilson and Reinier H. Kraakman, ‘The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias’ (2003) 28 J. Corp. L. 715 (hereinafter Gilson and Kraakman, *The Hindsight Bias*).

<sup>76</sup> Emiliios Avgouleas, *The Mechanics and Regulation of Market Abuse: A Legal and Economic Analysis* (OUP 2005) 47 (hereinafter Avgouleas, *Mechanics and Regulation*).

<sup>77</sup> As Grossman and Stiglitz note: “because information is costly, prices cannot perfectly reflect the information which is available, since if it did, those who spent resources to obtain it would receive no compensation.” See Sanford J. Grossman and Joseph E. Stiglitz ‘On the Impossibility of Informationally Efficient Markets’ (1990) 70 Am. Econ. Rev. 393, 405 (hereinafter Grossman and Stiglitz, *On the Impossibility*). As noted: “The implication of the Grossman-Stiglitz paradox is that strong-form efficiency is a rare occurrence, likely to be observed only when all information is freely (hence symmetrically) available. More importantly, the paradox suggests that asymmetric information is probably commonplace in markets. This being so, investigations of asset market efficiency should explicitly allow for investors to act on the basis of different information sets.” See Roy E. Bailey, *The Economics of Financial Markets* (Cambridge University Press, 2005); Sanford J. Grossman and Joseph E. Stiglitz, ‘Information and Competitive Price Systems’ (1976) 66 Am. Econ Rev. 246.

efficient, the opportunities for exploiting price anomalies through arbitrage would not exist, or would be too costly to manage.

The major impairments to fundamental value efficiency are asymmetries of information which reduce price efficiency. There are also obstacles to arbitrage in the market which reduce the efficiency of market prices. These issues, by implication, limit the utility of compensation schemes linked to price; reduced price efficiency may mean that the fundamental value of a firm is not reflected in the price of its shares and ergo, may undermine the efficiency of stock-related compensation.

#### 4.2.3.2 Information asymmetries and securities prices

Certain markets – particularly stock markets – suffer from imperfect disclosure and asymmetries, which render them vulnerable to security mispricing.<sup>78</sup> These asymmetries prevent prices from being fundamentally efficient because information may not necessarily be available to all market participants. If one accepts that the axioms of the rational investor model are flawed and prices are not fundamentally efficient, any compensation awards based upon those prices will suffer from inaccuracies. Thus, information asymmetries are damaging to market welfare because price inefficiency may be used by market participants to capture value for themselves which is unjustified.

The key driver of information asymmetries is cost. There is a non-concavity in the value of information:<sup>79</sup> it is often not worthwhile financially for traders to incur the expense

---

<sup>78</sup> Information asymmetry in markets has been studied in depth by noted economists; indeed, work on information asymmetry has garnered three Nobel prizes in economics for the relevant researchers. See George A. Akerlof, 'The market for lemons: quality uncertainty and the market mechanism' (1970) 84 Q. J. Econ. 488; A. Michael Spence, 'Job market signaling' (1973) 87 Q. J. Econ. 355; Joseph E. Stiglitz and Michael E. Rothschild, 'Equilibrium in competitive insurance markets' (1976) 90 Q. J. Econ. 629.

<sup>79</sup> Roy Radner and Joseph E. Stiglitz, 'A Nonconcavity in the Value of Information' in Marcel Boyer and Richard Khilstrom (eds), *Bayesian Models in Economic Theory* (Elsevier Science 1984). In relation to financial markets, several analyses by Stiglitz and others confirm that information asymmetries exist and reduce market efficiency. As Stiglitz posits, "if information were perfect – if all contingencies could have been anticipated – all *important* contingencies ... would have been taken care of in the original contract." See Stiglitz, *Contributions* 1459 [emphasis in original]. Further factors such as reputation mechanisms play a role in driving price away from value. There are costs and rents inherent in losing one's reputation.. A 'surplus' is required to generate an incentive to preserve a reputation. If these costs arise and are lost, price *ceteris paribus* cannot equal marginal cost: it is necessary for price to exceed marginal cost in an efficient market. See Carl Shapiro, 'Premiums for High Quality Products as Returns to Reputations' (1983) 98 Q. J. Econ. 658; Benjamin Klein and Keith B. Leffler, 'The Role of Market Forces in Assuring Contractual Performance' (1981) 89 J. Polit. Econ. 615.

associated with information gathering.<sup>80</sup> This principle damages the process of price discovery and is particularly relevant to stock and equity markets, which suffer from structural defects which exacerbate the reliability of the information transmitted via the channels in those markets. This, in turn, affects the utility of market price-based compensation awards. As noted in Chapter Three, where pay awards are based upon market prices, firm management may be incentivised to reduce the efficiency of market pricing through information management and disclosure distortion.<sup>81</sup>

Securities market financing analysis confirms this.<sup>82</sup> The use of debt financing rather than equity financing in capital markets by the majority of firms demonstrates that market prices do not fully reflect information: asymmetries persist in stock markets because disclosure regarding firm value is not completely transparent.<sup>83</sup> The relative reluctance<sup>84</sup> to raise finance through equity capital in firms where insiders have more information on the state of a firm than outsiders, can be attributed to the desire of management to prevent sending signals to the market that, on average, shares are overpriced;<sup>85</sup> the issuance of equity transmits a signal that the managers/owners believe that the market has overvalued the shares. Any attempt to raise equity capital will therefore meet a market response which lowers price, thus harming shareholder interests which both reduces the value of managers' options and damages their reputations. In diverse and liquid capital markets, the method of firm financing should (in the absence of tax considerations and bankruptcy costs) be irrelevant<sup>86</sup>, yet most firms choose investment from capital markets.

---

<sup>80</sup> Oliver D. Hart, *Firms, Contracts, and Financial Structure* (OUP 1995); Jack Hirshleifer and John G. Riley, *The Analytics of Uncertainty and Information* (Cambridge University Press 1992); Drew Fudenberg and Jean Tirole, *Game Theory* (MIT Press 1991).

<sup>81</sup> See discussion *supra*. Chapter 3.

<sup>82</sup> George J. Stigler, 'Imperfections in the Capital Market' (1967) 75 J. Polit. Econ. 287.

<sup>83</sup> Stiglitz, *Contributions* 1445.

<sup>84</sup> See Colin Mayer, 'Financial Systems, Corporate Finance and Economic Development' in R. Glenn Hubbard (ed), *Asymmetric Information, Corporate Finance and Investment* (University of Chicago Press 1990).

<sup>85</sup> Stiglitz, *Contributions* 1445.

<sup>86</sup> Francis Modigliani and Merton H. Miller, 'The Cost of Capital, Corporate Finance and the Theory of Investment' (1958) 48 Am. Econ. Rev. 251. For a rejoinder to this view, see Anat R. Admati, Peter M. DeMarzo, Martin F. Hellwig, and Paul Pfleiderer, 'Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is *Not* Expensive' Rock Center for Corporate Governance at Stanford University Working Paper No. 86 (August 2010); Robert A. Jarrow, 'Risk Management Models: Construction, Testing, Usage' Johnson School Research Paper Series No. 38-2010 (March 2011). Available at [ssrn.com/abstract=1712086](http://ssrn.com/abstract=1712086) accessed 21/06/12.

Where management retain significant stock positions in the firm and their compensation is linked to the stock price, they will thus have incentives to raise finance from capital markets, rather than through the issuance of equity, thus damaging efficiency and distorting prices. These effects have been tested empirically: several studies demonstrate that a firm's market value drops when they announce a stock issue, but that an announcement of debt financing results in no change in value.<sup>87</sup> This has been termed 'the entrenchment choice'.<sup>88</sup> One of the prime motivations for CEO removal is corporate financial distress: CEOs who can reduce the risk of entering bankruptcy become more entrenched than CEOs whose firms suffer financial hardship.<sup>89</sup> Capital structure decisions are therefore often motivated by the desire of managers to preserve their positions and it is this that prevents information channels from operating at maximum efficiency. This has the further effect of constraining firms' behaviour<sup>90</sup> due to the increased threat of bankruptcy carried by debt financing.<sup>91</sup> Further, the limits on institutional shareholder activism, discussed earlier in the thesis,<sup>92</sup> may prevent the dissemination of information to financial markets and reduce the efficiency of pricing. This has the consequence that inefficient management may be kept in place at companies because they have propagated informational gaps which the disciplining market for corporate control is unable to overcome.<sup>93</sup>

There are, therefore, significant incentives for management to increase asymmetry of information in financial markets and, in doing so, reduces the efficiency of market prices. They benefit from this in a dual capacity: firstly, they are able to restrict the information flow to markets and thereby benefit from inefficient price levels where their compensation is linked to stock prices. Furthermore, they are able to entrench themselves at firms by reducing the threat of market discipline (where it exists).

---

<sup>87</sup> Ricardo N. Bebczuk, *Asymmetric Information in Financial Markets* (Cambridge University Press 2003) 48.

<sup>88</sup> Walter Novaes and Luigi Zingales, 'Capital structure choice when managers are in control: Entrenchment versus efficiency' (1995) 76 *J. Bus.* 49.

<sup>89</sup> A study of 434 US firms over an eight-year period has confirmed that firms with entrenched CEOs on average utilise a sub-optimal mix of debt and equity financing in their capital structures. See Phillip G. Berger, Eli Ofek and David L. Yermack, 'Managerial Entrenchment and Capital Structure Decisions' (1997) 52 *J. Fin.* 1411.

<sup>90</sup> Bruce C. Greenwald and Joseph E. Stiglitz, 'Financial Market Imperfections and Business Cycles' (1993) 108 *Q. J. Econ.* 77.

<sup>91</sup> Sanford J. Grossman and Oliver D. Hart, 'Corporate Financial Structure and Managerial Incentives' in John McCall (ed) *The Economics of Information and Uncertainty* (UMI 1982) 108-109.

<sup>92</sup> *Supra.* Chapter 2.

<sup>93</sup> See the analysis of the market for corporate control, *supra.* Chapter 2.

### 4.2.3.3 Limits to Arbitrage

These issues are compounded by structural imperfections of the financial market which undermine attempts at price arbitrage. Arbitrage is the main method through which the ECMH is validated; according to the ECMH even where prices depart from value in the very short-term, they will be returned to their fundamental value almost instantaneously:

“Where, because of the costs of information acquisition, prices exhibit signs of inefficiency and depart from ‘reasonable value estimates’ ... then groups of sophisticated traders acting as rational utility maximizers, so-called ‘arbitrageurs’, spot the price differences and enter the market trying to exploit the efficiency loophole. Their arbitrage activity allows this group of traders to make profits until, because of their trades, prices are brought into line with the ‘fundamental’ or ‘reasonable value’ equilibrium and the efficiency ‘hole’ is closed.”<sup>94</sup>

One of the most effective methods through which prices are brought to efficient levels is short-selling.<sup>95</sup> However, short selling is hindered by three main factors<sup>96</sup>: cost; structural obstacles to engaging in it<sup>97</sup>; and the imposition of regulatory limits, particularly following the GFC. Further, shorting stocks operates as an arbitrage strategy that subsists to correct mispricing where stocks have become *overvalued*. In many instances, the transaction costs in shorting stocks are low. However, where stocks are *undervalued* arbitrageurs in search of profit will be forced to buy undervalued stocks until price and fundamental value converge. This is a much more expensive process and “if arbitrage activity fails to correct a precipitous price fall caused by short selling, the majority of market actors may feel compelled to imitate short sellers’ trades, adding further downward pressure on prices.”<sup>98</sup> In this situation, even an arbitrageur who spots

---

<sup>94</sup> Avgouleas, *Mechanics and Regulation* 47.

<sup>95</sup> Short-selling is the term used to describe the buying of securities when an investor believes them to be trading at higher levels than their efficient price ie. they are overvalued. This is achieved through a particular security being loaned to an arbitrageur by the owners of that security with the arbitrageur returning identical assets back to the lender at a later date. If the price of the security drops in the interim, the arbitrageur profits by the amount that the security has dropped by. Short sales are therefore essentially a gamble that the price of a security will drop.

<sup>96</sup> For a thorough discussion, see Robert J. Shiller, ‘From Efficient Market Theory to Behavioral Finance’ (2003) 17 J. Econ. Persp. 83 (hereinafter Shiller, *From Efficient Market Theory*).

<sup>97</sup> In the US, for example, as of 2003, approximately only 3,900 of around 9,000 registered financial companies were permitted by their constitutions to engage in short selling. See Staff Report to the United States Securities and Exchange Commission 41, *Implications of the Growth of Hedge Funds* (September 2003) 108. See Pedro A.C. Saffi and Kari Sigurdson, ‘Price Efficiency and Short Selling’ IESE Business School University of Navarra Working Paper No.748 (April 2008) 5.

<sup>98</sup> Emilius Avgouleas, ‘A New Framework for the Global Regulation of Short Sales: Why Prohibition is Inefficient and Disclosure Insufficient’ (2010) 15 Stan. J. L. Bus. and Fin. 376, 395.

a gap between fundamental value and price may be bankrupted before the resulting market correction takes place. As Coffee elucidates, “it is dangerous to be sane in an insane world.”<sup>99</sup> Thus, severe overvaluations may persist for protracted periods, seriously reducing market efficiency.

There are other reasons why arbitrage may be ineffective in correcting mispricing. As the ECMH posits that all investors are rational, all arbitrageurs pursue investment strategies in order to maximise utility. Behavioural finance<sup>100</sup> attempts to explain the failure of arbitrage in some instances as attributable to the fact that there may also be ‘quasi-rational’ traders in the marketplace, often referred to as ‘noise traders’.<sup>101</sup> These ‘noise traders’ are those who “are not fully rational and [whose] demand for risky assets is affected by their beliefs or sentiments that are not fully justified by fundamental news.”<sup>102</sup> They are therefore prone to systematic biases inferable to irrational reactions to changes or expectations which are not fully justified by the relevant information. Where the trades of noise traders are uncorrelated, they cancel each other out and the arbitrage mechanism is unaffected. However, where investor sentiment propels enough noise traders to engage in the same trading strategies, they may move markets. The market movement will be uncorrelated to changes in fundamentals to some degree because those traders that are driving the movements are not fully rational.<sup>103</sup>

#### **4.2.4 Summary: Implications of price inefficiency for stock-based compensation**

There are therefore serious obstacles which contribute to price inefficiency in financial markets. Many of these problems stem from perverse incentives which arise from remuneration arrangements. Management of companies may be encouraged to reduce

---

<sup>99</sup> See John C. Coffee, ‘Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms’ (2004) 84 Bu. L. R. 301, 329 (hereinafter Coffee, *Gatekeeper Failure*).

<sup>100</sup> Discussed in detail *infra*. Section 4.3.

<sup>101</sup> Andrei Shleifer and Lawrence H. Summers, ‘The Noise Trader Approach to Finance’ (1990) 4 J. Econ. Persp. 19 (hereinafter Shleifer and Summers, *Noise Trader*); J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers and Robert J. Waldmann, ‘Noise Trader Risk in Financial Markets’ University of California Working Paper (December 1989); J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers and Robert J. Waldmann ‘The Size and Incidence of the Losses from Noise Trading’ NBER Working Paper No. 2875 (December 1989).

<sup>102</sup> Shleifer and Summers, *Noise Trader*.

<sup>103</sup> Shleifer and Vishny, *Limits of Arbitrage*.



the informational content of prices to benefit directly from compensation plans or benefit indirectly from retention of position, reducing their utility.

Further, the structural obstacles to the correction of mispricing are significant. When arbitraging a market is too costly – or impossible – to perform, significant overvaluations of stock may persist for protracted periods. This undermines the use of managerial compensation schemes which are based to any degree on company stock prices. It further suggests that any compensation scheme which links pay to performance ought to assess a stock price over a medium-to-long-term horizon. This would allow sufficient time for any mispricing to be arbitrated away and for a return to fundamental value returned. These discussion points shall be addressed in Chapter Six.<sup>104</sup> The following section of this chapter considers alternatives to the ECMH in explaining security market operation.

### **4.3 ALTERNATIVE THEORIES FOR FINANCIAL MARKET OPERATION**

The dissonance which greets efficient market theory has important consequences for legal and regulatory structures as “[t]he absence of ... a unified explanation of market efficiency presents a serious problem for those judges, lawyers and regulators who would rely upon the ECMH as the basis for judicial or regulatory policy making.”<sup>105</sup> The weaknesses of these regulatory structures contributed to a number of significant financial crises. The damage wrought by the GFC has demanded the consideration of a new economic paradigm. This new paradigm might be based on the deficiencies in the ECMH highlighted by the behavioural finance critique of modern finance theory.

#### **4.3.1 Behavioural Finance**

The rational investor model suggests that investors have an unlimited ability to process information to account for risk within their portfolios: “the proverbial rational man of neoclassical economics (the famous ‘homo economicus’) is supposed to act to maximize expected utility, because his/her preferences are given, consistent, and

---

<sup>104</sup> *Infra.* Chapter 6.

<sup>105</sup> Gilson and Kraakman, *Mechanisms* 553.

representable in the form of a utility function”.<sup>106</sup> As noted by Avgouleas: “[a]rguably, most investors’ computational capacity and trading behavior does not conform to this model.”<sup>107</sup> Instead, investors ought to be classed as ‘boundedly rational’ agents: individuals possess limited abilities to process information as humans have “limited computational skills and seriously flawed memories.”<sup>108</sup> In summary:

“[The] view of the markets as an agglomeration of rational investors, who make optimal resource allocation and wealth maximisation decisions, when provided with sufficient information, appropriately structured economic incentives and sensible regulations, is refuted by recent empirical and experimental research ... [T]his research ... shows financial markets to be complex evolutionary and dynamic systems encompassing both rational and irrational behaviour.”<sup>109</sup>

Behavioural economists<sup>110</sup> employ Behavioural Decision Theory (‘BDT’) to explain certain observed market phenomena which do not conform to rational choice theory and are instead ascribed to the use of heuristics and cognitive biases. The relevance of BDT to legal theory is demonstrated by the rise of Behavioural Law and Economics (‘BLE’), which seeks to provide the basis for regulatory solutions based on the tenets of BDT<sup>111</sup>. One of the main recommendations of BLE is increased governmental regulation (paternalism) to deal with imbalances created by the influence of investor irrationality. This recommendation, of course, remains anathema to most supporters of modern finance theory, which assumes that financial markets retain greater efficiency absent regulation.

---

<sup>106</sup> Emiliios Avgouleas, ‘The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of A New Orthodoxy’ (2009) 9 J.C.L.S. 23, 28 (hereinafter Avgouleas, *Global Financial Crisis*).

<sup>107</sup> Emiliios Avgouleas, ‘Cognitive Biases and Investor Protection Regulation: An Evolutionary Approach’ (2006) available at [ssrn.com/abstract=1133214](http://ssrn.com/abstract=1133214) accessed 11/04/11 (hereinafter Avgouleas, *Cognitive Biases*).

<sup>108</sup> Christine Jolls, Cass R. Sunstein and Richard Thaler, ‘A Behavioral Approach to Law and Economics’ (1998) 50 Stan. L. R. 1471, 1477 (hereinafter Jolls et al, *A Behavioral Approach*).

<sup>109</sup> Avgouleas, *Global Financial Crisis* 28. For an ‘irrational’ reaction to information, consider the 2007 bank run on Northern Rock. Following the initial run on Northern Rock, the Financial Services Compensation scheme extended depositor cover to £35,000 in the event of bank failure; this failed to stop depositors from withdrawing their funds, even where they had less than £35,000 in the bank. For further discussion see House of Commons Treasury Committee, Fifth Report of Session 2007-08, *The run on the Rock*, (January 2008).

<sup>110</sup> Behavioural economics may be traced back to the work of Herbert Simon (who received Nobel Prize for his work in this field). See Herbert A. Simon, ‘A Behavioral Model of Rational Choice’ (1955) 69 Q. J. Econ. 99; Herbert A. Simon, ‘Rational Choice and the Structure of the Environment’ in Herbert A. Simon, *Models of Man: Social and Rational* (John Wiley 1957) 261, 271; Herbert A. Simon, ‘Rationality as Process and Product of thought’ (1978) 68 Am. Econ. Rev. 1.

<sup>111</sup> Avgouleas, *Mechanics and Regulation*.

### 4.3.1.1 Heuristics

The deepest insights of behavioural finance scholars concern the importance of the inherent and acquired biases which may influence people's decision-making.<sup>112</sup> BDT demonstrates that these influences partially govern the way in which investment decisions are made, via the role of intuition rather than deliberate reasoning.<sup>113</sup> The role of 'heuristics' or 'rules of thumb' lead people to make decisions based on intuitive judgment and choice rather than through rational thought processes: "people are not used to thinking hard, and are more often content to trust a plausible judgment that quickly comes to mind."<sup>114</sup> Thus, people develop (or inherit) heuristics to assist in economizing their time and facilitate *accessibility* – the readiness with which mental contents come to mind.<sup>115</sup> Heuristics may lead to cognitive biases when they result in "(i) systematic errors in estimates of known quantities and statistical facts; and (ii) systematic departures of intuitive judgments from the principles of probability theory."<sup>116</sup> They may also help to explain the tendency of people to oversimplify issues when confronted with complex sets of data, thereby contradicting some of the key assumptions of the rational investor model, which assumes limitless knowledge<sup>117</sup>:

"People rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe and systematic errors."<sup>118</sup>

Heuristics may be categorized into three broad sets: 'representativeness', 'availability'

---

<sup>112</sup> Amos Tversky and Daniel Kahneman, 'Judgement under Uncertainty: Heuristics and Biases' (1974) 185 *Science* 1124 (hereinafter Tversky and Kahneman, *Judgment under Uncertainty*).

<sup>113</sup> "The impossibility of invariance raises significant doubts about the descriptive realism of rational-choice models." See Daniel Kahneman, 'Maps of Bounded Rationality: Psychology for Behavioral Economics' (2003) 93 *Am. Econ. Rev.* 1449, 1459.

<sup>114</sup> *Id.* 1450.

<sup>115</sup> E. Tory Higgins, 'Knowledge Activation: Accessibility, Applicability and Salience' in E. Tory Higgins and Arien W. Kruglanski (eds) *Social Psychology: Handbook of Basic Principles* (Guildford Press 1996).

<sup>116</sup> Avgouleas, *Global Financial Crisis* 31.

<sup>117</sup> "While ... heuristics are useful on average ... they lead to errors in particular circumstances. This means that someone using such a rule of thumb may be behaving rationally in the sense of economizing on thinking time, but such a person will nonetheless make forecasts that are different from those that emerge from the standard rational-choice model ... Just as unbiased forecasting is not a good description of actual human behavior, expected utility theory is not a good description of actual decisionmaking. While the axioms of expected utility theory characterize rational choice, actual choices diverge in important ways from this model." See Jolls et al, *A Behavioral Approach* 1477-1478.

<sup>118</sup> Tversky and Kahneman, *Judgment under Uncertainty* 1124.

and ‘anchoring’.<sup>119</sup> Other research focuses on the effects of these psychological biases in engendering ‘overconfidence’ and ‘optimism’ which are especially relevant when discussing the inflation of asset prices,<sup>120</sup> and ‘loss-aversion’: investors cognitively place double the value on a particular amount of losses than they do on an equal-sized gain.<sup>121</sup>

The representative heuristic prevents people from correctly weighting probabilities when making judgments. Human predictions are influenced to compare the perceived outcome of a particular event via comparison with the closest match to past patterns, without paying sufficient regard to the observed probability of matching the pattern. It is often helpful in reducing the complexity of decision-making but may lead to severe biases. People place far greater relative weight to outcomes with small probabilities: “[P]eople are poorly calibrated when estimating probabilities: events they think are certain to occur actually occur only around 80% of the time, and events they deem impossible occur approximately 20% of the time.”<sup>122</sup> The representative heuristic may affect the judgment of people in many different fashions; for example, the representativeness heuristic leads to the following, non-exhaustive list of symptoms: people are insensitive to the prior probability of outcomes<sup>123</sup>; fail to judge probabilities on the basis of sample size<sup>124</sup>; misconceive the role of chance<sup>125</sup>; are insensitive to predictability<sup>126</sup>; attribute too much weight to certain descriptors (‘the illusion of validity’)<sup>127</sup>; or misconceive the power of regression.<sup>128</sup>

---

<sup>119</sup> *Id.* 1124-1130.

<sup>120</sup> Nicholas Barberis and Richard Thaler, ‘A Survey of Behavioral Finance’ in George M. Constantinides, Milton Harris and Rene M. Stulz, *Handbook of the Economics of Finance* (Elsevier 2003) 1063 (hereinafter Barberis and Thaler, *A Survey*).

<sup>121</sup> Amos Tversky and Daniel Kahneman, ‘Loss Aversion in Riskless Choice: A Reference-Dependent Model’ (1991) 106 Q. J. Econ. 1039 (hereinafter Tversky and Kahneman, *Loss Aversion*).

<sup>122</sup> Barberis and Thaler, *A Survey*.

<sup>123</sup> People ignore the prior probability of outcomes in their estimation of future probabilities.

<sup>124</sup> Sample size will affect probability, although most people will recognize this.

<sup>125</sup> People expect that a process comprised of a random sequence of events will represent the essential characteristics of that process irrespective of the length of that sequence.

<sup>126</sup> People fail to take into account the way in which a statement or description is posited in their estimation of probability; they do not consider that the description itself may be inaccurate.

<sup>127</sup> People often predict by using the outcome (for example, an occupation) that is most representative of an input (for example, a description of a person). The greater the match (or representativeness) between the outcome and the input, the greater the confidence they will have in their prediction.

<sup>128</sup> People fail to recognise the phenomenon of ‘regression towards the mean’; that is, if the measurement of a variable is at first extreme, there is a high probability that the next measurement will be closer to the average.

The availability heuristic limits the calculation of probability in judgment; under this heuristic, people judge the probability of an event by the ease by which they can recall other instances of the same or similar events occurring. As with representativeness, availability is often a useful tool with which to assist in decision making (it is useful to assess the frequency of events because if an event is common it will normally be easier to recall); however, this may lead to a severe underestimation of the probability of particular events from occurring:

“Lifelong experience has taught us that ... instances of large classes are recalled better and faster than instances of less frequent classes; that likely occurrences are easier to imagine than unlikely ones; and that the associative connections between events are strengthened when the events frequently co-occur ... [T]his valuable estimation procedure results in systematic errors.”<sup>129</sup>

Anchoring refers to the process via which people make estimates by a starting at a particular initial value that is adjusted to yield the final answer. In most cases, any adjustment made to the initial starting point is insufficient – the final answer remains heavily biased towards the initial estimate. Further, anchoring contributes to biases in the assessment of distinctive and conjunctive events; people tend to overestimate the probability of conjunctive events and underestimate that of disjunctive events.<sup>130</sup>

### 4.3.2 Asset bubbles

The pervasive influences of these heuristics on ‘real-world’ markets may be exemplified through an analysis of the asset bubble phenomenon,<sup>131</sup> the most pertinent market

---

<sup>129</sup> Tversky and Kahneman, *Judgment under Uncertainty* 1128.

<sup>130</sup> *Id.*

<sup>131</sup> Further market anomalies include: (i) The Royal-Dutch Shell paradox, where Shell Transport and Royal Dutch Petroleum’s shares trade at varying discounts to one another despite comprising the same share capital (see Avgouleas, *Mechanics and Regulation*; Kenneth A. Froot and Emil Dabora, ‘How are stock prices affected by the location of trade?’ (1999) 53 J. Fin. Econ. 189; (ii) The closed-end fund puzzle which demonstrates that the share prices of these funds trade at a discount of approximately 10 percent (see Barberis and Thaler, *A Survey* 1096-1097; Charles M.C. Lee, Andrei Shleifer and Richard H. Thaler ‘Investor sentiment and the closed-end fund puzzle’ (1991) 46 J. Fin. 75); (iii) the equity premium (see Narayana R. Kocherkalota, ‘The Equity Premium: It’s Still a Puzzle’ (1996) 34 J. Econ. Lit. 42; Shlomo Benartzi and Richard H. Thaler, ‘Myopic Loss Aversion and the Equity Premium Puzzle’ (1995) 110 Q. J. Econ. 73; Rajnish Mehra and Edward C. Prescott, ‘The Equity Premium: A Puzzle’ (1985) 15 J. Mon. Econ. 145); (iv) excessive volatility (see Robert J. Shiller, ‘Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?’ (1981) 71 Am. Econ. Rev. 421; Stephen F. LeRoy and Richard D. Porter, ‘The Present-value Relation: Tests Based on Implied Invariance Bounds (1981) 49 Econometrica 555); and (v) excess trading volumes (Terrance Odean and Brad M. Barber, ‘Trading is

puzzle which presents itself in relation to this thesis. ‘Bubble’<sup>132</sup> is the common term for an unwarranted inflation of asset or financial prices; in other words, a deviation of the market price from its true or fundamental value: “Even if all investors have identical factual information, the collective assessment of that information as reflected in the stock price may be inaccurate.”<sup>133</sup> As has been noted,<sup>134</sup> neoclassical economic theory holds that an asset bubble is an impossibility: that market prices always convey fundamental value. Securities market bubbles, the effects of which may be described as “mass hysteria [which leads to] an occasional deviation from rational behaviour”<sup>135</sup>, are the most obvious challenge to the ECMH.<sup>136</sup>

Stock bubbles, propelled by over-exuberant behavioural dynamics decouple pay from performance as prices depart from fundamental value: “The process is characterised by competitive herd behaviour which ... produce[s] widespread and gross asset mispricing which [is] eventually and dramatically corrected.” Bubbles are thus crucial in understanding the limitations of reliance on market pricing in designing compensation packages based on share price performance: “...[B]ubbles, crashes and rent capture are caused by principal/agent problems [and thus] the solution lies in having the principals change the way they contract and deal with agents.”<sup>137</sup><sup>138</sup> Moreover, bubbles are often driven by perverse incentives themselves. As a boom develops, “competition between [corporations] ... push[es] toward more risk-taking. Part of the reason for this is that their compensation systems ... remain inherently pro-cyclical and, as times get better,

---

Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors’ (2000) 55 J. Fin. 773).

<sup>132</sup> ‘Bubbles’ are an ubiquitous phenomenon in modern capitalist development. For a detailed description and explanation of the many bubbles to afflicted asset markets throughout history see Charles P. Kindleberger and Robert Z. Aliber, *Manias, Panics and Crashes: A History of Financial Crises* (5<sup>th</sup> edn, Palgrave MacMillan 2005) (hereinafter Kindleberger, *Manias, Panics and Crashes*).

<sup>133</sup> Marcel Kahan, ‘Securities Laws and the Social Costs of “Inaccurate” Stock Prices’ (1992) 41 Duke L. J. 989.

<sup>134</sup> See the comments of Eugene Fama, n8.

<sup>135</sup> Kindleberger, *Manias, Panics and Crashes* 26-27.

<sup>136</sup> See for example, the ‘obvious’ mispricing of eToys, highlighted by Shiller. eToys was established in 1997 as an online toy retailer and floated in 1999. In 1998, it reached a value of \$8 billion despite sales of just \$30 million and a loss of \$28.6 million. In comparison, in the same year, the long-established high-street retailer Toys ‘R’ Us was valued at \$6 billion on sales of \$11.2 billion and profits of \$376 million. Shortly afterwards, eToys filed for Chapter 11 bankruptcy and was sold in 2001 for just \$5million. Shiller comments: “The valuation the market places on stocks such as eToys appears absurd to many observers, and yet the influence of those observers in market prices does not seem to correct the mispricing.” See Robert J. Shiller, *Irrational Exuberance*, (2<sup>nd</sup> edn, Princeton University Press 2005) 176 (hereinafter Shiller, *Irrational Exuberance*).

<sup>137</sup> Paul Woolley, ‘Why are financial markets so inefficient and exploitative – and a suggested remedy’ in Adair Turner and others, *The Future of Finance: The LSE Report* (London School of Economics and Political Science 2010) (hereinafter LSE, *The Future of Finance*) 123.

<sup>138</sup> John Kay, ‘Should we have “narrow banking”?’ in LSE, *The Future of Finance* 230.

they will load up on risk.”<sup>139</sup> As an example of this and as will be demonstrated in a later analysis of the GFC<sup>140</sup>, incentives within the financial system, particularly the originate-to-distribute model and the use of leverage, generated the potential for an asset bubble, which eventually peaked in the real estate sector. This had ramifications not only for shareholders of the companies concerned but society as a whole: “In each of [the global] crises, the activities which gave rise to them has enriched many individuals involved, while the aftermath imposed substantial and widely dispersed costs on people outside the industry.”<sup>141</sup>

#### 4.3.2.1 Asset bubbles: a behavioural analysis

The market frenzy which leads to bubbles – often termed “irrational exuberance”<sup>142</sup> – has been studied by behavioural finance scholars to explain why asset prices often appear to become divorced from fundamental value. This section discusses why experienced professionals and inexperienced investors alike are carried along by market fever.<sup>143</sup>

---

<sup>139</sup> Peter Boone and Simon Johnson, ‘Will the politics of global moral hazard sink us again?’ LSE, *The Future of Finance* 274.

<sup>140</sup> *Infra*. Chapter 5.

<sup>141</sup> John Kay, ‘Should we have “narrow banking”?’ in LSE, *The Future of Finance* 230.

<sup>142</sup> A term first coined by Alan Greenspan, ‘The Challenge of Central Banking in a Democratic Society’, speech before the American Enterprise Institute for Public Policy, Washington DC (December 5 1996).

<sup>143</sup> There have been many attempts to explain securities market bubbles as manifestations of rational profit maximization efforts by risk-averse traders. Investors are categorised as ‘smart and informed’, or ‘irrational and uninformed’. In this synthesis, it is structural imperfections which prevent the ‘smart and informed’ investors from fully arbitraging the market. ‘Smart’ investors, who know that the securities concerned are overvalued, are aware that their purchases will generate positive feedback effects and encourage others to herd. As prices rise, the positive feedback loop will beget further rises. Of course, the ‘smart’ money knows that prices will eventually collapse but they are prepared to get out of the market at the ‘right’ time and leave the ‘uninformed’ traders with the losses. Once the number of smart investors reaches a critical mass and enough of them realize that a bubble is in existence, their combined trades burst the bubble and prices return to pre-bubble levels. Objections to the models employed centre around the observation that they appear to ignore the realities of real-world trading and empirical data. The models’ strict adherence to the rigours of modern finance theory ignores many of the criticisms levelled at standard financial theory detailed earlier in this chapter. By framing these models in terms of rational choice, supporters of rational bubble theories ignore the significance of imperfect information, which implies that irrational behaviour cannot be modelled adequately with predetermined mechanistic precepts. For rational bubble models, see Paul De Grauwe and Marianna Grimaldi, ‘Bubbles and Crashes in a Behavioural Finance Model’ Central Bank of Sweden Working Paper No. 164 (June 2006); Dilip Abreu and Markus K. Brunnermeier, ‘Bubbles and Crashes’ (2003) 71 *Econometrica* 173; Bradford J. DeLong, Andrei Shleifer, Lawrence H. Summers and Robert J. Waldman, ‘Positive Feedback Investment Strategies and Destabilising Rational Speculation’ (1990) 45 *J. Fin.* 375; Robert P. Flood and Robert J. Hodrick, ‘On Testing for Speculative Bubbles’ (1990) 4 *J. Econ. Persp.* 85; Jeffrey A. Frankel and Kenneth A. Froot, ‘Understanding the U.S Dollar in the Eighties: The Expectations of Chartists and Fundamentalists’ (1987) *Econ. Rec.* (Special Edition) 24. For a summary of rejoinders to rational bubble

In his seminal work<sup>144</sup> Shiller defines ‘irrational exuberance’ thus: “[T]he psychological basis of a speculative bubble ... [is] ... a situation in which news of price increases spurs investor enthusiasm, which spreads by psychological contagion from person to person.”<sup>145</sup> His analysis contends that markets in general are susceptible to inflationary pressures which can be attributed to psychological factors and investor perceptions rather than the economic factors underpinning prices. Bubbles are usually propelled by ‘new-era’ thinking<sup>146</sup> which drives people to believe that future market prospects are “brighter or less uncertain”<sup>147</sup> than in past periods.<sup>148</sup> Recent research into the housing market supports this contention. The belief of most investors that the housing market would continually increase in value<sup>149</sup> has been identified as a major contributory factor to the US subprime mortgage crisis, which precipitated the credit crunch of 2007 and the GFC: “[e]veryone from high-flying banks to ordinary consumers leveraged themselves to the hilt, betting on the dubious yet curiously compelling belief that prices could only go up.”<sup>150</sup> Similar sentiments were prevalent in the UK.<sup>151</sup> Such a belief, as demonstrated by historical episodes of property price bubbles, was irrational. This is also confirmed in the case of stocks: non-fundamental “irrationality” driven by behavioural factors contributes to price departures from value.<sup>152</sup> Thus, prices to some degree at least, are driven by the prevailing economic and financial climate: in bull

---

models, see Roman Frydman and Michael D. Goldberg, *Beyond Mechanical Markets: Asset Price Swings, Risk and the Role of the State* (Princeton 2011) (hereinafter Frydman and Goldberg, *Beyond Mechanical Markets*).

<sup>144</sup> Shiller, *Irrational Exuberance*.

<sup>145</sup> *Id.* 2.

<sup>146</sup> *Id.* Chapter 5.

<sup>147</sup> *Id.* 96.

<sup>148</sup> Renowned financier George Soros performs a similar analysis to the stock market crash of 1987. He argues that markets demonstrate “reflexivity” – that financial markets cannot reach equilibrium because of their participants’ biases. See George Soros, *The Alchemy of Finance* (2<sup>nd</sup> edn, John Wiley and Sons 1994); George Soros, *The Crisis of Global Capitalism: Open Society Endangered* (Public Affairs 1998).

<sup>149</sup> Roubini and Mihm, *Crisis Economics*.

<sup>150</sup> Nouriel Roubini and Stephen Mihm, *Crisis Economics: A Crash Course in the Future of Finance* (Allen Lane 2010) 13 (hereinafter Roubini and Mihm, *Crisis Economics*).

<sup>151</sup> “Many British people seem to believe that it is somehow inevitable that house prices rise by 10pc, 15pc or 20pc every year ... GDP rises, on average, at 2pc to 3pc per year, as do real average earnings. Add 2pc to 3pc inflation to that and you have a good starting point for what you should expect for the progress of most money values over time - 4pc to 6pc per annum. So why should house prices rise by 10pc plus, year after year? ... As with other bubbles, prices went up much further than was justifiable on the economic fundamentals, as the experience of past price rises caused the expectation of further price rises, and as mortgage money became more freely available on extremely attractive terms ... It has been normal for house prices to fall back a long way after excessive rises. It is just that, in the past, high rates of inflation made it possible for this to happen in real terms without a fall in nominal prices, thereby sustaining the popular myth that house prices never go down.” Roger Bootle, ‘House prices could fall back a long way after their excessive rises’ *The Telegraph* (London, 14 July 2008).

<sup>152</sup> Maosen Zhong, Ali F. Darrat and Dwight C. Anderson, ‘Do US stock prices deviate from their fundamental values? Some new evidence’ (2003) 27 *J. B. Fin.* 673.



markets investors are psychologically more inclined to expect further market gains, whereas in bear markets expectations of future market strength are lowered.<sup>153</sup>

Shiller contends that the process of stock overvaluation is linear: irrational enthusiasm for particular stocks leads to short or medium term increases in the price of those stocks. These increases cannot usually be justified objectively from available economic data. This enthusiasm for those stocks in effect, becomes a self-reinforcing cycle; as other market participants are drawn to invest by the returns available, stock prices become further divorced from the value that would be evidenced based upon the measure of stocks' fundamental value (Shiller uses the price-earnings ratio ('P/E')).<sup>154</sup> This is redolent of two manifestations of investor behaviour which have been shown to contribute to distortions in pricing: 'feedback loops' and 'investor herding'. The feedback loop sustains irrational beliefs about market prices and their future trajectory, whilst the prices themselves are given credence by investor herding, propelled by emotion and professional career pressures. As noted by the Turner Review, the significance of momentum or feedback effects and herding is that: "a reasonable judgement is that policymakers have to recognise that all liquid traded markets are capable of acting irrationally, and can be susceptible to self-reinforcing herd and momentum effects."<sup>155</sup>

#### **4.3.2.2 Feedback loops**

Feedback theory dictates that an initial increase in prices due to precipitating factors yields ever increasing price inflation: a self-repeating cycle develops, driven by investor demand. The feedback loop in stock markets may be propelled by one of two factors (or a combination of both): adaptive expectations<sup>156</sup> which are driven by the notion that past price increases will generate further price increases, and/or greater investor confidence<sup>157</sup> which occurs in response to past price increases: "The high demand for [an] asset is generated by the public's memory of high past returns and the optimism the

---

<sup>153</sup> Shiller, *Irrational Exuberance* 59-64.

<sup>154</sup> Shiller uses the US stock index in relation to interest rates in the period 1880-2008 to demonstrate this phenomenon. Shiller's P/E index chart is available here: [www.econ.yale.edu/~shiller/data.htm](http://www.econ.yale.edu/~shiller/data.htm) accessed 25/04/12.

<sup>155</sup> FSA, *Turner Review* 41.

<sup>156</sup> Andrei Shleifer and Robert Vishny, 'A Model of Investor Sentiment' (1998) 49 J. Fin. Econ. 307.

<sup>157</sup> John Y. Campbell and John H. Cochrane, 'By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behaviour' (1999) 107 J. Polit. Econ. 205.

high returns generate for the future.”<sup>158</sup> The feedback may amplify extant positive market forces, propelling the market towards levels it would not reach absent the feedback effects. Positive psychological inputs into the prices of securities and stocks are but one form of feedback, yet they are pervasive:

“These non-economic motivations are mood-related and subject to spontaneous changes that drag the economy up and down. If rationality is a good guide in normal times, it is less so in situations of positive (economic bubbles) and negative (crises) stress.”<sup>159</sup>

These feedback effects decline in time following the initial precipitating factors; in other word, the effects are felt most strongly in the periods immediately following the high returns which produced the altered perceptions of stocks independently of returns<sup>160</sup>:

“[P]ositive feedback reinforces, accelerates, or amplifies whatever is happening, whether it is a virtuous cycle or downward spiral. Systems with positive feedback can thus exhibit exponential growth, exponential collapse, or oscillations with increasing amplitude.”<sup>161</sup>

Of course, positive feedback loops may produce negative results: as investor confidence wanes, stock and security prices may be driven far away from previous values and downward pressure on prices may cause rapid price deflation, driven by ‘Knightian uncertainty’.<sup>162</sup> This is precisely what occurred in the early stages of the GFC as every global financial institution struggled to price various securities and panic prevailed.<sup>163</sup> Shiller compares feedback loop mechanisms in asset markets to those exhibited in Ponzi

---

<sup>158</sup> Robert J. Shiller, ‘Bubbles, Human Judgment, and Expert Opinion’ (2002) *Fin. An. J.* 18 (hereinafter Shiller, *Bubbles*); Kenneth L. Fisher and Meir Statman, ‘Blowing Bubbles’ (2002) 3 *J Psych. Fin. Mar.* 53.

<sup>159</sup> Christian Marazzi, *The Violence of Financial Capitalism* (MIT Press 2011) 81.

<sup>160</sup> This is also partly the basis for Hyman Minsky’s theories on the financial system which shall be analysed in Section 4.4. Other varieties of feedback include price-GDP-price loops, which are manifested in higher stock and security prices due to the so-called ‘wealth-effect’; as people ‘feel’ more prosperous, increased consumer spending raises general price levels in the economy. See Karl E. Case, John M. Quigley and Robert J. Shiller, ‘Comparing Wealth Effects: The Stock Market vs. the Housing Market’ NBER Working Paper No. 8606 (November 2005).

<sup>161</sup> Beinhocker, *The Origin of Wealth* 101.

<sup>162</sup> Risks which cannot be computed. This was originally proposed in Frank H. Knight, *Risk, Uncertainty and Profit* (Houghton Mifflin 1921).

<sup>163</sup> Discussed in detail *infra*. Chapter 5.

schemes,<sup>164</sup> describing such speculative bubbles as “naturally occurring Ponzi processes.”<sup>165</sup>

Research into heuristics supports feedback theories.<sup>166</sup> The representativeness heuristic might lead subjects “to match stock price patterns into salient categories such as dramatic and persistent price trends, thus leading to feedback dynamics, even if these categories may be rarely seen in fundamental underlying factors.”<sup>167</sup> The availability heuristic holds that people make judgments about the probability of an event occurring by recalling recent instances of its occurrence. This, of course, involves a focus on short-term memories as longer-term memories are recalled less easily. Thus, where a stock market has experienced strong returns for a protracted period of time and the memory of these returns is recent, investors will almost certainly overestimate the likelihood of such extraordinary gains persisting – at least in the short-term. As noted by Avgouleas, “the use of the availability bias seems inextricably linked to another cognitive bias, the so-called ‘status-quo bias, or ‘persistence bias’. This ... holds what has recently occurred is expected to continue.”<sup>168</sup> Accordingly, as markets soar in price, investors operating under heuristics conclude that strong returns will proceed exponentially.<sup>169</sup>

### 4.3.2.3 Herding

Herding<sup>170</sup> is yet another consequence of the heuristics and biases already discussed. Herding and feedback loops are interdependent; herding refers to the observation that many market participants may be affected by ‘group’ thinking that is not entirely related

---

<sup>164</sup> Ponzi schemes are fraudulent investment schemes which promises large rewards through investment. However, no investment of subscriber funds is actually made. Instead, initial investors are paid ‘returns’ from the later subscriptions of other people who are drawn to the scheme by reports of abnormal financial performance. This process continues until no new investment can be procured (for example, through a lack of investors, the discovery of the scheme etc), and the scheme collapses.

<sup>165</sup> Shiller, *Irrational Exuberance* 78. Although Shiller acknowledges that in speculative bubbles there is no fraud involved, he contends that they are similar to Ponzi schemes in that investors are drawn to them by tales of large returns. Investors often make these investments based on the perceived returns on offer without performing any due diligence on the fund itself.

<sup>166</sup> *Supra*. Section 4.3.1.

<sup>167</sup> Shiller, *From Efficient Market Theory* 18.

<sup>168</sup> Avgouleas, *Mechanics and Regulation* 66.

<sup>169</sup> Coffee, *Gatekeeper Failure* 325.

<sup>170</sup> The rationale for herding has been summarised thus: “Investors like to buy what others are buying, sell what others are selling and own what others own.” See Avinash Persaud, ‘Sending the herd off the cliff edge: The disturbing interaction between herding and market-sensitive risk management practices’ (2000) 1 *World Econ.* 15.

to the fundamentals of a company or sector of companies. Market prices may fail to reflect fundamental value if the aggregate information on a stock or market is spread amongst investors.<sup>171</sup> Most herding analyses are thus based on models of mutual investor contagion.<sup>172</sup>

Investors are more likely to buy (sell) if others are buying (selling). This is because others' behaviour may presumably be based upon better information regarding the future of the market (known as an 'informational cascade'<sup>173</sup>). Complex judgments that investors must arrive at are necessarily influenced by the plausible judgments of others.<sup>174</sup> From this, market actors rely on the actions of others based on the fact that they believe those others to have superior information which they themselves do not. Even where this belief is empirically false, self-reinforcing contagion may ensue. Even completely rational individuals may engage in herd behaviour when they rely on the judgments of others<sup>175</sup>; whilst this may be individually rational, in the sense that 'following the crowd' may sometimes be a rational strategy, it has the potential to produce group behaviour which is irrational.<sup>176</sup> This results in a significant proportion of market actors 'following the crowd', relying not on information that they have, but on the signal sent to them by other actors' decisions.<sup>177</sup> Thus, the earliest actions in a market may have a disproportionate effect on the judgements made by successive agents. Overvaluation of assets occurs because of significant amplifying reactions of

---

<sup>171</sup> Markus K. Brunnermeier, *Asset Pricing under Asymmetric Information: Bubbles, Crashes, Technical Analysis, and Herding* (OUP 2001) (hereinafter Brunnermeier, *Asset Pricing under Asymmetric Information*).

<sup>172</sup> Andre Orlean, 'Mimetic contagion and speculative bubbles' (1989) 27 *Theor. Decis.* 63.

<sup>173</sup> An 'informational cascade' occurs "when it is optimal for an individual, having observed the actions of those ahead of him, to follow the behavior of the preceding individual without regard to his own information". See Sushil Bikhchandani, David Hirshleifer and Ivo Welch, 'A theory of fads, fashion, custom and cultural change as informational cascades' (1992) 100 *J. Polit. Econ.* 992, 994.

<sup>174</sup> Shiller, *Bubbles*.

<sup>175</sup> Indeed, it may itself be rational to observe the activities of others in coming to an investment decision. See, for example, the famous analogy between beauty contests and financial forecasting proffered by John Maynard Keynes. In short, Keynes described the actions of rational agents in a stock market in terms of the judges of a fictional beauty contest, in which the judges are asked to select a set of six faces from photographs of women that they deem to be "the most beautiful." Keynes observed that the best strategy to win the prize would not be for the individual judge to choose the six faces that he deemed most beautiful, but to try to deduce what the majority perception of "beauty" is and make a selection based upon that. As Keynes himself pointed out: "It is not a case of choosing those [faces] that, to the best of one's judgment, are really the prettiest, nor even those that average opinion genuinely thinks the prettiest. We have reached the third degree where we devote our intelligences to anticipating what average opinion expects the average opinion to be." See John M. Keynes, *The General Theory of Employment, Interest and Money* (Palgrave MacMillan 1936) (hereinafter Keynes, *The General Theory*) 155-156.

<sup>176</sup> Abhijit V. Banerjee, 'A Simple Model of Herd Behavior' (1992) 107 *Q. J. Econ.* 797.

<sup>177</sup> See the seminal work of Solomon Asch, *Social Psychology* (Prentice Hall 1952); see also Morton Deutsch and Harold B. Gerard, 'A Study of Normative and Informational Social Influences upon Individual Judgment' (1955) 51 *J. Abnorm. Soc. Psych.* 629.

speculators on deviations from fundamentals,<sup>178</sup> which may be a reason why one may observe “misalignments between the price and the fundamentals.”<sup>179</sup>

The power of herding is demonstrated by research which confirms that investors will herd even when they know that they are not fully informed and, more significantly, know that their peers are not either.<sup>180</sup> Herding drives asset bubbles because investors disregard – or fail to invest in – information. The effect on prices may be sustained and severe. Where herd behaviour takes hold, information stops flowing to the market and dislocation between prices and values may ensue. As Shiller summarises:

“[P]eople are rationally choosing not to, as they see it, waste their time and effort in exercising their judgment about the market ... Ultimately, all such information cascade theories *are theories of the failure of information about true fundamental value to be disseminated and evaluated.*”<sup>181</sup>

#### **4.3.2.4 Overconfidence, feedback loops and herding in the stock market**

Feedback loops and herding effects are amplification mechanisms. These occasionally act in concert to produce a pervading sense of optimism in financial markets: the ‘overconfidence’ heuristic. In the sphere of behavioural finance, “perhaps the most robust finding in the psychology of judgment is that people are overconfident”.<sup>182</sup> Cognitive research demonstrates that individuals possess a profound bias towards optimism in predicting future events.<sup>183</sup> The levels of confidence people ascribe to their predictions are, in general, far too high.<sup>184</sup> Further, people have “unrealistically rosy views of their abilities and prospects.”<sup>185</sup> Overconfidence also incorporates cognitive

---

<sup>178</sup> Thomas Lux, ‘Herd Behaviour, Bubbles and Crashes’ (1995) 105 *Econ. J.* 881.

<sup>179</sup> Marco Cipriani and Antonio Guarino, ‘Herd Behavior and Contagion in Financial Markets’ (2008) 8 *B.E.J.T.E.* Article 24, 1.

<sup>180</sup> Richard Topol, ‘Bubbles and Volatility of Stock Prices: Effect of Mimetic Contagion’ (1991) 101 *Econ. J.* 786.

<sup>181</sup> Shiller, *Irrational Exuberance* 160 [emphasis in original].

<sup>182</sup> Werner F.M. De Bondt and Richard H. Thaler, ‘Financial decision making in markets and firms: a behavioral perspective’ in Robert A. Jarrow, Vojislav Maksimovic and William T. Ziemba (eds), *Handbook in Operations Research and Management Science: Finance* (Elsevier 1995) (hereinafter De Bondt and Thaler, *Financial decision making*).

<sup>183</sup> Neil D. Weinstein, ‘Unrealistic Optimism about Future Life Events’ (1980) 39 *J. Pers. Soc. Psych.* 806.

<sup>184</sup> Barberis and Thaler, *A Survey* 1064.

<sup>185</sup> *Id.*

dissonance.<sup>186</sup> Whilst individuals are, in general, possessed of remarkable overconfidence in their abilities, they also attribute too much weight to experiences which confirm their abilities to themselves, whilst systematically ignoring instances which should reduce the measurement of their abilities.<sup>187</sup> Cognitive dissonance in this case dictates that when an investor receives confirming public information (which would support his/her investment) it affects his/her confidence levels in a positive manner; however, if the same investment is greeted with disconfirming information, the negative effect on his/her confidence level is comparatively less pronounced.<sup>188</sup> Conversely, agents have a profound propensity to underestimate the probability of adverse outcomes.<sup>189</sup> This has been termed ‘disaster myopia’<sup>190</sup>; it leads agents to seriously underestimate the risks facing both individual firms and the system as a whole. Perhaps the most significant consequence of overconfidence is that it negatively influences the ability of market participants to correctly distinguish between the potential length of the short-run and the long-run.<sup>191</sup> Therefore, where a firm appears to be gaining abnormally large profits in the short-term, investors will attribute greater probability to those high profits continuing than is warranted by financial data. As Avgouleas notes, this may produce the result that “[i]n a rising stock market or any other asset market ... individuals embrace unsustainable beliefs that the price rises will

---

<sup>186</sup>The term refers to the psychological condition which arises when an individual holds two conflicting cognitions resulting in mental conflict. This conflict will drive the subject to attempt to modify existing beliefs to reduce the dissonance between the cognitions. Thus, for example, where an investor loses a lot of money on an investment, the cognitive dissonance that greets him via the conflicting emotions resulting from the loss (feelings of foolhardiness, guilt etc on the one hand and the investor’s image of himself as a smart, intelligent person on the other) might convince him to rationalize the loss as being due to factors beyond his control, for example, bad luck.

<sup>187</sup> See Shelley E. Taylor and Jonathon D. Brown, ‘Illusion and well-being: A social psychological perspective on mental health’ (1988) 103 *Psych. Bull.* 193; Baruch Fischhoff, ‘For those condemned to study the past: Heuristics and biases in hindsight’ in Daniel Kahneman, Paul Slovic and Amos Tversky (eds), *Judgment under Uncertainty: Heuristics and biases* (Cambridge University Press 1982); Ellen J. Langer and Jane Roth, ‘Heads I win, tails it’s chance: The illusion of control as a function of the sequence of outcomes in a purely chance task’ (1975) 32 *J. Pers. Soc. Psych.* 951; Dale T. Miller and Michael Ross, ‘Self-serving bias in attribution of causality: Fact or fiction?’ (1975) 82 *Psych. Bull.* 213; Daryl J. Bem, ‘An experimental analysis of self-persuasion’ (1965) 1 *J. Exp. Psych.* 199. For an overview of these theories, see Rowland Bismarck and Fernando Pasaribu, ‘About Stock Bubbles’, *Econometric Research Institute Working Paper* (September 2009).

<sup>188</sup> Kent et al, *Investor Psychology* 1842.

<sup>189</sup> See Haldane, *Why Banks Failed the Stress Test*.

<sup>190</sup> For discussions of disaster myopia relating to financial markets see Jack M. Guttentag and Richard J. Herring, *Disaster Myopia in International Banking* (Princeton University Essays in International Finance 1986). See also Richard J. Herring, ‘Credit risk and financial instability’ (1999) 15 *Ox. Rev. Econ.* 63.

<sup>191</sup> Narasimhan Jegadeesh and Sheridan Titman, ‘Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency’ (1993) 48 *J. Fin.* 65 (hereinafter Jegadeesh and Titman, *Returns to Buying Winners*).

continue indefinitely.”<sup>192</sup> Moreover, when the effects are combined with those produced by the concept of ‘biased self-attribution’<sup>193</sup>, excessive optimism may ensue.<sup>194</sup> These biases often lead to overconfidence, fed by the subjective underestimation of particular probabilities.<sup>195</sup>

Overconfidence amongst investors may lead to systematic departures from fundamental value in stock prices; it has been shown to affect many sorts of finance professionals, including investment bankers<sup>196</sup> and securities analysts.<sup>197</sup> These professionals make predictions based upon relevant market information; where biased self-attribution or overconfidence operate, stock prices may overreact to a corresponding degree.<sup>198</sup> Overconfidence may also be prevalent amongst institutional investors; they often invest in particular rising markets under the assumption that they will continue to rise, hold their investments until the markets peak, and then get out before the bubble bursts.<sup>199</sup> Often, these institutional shareholders will be ‘short-horizon traders’, who coordinate investment choices and their market research to benefit from economies of scale and concentrate only on variables which will affect prices in the short-term. This will lead investors to ‘rationally’ herd; if not to beat the market, then at least to match it. They are necessarily uninterested in the long-term performance of securities and their trades impair the efficiency of the market and reveal less data concerning assets’ long-term values.<sup>200</sup>

As noted in Chapter Two<sup>201</sup>, reputational constraints also reduce the informational efficiency of markets, especially in relation to professional investment advisers.<sup>202</sup> The first aim of any investment adviser is to outperform his rivals, which is an inducement

---

<sup>192</sup> Avgouleas, *Global Financial Crisis* 33.

<sup>193</sup> Kent Daniel, David Hirshleifer and Avanidhar Subramanyam, ‘Investor Psychology and Security Market Under-and-Overreactions’ (1998) 53 *J. Fin.* 1839. (hereinafter Kent et al, *Investor Psychology*).

<sup>194</sup> Panagiotis Andrikopoulos, ‘Modern finance vs. behavioural finance: an overview of key concepts and major arguments’ (2007) 4 *ICFAI J. Beh. Fin.* 53.

<sup>195</sup> Tversky and Kahneman, *Judgment under Uncertainty* 1129.

<sup>196</sup> C.A.S Stael von Holstein, ‘Probabilistic forecasting: An experiment related to the stock market’ (1972) 8 *Org. Behav. Hum. Perf.* 139.

<sup>197</sup> De Bondt and Thaler, *Financial decision making*.

<sup>198</sup> The ‘overconfidence’ factor influencing stock prices is marginalised over time as the market recognises more relevant information; however, its effects may remain pervasive.

<sup>199</sup> Shiller, *Measuring Bubbles* 49.

<sup>200</sup> Kenneth A. Froot, David S. Scharfstein and Jeremy C. Stein, ‘Herd on the Street: Informational Inefficiencies in a Market with Short-term Speculation’ (1992) 47 *J. Fin.* 1461; Kenneth A. Froot and Maurice Obstfeld, ‘Intrinsic Bubbles: The Case of Stock Prices’ (1991) 81 *Am. Econ. Rev.* 1189.

<sup>201</sup> *Supra*. Chapter 2.

<sup>202</sup> Avgouleas, *Mechanics and Regulation* 68.

to herd amongst professional money managers.<sup>203</sup> Fund managers attract investment and generate management fees based on their short-term performance.<sup>204</sup> Even where a money manager recognises that a security is overvalued they will not realize a gain on the asset unless a majority of their peers also hold the same view and begin to sell the relevant shares. Where an overvaluation persists, an investment manager who sells his position in a market may, in the short-term, appear to be underperforming his rivals.<sup>205</sup>

Where a bubble emerges, the problem is compounded: “those who are cautious and prudent will be outperformed by those who recklessly predict extraordinary returns.”<sup>206</sup> Thus, in securities market bubbles, outward optimism (even where this optimism does not reflect fully the opinion of the fund manager) “amounts less to a heuristic bias than a competitive necessity.”<sup>207</sup> As Avgouleas notes:

“Arguably, the securities analyst who prudently predicted reasonable growth and stock appreciation during the 1990s was increasingly left behind by those self-proclaimed investment gurus who ‘prophesized’ and ‘rhapsodized’ about, the totally unproven, ‘new economic paradigm’ ... The more impressive the returns from initial public offerings (IPOS) of technology companies’ stock, the higher rose the ‘status’ and reputation of such ‘investment gurus’...”<sup>208</sup>

### **4.3.3 Summary: Implications of behavioural finance for stock-based compensation**

This section has discussed various ripostes to modern finance theory, which provide ample empirical evidence for the proposition that stock market prices may not always necessarily reflect fundamental value. This body of work, based mainly on theories of behavioural finance, provides considerable evidence to dispute the conclusions of the ECMH. Of course, market prices contain some element of fundamental value and reflect underlying factors to some degree; however, market prices are informative to the extent

---

<sup>203</sup> Judith Chevalier and Glenn Ellison, ‘Career Concerns of Mutual Fund Managers’ (1999) 114 Q. J. Econ. 389.

<sup>204</sup> The horizon for performance measurement is quarterly periods.

<sup>205</sup> Paul A. Gompers and Andrew Metrick, ‘Institutional Investors and Equity Prices’ (2001) 116 Q. J. Econ. 229; Russ R Wermers, Mutual Fund Herding and the Impact on Stock Prices (1999) 54 J. Fin. 58; David S. Scharfstein and Jeremy C. Stein, ‘Herd Behavior and Investment’ (1990) 80 Am. Econ. Rev. 465.

<sup>206</sup> Avgouleas, *Mechanics and Regulation* 69.

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*



that they are not influenced by behavioural factors. Moreover, the pricing mechanism underestimates risk in rising markets and overestimates risk during market panic. If prices are not wholly indicative of – and deviate for considerable periods from – intrinsic value, then compensation awards based upon stock prices must recognise this. The design of compensation awards ought to further take into account the potential for market crashes which are postulated by this thesis as an inevitable consequence of the functioning of the capitalist economy and are often powered by behavioural factors.

The final section of this chapter is devoted to an analysis of the banking sector and the pervasive effects of leverage-based expansion on financial stability. As the thesis has noted<sup>209</sup> there are two aspects to the weaknesses of executive compensation systems as presently formulated. The first is that the rational investor model is highly flawed. This has been discussed in the opening sections of this chapter.<sup>210</sup> The second is that market-driven behavioural factors breed excess leverage and extended financial innovation, which increase the gap between fundamental value and price, and provide the potential for financial collapse. The following section shall address this second aspect and will provide the basis for a later discussion of the events of the GFC.<sup>211</sup>

#### **4.4 THE BANK SECTOR, ASSET PRICES AND THE FINANCIAL INSTABILITY HYPOTHESIS**

There are economic theories which posit financial instability within capitalist systems as the result of endogenous processes and accordingly, booms and busts are considered to be an inherent aspect of the system.<sup>212</sup> One of these theories is the FIH, conceived of by the late post-Keynesian economist, Hyman Minsky.<sup>213</sup> This theory focuses particularly on the potential for asset prices to inflate during times of economic euphoria, leading to

---

<sup>209</sup> *Supra.* Chapter 1.

<sup>210</sup> *Supra.* Sections 4.1 – 4.3.

<sup>211</sup> *Infra.* Chapter 5.

<sup>212</sup> Charles J. Whalen, 'Understanding the Credit Crunch as a Minsky Moment' (2008) 51 *Challenge* 91 (hereinafter Whalen, *Understanding the Credit Crunch*).

<sup>213</sup> Hyman P. Minsky, 'The Financial Instability Hypothesis' The Jerome Levy Economics Institute of Bard College Working Paper 74 (May 1992) 2 (hereinafter Minsky, *The FIH*); Hyman P. Minsky, 'The financial instability hypothesis' in Charles P. Kindleberger and Jean-Pierre Laffargue (eds), *Financial crises: Theory, History, and Policy* (Cambridge University Press 1982) 37.

bubbles in asset markets and increased systemic fragility.<sup>214</sup> This section of the chapter will therefore link Minsky's crisis theory to the behavioural themes discussed previously.<sup>215</sup>

Whilst there have many criticisms of current executive pay arrangements, few recognise explicitly that financial markets may experience bubbles or price swings which are not merited after consideration of fundamentals. They also do not incorporate into their design the potential for significant implosions of asset prices. These compensation arrangements are thus flawed. Executives may capture rents which are not based on the underlying fundamentals of a particular sector, but through inflated asset and stock prices driven by overconfident expectations of prosperity and the hardwiring of leverage into the financial system. Credit creation facilitates financial institutions in boosting their stock price, thereby augmenting executive compensation, even where any increases may not necessarily be linked to changed fundamentals or prospects. Even when asset prices collapse (as they invariably do) executives who captured personal advantages in rising markets normally retain their financial rewards. If financial markets are inherently unstable and crisis-prone, corporate policies ought to reflect the potential for sharp asset price revaluations in any remuneration structures linked to market prices (including stock-related pay).

#### **4.4.1 The FIH**

The FIH is important in the context of this thesis, not simply for its critique of neoclassical theory but because it explains how the mass creation of credit based on overconfident expectations of future profit inflates the price of assets. Debt-fuelled exuberance inflates valuations and thus distorts the stock price as criterion for measuring corporate performance. Leverage expansion is a direct driver of stock price appreciation but it is also a precursor to financial crisis if left unchecked.

Minsky did not adopt a formal behaviourist model to his crisis theory; in particular because "the financial instability hypothesis was formulated before the current fashion

---

<sup>214</sup> "Such an economy is inherently flawed, because it is intractably cyclical ... each of a succession of cyclical states is transitory in the sense that relations are built up which transform the way in which the economy will behave." Hyman P. Minsky, *John Maynard Keynes* (Columbia University Press 1975) 57 (hereinafter Minsky, *John Maynard Keynes*).

<sup>215</sup> *Supra*. Section 4.3.

of formally reducing aggregate behavior to stylized behavior took hold.”<sup>216</sup> However, Minsky did contend that the “model of the economy used by the relevant agents (businessmen, bankers, and managers of money) in forming their expectations is of vital importance”<sup>217</sup> in determining the price level of assets and the future trajectory of asset markets: in his words, “[t]he agents in the model have a model of the model.”<sup>218</sup> He therefore called for the emergence of an economics-psychology synthesis to explain financial system relations<sup>219</sup> arguing that the FIH:

“[A]ssumes that the models of system performance that help form the expectations of businessmen and bankers are affected by the recent performance of the economy and by agents’ knowledge of its more remote past ... As a result, businessmen, bankers, and managers of money may markedly – and unpredictably – change their behavior in response to small changes in system behavior, if the changes affect their belief in, or the structure of, the model if the economy they use to form expectations.”<sup>220</sup>

This approach, of course, rejects the formal assumptions of modern finance theory and instead posits that investors, lenders, and other market participants are predisposed to optimism, uncertainty and other biases.<sup>221</sup> Minsky’s work thus concurs with the concept of investor bounded rationality.<sup>222</sup> His rejection of the rational investor model is based also on the fact that there can be no guarantee, in Minsky’s view, that economic agents

---

<sup>216</sup> Benjamin M. Friedman, David I. Laibson and Hyman P. Minsky, ‘Economic Implications of Extraordinary Movements in Stock Prices’ (1989) *Brook. Pap. Econ. Ac.* 137, 177. (hereinafter Friedman et al, *Extraordinary Movements*).

<sup>217</sup> *Id.* “Current views about financing reflect the opinions ... [investors] ... hold about uncertainties they must face. These current views reflect the past ... A history of success will tend to diminish the margin of safety that business and bankers require and will thus tend to be associated with increased investment; a history of failure will do the opposite. Investment therefore is a financial phenomenon ... asset prices, financing conditions, and income flows affect investment.” See Hyman P. Minsky, *Stabilizing an Unstable Economy* (2<sup>nd</sup> edn, McGraw-Hill 2008) (hereinafter Minsky, *Stabilizing an Unstable Economy*) 209.

<sup>218</sup> Hyman P. Minsky, ‘Uncertainty and the Institutional Structure of Capitalist Economies: Remarks upon Receiving the Veblen-Commons Award’ (1996) 30 *J. Econ. Iss.* 357 (hereinafter Minsky, *Uncertainty and Institutional Structure*).

<sup>219</sup> “The psychology of uncertainty and the social psychology of waves of optimism and pessimism are two points at which economists need guidance from the relevant sister social sciences. Throughout any discussion of uncertainty and of economic policy in the framework of uncertainty psychological assumptions must be made. At times the conclusions depend in a critical manner upon the psychological assumptions.” Hyman P. Minsky, ‘Financial Instability Revisited: The Economics of Disaster’, Policy Paper prepared for the Steering Committee for the Fundamental Reappraisal of the Discount Mechanism Appointed by the Board of Governors of the Federal Reserve System (January 1970) 24, n21 (hereinafter Minsky, *Financial Instability Revisited*).

<sup>220</sup> Friedman et al, *Extraordinary Movements* 177-78.

<sup>221</sup> Minsky, *Stabilizing an Unstable Economy* 110-112.

<sup>222</sup> Discussed *supra*. Section 4.3.

share consistent models “such as are needed for the existence of a rational expectations equilibrium.”<sup>223</sup>

The FIH form of analysis frames the dynamism of the capitalist economy in terms of speculative euphoria followed by contraction and recession.<sup>224</sup> The FIH postulates that “euphoria is a necessary prelude to a financial crisis and ... euphoria is almost an inevitable consequence of the successful functioning of an enterprise economy.”<sup>225</sup> One consequence that flows from this analysis is that where crises are successfully contained, the potential for future crises to occur is magnified, because ‘risky practices’<sup>226</sup> are validated. The risky practices that contribute to asset price appreciation in this context are the loosening of financing standards and an increase in the overall volume of credit.

Models confirm that the financial system becomes more fragile based on the behaviour of investors and their reduced risk-aversion in euphoric economic conditions<sup>227</sup>: “as the most recent crisis becomes a more distant memory, the relevant actors in the economy change their behaviour so as to erode the financial system’s ability to withstand a major shock...”<sup>228</sup> As financialized economies recover from one crisis, the institutional memories of previous crises may begin to dissipate and market actors may convince themselves that practices deemed too risky following a crisis are no longer so<sup>229</sup>; in the process sowing the seeds for future crises:

---

<sup>223</sup> Minsky, *Uncertainty and Institutional Structure* 360. Minsky argues further: “Implicit in [Keynes’] analysis is a view that the capitalist economy is fundamentally flawed. This flaw exists because the financial system necessary for capitalist vitality and vigour – which translates entrepreneurial animal spirits into effective demand for investment – contains the potential for runaway expansion, powered by an investment boom.” See Minsky, *John Maynard Keynes* 11.

<sup>224</sup> “The way in which a speculative boom emerges and how an unstable crisisprone financial and economic system develops are of particular importance ... Instability emerges as a period of relative growth is transformed into a speculative boom ... The spectacular panics, debt deflations, and deep depressions that historically followed a speculative boom [are evidence for] the emergence of fragile and unstable financial structures.” Minsky, *Stabilizing an Unstable Economy* 193.

<sup>225</sup> Minsky, *Financial Instability Revisited* 51. The term ‘euphoria’ is, of course, highly redolent of terms used to support the claims of behavioural finance.

<sup>226</sup> ‘Risky practices’ and the circumstances of their use have been defined as: “Agents are speculating on the future of the asset prices that are presently being financed and on the future behaviour of the financial markets, as they may have to refinance their debts. Looking for larger profits, they undertake riskier decisions for as long as stability and prosperity continue.” See Yves Rannou, ‘Banking regulation, behavioural finance and the financial crisis in Europe: Looking to the Kindleberger-Minsky paradigm’ (2010) 3 J.R.F.M. 278, 280.

<sup>227</sup> Sudipto Bhattacharya, Charles A. E. Goodhart, Dimitrios P. Tsomocos, and Alexandros P. Vardoulakis, ‘Minsky’s Financial Instability Hypothesis and the Leverage Cycle’ Special Paper 202, LSE Financial Markets Group Paper Series (September 2011).

<sup>228</sup> Friedman et al, *Extraordinary Movements* 160.

<sup>229</sup> See the discussion of the availability heuristic, *supra*. Section 4.3.1.

“As the memory of the [previous] “crisis” fades, risk aversion dissipates and financing terms ease. As a modest economic expansion replaces stagnation, financial institutions and balance sheets in general become more robust. Continued success sets the groundwork for failure. Financial robustness that is deemed excessive leads to the development of new instruments. Once again, power in the belief of creative finance emerges. Even as optimism reigns, financial robustness is eroded: the domain of financial fragility increases.”<sup>230</sup>

The build-up of credit is the lever through which crisis is instigated. Providers of credit, buoyed by economic conditions and less risk-averse than they were previously, become more willing to make loans and lower their capital reserves.<sup>231</sup> The “euphoric expectations typical of [a] boom”<sup>232</sup> presage the inevitable introduction of new financial instruments as the demands for financing increase:

“[P]rofits in the present value calculations that had reflected expected recessions are replaced by those that reflect continuing expansion. Simultaneously there is less uncertainty about the future behaviour of the economy [as] the belief in the reality of a new era<sup>233</sup> emerges ... The shift to euphoria increases the willingness of financial institutions to acquire assets by engaging in liquidity-decreasing portfolio transformations ... The desire to expand and willingness to finance expansion by portfolio changes can be so great that, unless these are serious side effects of feedbacks, an inflationary explosion becomes likely.”<sup>234</sup>

Financial intermediaries therefore extend innovation<sup>235</sup> to provide new capital for loan investment via new financial instruments and *general* asset and stock prices are pushed up.<sup>236</sup> As credit creation expands and the financial structure becomes more fragile, asset bubbles are likely to develop. For example, prior to the recent GFC, a property bubble developed and its deflation was the primary driver of financial distress amongst global banks. However, *many* asset bubbles had emerged due to the availability of

---

<sup>230</sup> Hyman P. Minsky, ‘Longer Waves in Financial Relations: Financial Factors in the More Severe Depressions II’ (1995) 29 J. Econ. Iss. 83, 93.

<sup>231</sup> *Id.* 22.

<sup>232</sup> Ricardo Bellofiore, ‘The Financial Instability Hypothesis and the ‘New’ Capitalism’, Paper presented to the workshop, ‘The complexity of financial crisis in a long-period perspective: facts, theory and models’, (University of Siena, 23-24 March 2009) (hereinafter Bellofiore, *The New Capitalism*).

<sup>233</sup> Note the similarity in terms here between the Minsky argument and the arguments proffered by Shiller on ‘new era’ thinking’ discussed *supra*. Section 4.3.

<sup>234</sup> Minsky, *Financial Instability Revisited* 8-11.

<sup>235</sup> Discussed in the context of the GFC, *infra*. Chapter 5.

<sup>236</sup> Kindleberger notes: “If ... the anticipated profit opportunities improve in at least one important sector of the economy: the profit share of GDP increases. In the early 1980s, US corporate profits were 3 percent of GDP; toward the end of the 1990s [during the Internet stock boom] this ratio had increased to 10 percent. That corporate profits were increasing one-third more rapidly than US GDP in turn contributed to the significant increase in stock prices.” See Kindleberger, *Manias, Panics and Crashes* 23.

cheap credit, causing multiple problems.<sup>237</sup> This, of course, has serious consequences for stock and asset prices and for any compensation structures linked to those measurements.

#### 4.4.1.1 The FIH Taxonomy

The FIH posits that the volume of debt in the stages of economic development is key to the stability of the system; in periods of market euphoria the debt volumes in an economy rise and its quality contracts as less risk averse financiers loosen their lending criteria. Based on this premise, Minsky highlights three forms of financing arrangement used by borrowers and lenders to operate within the leverage cycle: hedge,<sup>238</sup> speculative,<sup>239</sup> and Ponzi<sup>240</sup> financing:

“The overall robustness or fragility of an economy’s financial structure is determined by the mix of hedge, speculative and Ponzi financing units. A liability structure in which units mainly engage in equity financing will lie towards the robust end of the spectrum. A liability structure in which units are heavily in debt so that speculative and even Ponzi finance are common will be towards the fragility end of the spectrum.”<sup>241</sup>

The stability of a financial system is dependent upon the proportion of the various types of financing employed by market participants in a given economy; in other words, the amount of financial leverage within the system. Leverage is therefore hazardous if left unchecked, particularly when the base value of assets is volatile or unstable, as underlying asset values may become mispriced. For example, during of the GFC the FIH taxonomy was evident in the build-up to the collapse in the sub-prime market in the US as excessive leverage fuelled a bubble in house prices.<sup>242</sup> During euphoric periods the relaxation in the pricing of credit may encourage investors to “[believe] that ...

---

<sup>237</sup> Bubbles developed in such areas of the economy as stocks, consumer loans, commercial property, commodities and sovereign debt.

<sup>238</sup> Hedge financing is largely asset-based; that is, hedge-financing units expect the cash-flow from operating capital assets to meet future contractual payments.

<sup>239</sup> Speculative financing units are not reliant on the income from capital asset operations; instead, they rely on re-financing or increasing debt.

<sup>240</sup> Ponzi finance depends entirely upon selling assets to fund future payment commitments.

<sup>241</sup> Hyman P. Minsky, ‘The Capital Development of the Economy and the Structure of Financial Institutions’ The Jerome Levy Economics Institute Working Paper 72 (January 1992) 5.

<sup>242</sup> Paul McCulley, ‘The Shadow Banking System and Hyman Minsky’s Economic Journey’ in Larry Siegel (ed) *Insights into the Global Financial Crisis* (Research Foundation of CFA Institute Publications 2009) (hereinafter, McCulley, *Shadow Banking and Hyman Minsky*).

prices ha[ve] some fundamental validity and, on the basis of this confidence, [create] complicated additional structures whose assumed values became, in turn, articles of faith and the basis for further leverage.”<sup>243</sup>

The key determinant of the impact of a financial crisis is the spread of liability structures that were instigated in the euphoric boom of the cycle: “[the] building into the financial structure of asset prices that reflect boom or euphoric expectations.”<sup>244</sup> In a period of economic stability, prosperity will lead economies to migrate from hedge finance to speculative and Ponzi finance:

“In particular, over a protracted period of good times, capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is a large weight to units engaged in speculative and Ponzi finance ... Consequently, units with cash flow shortfalls will be forced to try to make position by selling out position. *This is likely to lead to a collapse of asset values.*”<sup>245</sup>

Thus, periods of stability are, paradoxically, destabilising: stability encourages an increase in asset prices and expansion in credit.<sup>246</sup> The resulting focus on short-term profits provides incentives for management to expand their trading in order to capture rents from their firms; however, this leveraging occurs at the expense of financial solidity and produces a system more prone to collapse.

---

<sup>243</sup> Andrew Smithers, *Wall Street Revalued: Imperfect Markets and Inept Central Bankers* (John Wiley 2009) 2 (hereinafter Smithers, *Wall Street Revalued*). FSA, *Turner Review* 49. In relation to the banking system, Minsky predicts that as opportunities to gain profit recede, trading will be based on increasing levels of borrowing, or leverage in the financial sector. This contention is discussed *infra*. Chapter 6.

<sup>244</sup> Minsky, *Financial Instability Revisited* 60.

<sup>245</sup> Minsky, *The FIH* 8 [emphasis added].

<sup>246</sup> “The path of a capitalist economy in historic time depends upon the transactions between businessmen and bankers ... During good times, these transactions increasingly reflect overestimation by borrowers and lenders of the risks of external finance. This means that such an economy is unstable ... As the leverage ratio for new investment increases, “underlevered” positions ... are refinanced to conform to the emerging standards.” See Hyman P. Minsky, *Capitalist Financial Processes and the Instability of Capitalism* (1980) 14 *J. Econ. Iss.* 505.

#### 4.4.1.2 The FIH: Bank Leverage, Stock Prices and Executive Compensation

Stock market values correlate generally with systemic trajectory.<sup>247</sup> Thus, in times of economic euphoria, the stock market will typically become inflated, as investors' appetite for risk and speculation is amplified.<sup>248</sup> Banking profits are correlated with the leverage employed by banks, the effects of this on reported earnings, and the resulting impact on bank share prices. Bank executives are placed under incentives to increase leverage with which to expand and increase earnings. This is because more highly levered institutions are able to expand more quickly.<sup>249</sup> Growth at higher rates, however, may be "incompatible with the potential for overall, real economic expansion."<sup>250</sup> Assuming that growth is constant and increased leveraging becomes a general trend, per-share earnings in the banking sector will rise, and be reflected in the stock market valuation of banks.<sup>251</sup> Leverage is linked to remuneration structure through the following argument:

"As holders of stock options, bank management is interested in the share price, on the exchanges, of their bank's shares. The price of any stock is related to the earnings per share, the capitalization rate on earnings of the bank's perceived risk class, and the expected rate of growth of such earnings. If bank management can accelerate the growth of rate of earnings by increasing leverage without a decrease in the perceived security of the bank's earnings, then the price of shares will rise..."<sup>252</sup>

---

<sup>247</sup> Domenico Delli Gatti and Mauro Gallegati, 'Financial Instability, Income Distribution, and the Stock Market' (1990) 12 J. Post Keynes. Econ. 356.

<sup>248</sup> Minsky, *Stabilizing an Unstable Economy* 162.

<sup>249</sup> Minsky provides the following example: "If a bank shows \$25 billion in assets and \$1.25 billion of capital, surplus, and undivided profits, the assets/owners' investment ratio is 20. Further, if the bank makes \$187.5 million in profits after taxes and allowance for loan losses, the ratio of profits to assets will be 0.75 percent and the yield is 15 percent on owners' equity. Assuming this bank paid one-third of earnings in dividends, retained earnings will be 10 percent of the owners' investment, and its equity will increase at 10 percent per year. Supposing that another bank, which is just as profitable in managing assets, has an assets to owners' investment ratio of twelve. Such a bank, with about \$25 million in assets and \$2.085 million in stockholders' equity, will earn \$187,500 (0.75 percent) on assets or 9 percent on owners' equity. If its dividend is 5 percent, retained earnings will be 4 percent of owners' equity. Thus, the first bank, the more highly levered one, will be able to grow faster, even though both banks are equally efficient in terms of net earnings per dollar of assets managed." Minsky, *Stabilizing an Unstable Economy* 263.

<sup>250</sup> *Id.*

<sup>251</sup> Because banks may amplify market trends, it has been suggested that regulators ought to have the power to vary banks' minimum capital ratios to prevent the banking sector from exaggerating cycles. See Smithers, *Wall Street Revalued* 22. This is a key plank of the new Basel Committee Accord on Capital Standards (known as Basel III), which will be discussed *infra*. Chapter 6.

<sup>252</sup> Minsky, *Stabilizing an Unstable Economy* 266.



This introduces short-termism into business models because the more quickly banks are able to expand, in general, the more competitive they will become. Bank management will be focused on increasing stock prices through managing the rate of profitability which accrues, mainly through increasing net earnings per unit of assets through leverage. If remuneration is in some aspect linked to equity returns, leverage will indirectly amplify executive pay. Short-termism is thereby embedded into the incentive structure at financial institutions. The increase in leverage encouraged by these incentive systems is, however, paradoxical; the inherent instability of the economy is heightened where there is a significant increase in the employment of leverage.<sup>253</sup> This is what may drive the oft illusory stock value of financial institutions and other firms affected by rising financial asset prices. It is, ironically, the very pursuit of profit that may condemn the economy to experience crisis in future episodes: the debt-centered account of instability results in “a sudden realization that assets were overvalued and that peoples’ collateral constraints were too lax.”<sup>254</sup> As current prices reflect the future expectations of profit, the prevailing view of market conditions is crucial to firm value.<sup>255</sup> The liability structures that firms use to finance their operations are directly linked to the general business climate:

“More confident expectations of a steady stream of prosperity and of an increase in profits induce investors to buy riskier stocks. Banks make riskier loans in this more optimistic environment. The optimism increases and may become self-fulfilling until it evolves into a mania.”<sup>256</sup>

As noted in Chapter Three<sup>257</sup>, the price of stocks is affected by factors extrinsic to the companies that they represent. If credit creation, in general, leads to asset price

---

<sup>253</sup> As Minsky notes, between 1960 and 1974, the leverage ratio for banks increased by 50 percent: “The higher leverage ratio of banks was part of the process that moved the economy toward financial fragility because it facilitated an increase in short-term borrowing (and in leverage) ... the leverage ratio of banks and the import of speculative and Ponzi financing in the economy are two sides of a coin.” See *Id.* 265. Instances of excessive leverage in the financial sector and the manner in which it may mask underlying financial instability will be highlighted *infra*. Chapter 5.

<sup>254</sup> Gauti B. Eggertsson and Paul Krugman, ‘Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo approach’ Federal Reserve Bank of New York Working Paper (November 2010) 6.

<sup>255</sup> Professor Charles P. Kindleberger demonstrates that crisis is institutionalised in capitalist development. A substantial foundation of Kindleberger’s work is based upon the Minsky taxonomy of crisis, particularly his assault on modern finance theories of financial market operation. His analysis reveals that banking and finance crises are firmly linked to explosions in asset prices. As he notes in relation to the banking crises of the 1980s and 1990s: “[The] financial crises and bank failures resulted from the implosion of the asset price bubbles ... The bank failures, the large changes in interest rates and the asset price bubbles were systematically related...” Kindleberger, *Manias, Panics and Crashes* 3.

<sup>256</sup> McCulley, *Shadow Banking and Hyman Minsky* 257.

<sup>257</sup> *Supra*. Chapter 3.

appreciation there are serious incentives for firm management in an upwardly moving economy to link compensation to equity prices. This credit expansion assists executives in extracting wealth from their firms because profitability is more easily achieved in a highly-levered environment. If remuneration based on stock price performance is to retain validity, it must take into account these market influences which potentially drive stock prices away from underlying fundamental value for protracted periods.

#### 4.4.1.3 The FIH, uncertainty and confidence

According to the FIH, human behaviour is inherently procyclical<sup>258</sup>, leading to herding and feedback processes comparable to behavioural analysis of boom and bust cycles.<sup>259</sup> Thus, the FIH concedes that market participants might not necessarily act rationally, but instead adopt the investment strategy of ‘following the crowd’ (as in Keynes’ beauty contest analogy<sup>260</sup>), or herd:<sup>261</sup> “[T]he professional investor is forced to concern himself with the anticipation of impending changes ... of the kind by which experience shows that the mass psychology of the market is most influenced.”<sup>262</sup> This position may be amplified further by observations on the operation of the FIH and its contribution to procyclical behaviour:

“The essence of the [FIH] is that stability is destabilizing because capitalists, observing stability in the present, have a herding tendency to extrapolate the expectation of stability out into the indefinite future, putting in place ever-more risky debt structures, up to and including Ponzi units, that cause stability to be undermined ... If everybody is simultaneously becoming more risk-seeking, risk premiums shrink, the value of collateral goes up, the ability to lever increases ...”<sup>263</sup>

Empirical research confirms that market actors often pursue this course of investment<sup>264</sup> yet the effects these strategies have on stock prices may be significant:

---

<sup>258</sup> *Id.*

<sup>259</sup> Emilius Avgouleas, *Governance of Global Financial Markets: The Law, the Economics, the Politics* (Cambridge University Press, 2012) 83.

<sup>260</sup> Referred to *supra*. Footnote 175.

<sup>261</sup> Brunnermeier, *Asset Pricing under Asymmetric Information* 190.

<sup>262</sup> Keynes, *The General Theory* 155.

<sup>263</sup> McCulley, *Shadow Banking and Hyman Minsky* 257, 261.

<sup>264</sup> In research into the ‘dot.com bubble’, investors polled claimed that “they believed that the stock they invested in during the bubble period was over-valued but invested in it anyway in anticipation of further

“In a world of heterogeneous investor opinions based on differing degrees of knowledge, sophistication, and scepticism, there is no reason to assume that the average of opinions held within the investing population is necessarily the most accurate measure of stock value. Investors as a whole may under- or overestimate the value of a particular stock if they lack information or succumb to sweeping market tides of bullishness or bearishness.”<sup>265</sup>

The FIH, unlike general equilibrium theory, does not assume perfect investor foresight. Instead, “the market prices of firms at every date place values on intangibles, such as market position or power, and reflect the auras of optimism or pessimism about the future that are assigned to firms, industries, and economies.”<sup>266</sup> The ‘uncertainty’ of these valuations was central to the Keynesian interpretation of financial market operation with the implication that: “In a world ruled by uncertainty, with an uncertain future linked to an actual present, a final position of equilibrium, such as one deals with in static economics, does not properly exist.”<sup>267</sup> The uncertainty that agents must act under necessarily amplifies the psychological factors driving investment, one of which is the degree of confidence held about future prospects in financial markets:

“When knowledge of the future is subjective and imperfect, as it always is, the expectations of rational agents can never be fully and adequately represented solely by probability distributions because such distributions fail to incorporate the agents’ own understanding of the degree of incompleteness of their knowledge. These functions neglect the agents’ “confidence” in the meaningfulness of the forecasts – “how highly we rate the likelihood of our best forecast turning out to be quite wrong ... if we expect large changes but are very uncertain as to what precise form these changes will take, then our *confidence* [in our ability to forecast] will be quite weak”.”<sup>268</sup>

---

increases in price”. See William N. Goetzmann and Ravi Dhar, ‘Bubble Investors: What Were They Thinking?’ Yale ICF Working Paper No. 06-22 (August 2006) 3.

<sup>265</sup> Lynn A. Stout, ‘Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law’ (1990) 99 Yale L. J. 1235, 1249.

<sup>266</sup> Friedman et al, *Extraordinary Movements* 176.

<sup>267</sup> John M. Keynes, *The Collected Writings of John Maynard Keynes, Volume 29: The General Theory and After: A Supplement* (Macmillan 1979). As has been noted by Keynesian economists on rational choice theory: “[T]here are two related problems with the convergence to rational expectations equilibria. First, since agents learn and realized outcomes depend on expectations the uncertain process being forecast cannot possibly be stationary. Learning leads to changing expectations and changes in expectations cause changes in the underlying process ... [T]his kind of learning may never reach a self-sustaining state at all ... Secondly, suppose a rational expectations equilibrium exists. If the system is away from [it], any agent’s expectation formation process must consider the expectations of other agents, since the actual outcome will depend on others’ expectations. Hence, it is possible that even an agent who knows the properties of the [equilibrium] would forecast results different from the [equilibrium].” See Steven M. Fazzari, ‘Keynes, Harrod and the Rational Expectations Revolution’ (1985) 8 J. Post. Keynes. Econ. 66.

<sup>268</sup> *Id.*; Keynes, *General Theory* 148 [emphasis added].

The degree of confidence held may therefore be regarded as the extent to which the agents believe in the ‘meaningfulness’ of their forecasts or, the ‘weight of belief’ or ‘the degree of rational belief’ the agents assign to their predictions.<sup>269</sup> Agents form this degree of confidence using heuristics<sup>270</sup>; for example, “[i]n a rising stock market or any other asset market ... individuals embrace unsustainable beliefs that the price rises will continue indefinitely.”<sup>271</sup> Psychological research has shown that success, even if achieved only in relation to moderate expectations, boosts confidence<sup>272</sup> and that “an extended period of stability and growth by itself increases the confidence of economic units because of the tendency of the latter to discount or to forget about the past.”<sup>273</sup> Conversely, a sharp drop in confidence will lead inexorably to a sharp decline in the

---

<sup>269</sup> James Crotty, ‘Are Keynesian Uncertainty and Macrotheory Compatible? Conventional Decision-Making, Institutional Structures, and Conditional Stability in Keynesian Macromodels’ in Robert Pollin and Gary Dymski (eds), *New Perspectives in Monetary Macroeconomics* (University of Michigan Press 1994).

<sup>270</sup> Minsky notes: “In addition to periods where the likelihood of various states of nature appear stable, there are troubled periods when the subjective estimates as to the likelihood of various states of nature are held with much less confidence. The risk averter reaction to a decline in confidence is to attempt to increase the weight of assets that yield flexibility in portfolio choices, in other words, to increase the value not only of money but also of all assets that have broad, deep, and resilient markets. Any increase in uncertainty shifts the liquidity preference function, and this shift can be quite marked and sudden. Obviously, the reverse – a decrease in uncertainty – can occur. If risk-aversers are dominant then it is likely that an increase in uncertainty can be a rapid phenomenon, whereas a decrease will require a slow accretion of confidence. There is no need for a loss in confidence to proceed at the same pace as a gain in confidence.” Minsky, *Financial Instability Revisited* 20-21.

<sup>271</sup> Avgouleas, *Global Financial Crisis* 33.

<sup>272</sup> The psychology underpinning the FIH has received further theoretical support from emotional finance scholars: “Bubbles start with some novelty which causes excitement. Not only is the excitement of a euphoric state a response to a novel stimulus, but ... we may actively crave novel stimuli. And yet the excitement itself alters judgement... Bubbles then follow an emotional sequence: patchy excitement turns into growing excitement and in turn manic/euphoric excitement. There is normally some conflict between emotion (wishful thinking) and normal asset valuation (reality-based cognition). This conflict increases as asset valuation diverges more and more from a reality-based valuation, causing anxiety. Market players avoid this anxiety by increasingly ignoring reality as the euphoria builds up. Indeed the market tends to be dominated by those who are willing to act, ie those who resolve the tension by privileging phantasy; those who continue to retain reality-based thinking will drop out of the market as the euphoria is perceived to be excessive ... It is only when reality breaks through in some form that phantasy is challenged and the bubble bursts, and panic ensues. But the continuing dominance of wishful thinking is evident in the prevalence of blame rather than guilt when bubble bursts; guilt would require acknowledgement that there had been a major departure from reality-based thinking ... This analysis treats emotion or sentiment as integral to market behaviour, given rein by uncertainty compounded by the tensions in attitudes to asset valuation. It therefore has the potential to flesh out a Minskian account of the psychology of the market. The notion of reality-based thought may be taken to imply some notion of objective valuation as a benchmark. For Minsky, as for Keynes, asset valuation is not an objective process, since it is conducted under uncertainty. Nevertheless, if we consider Keynes’s notion of weight of argument, we can consider degrees of uncertainty, or conversely degrees of confidence, with respect to expectations, on the basis of experience, or evidence. Reality-based thinking therefore draws more on evidence than wishful thinking, which involves self-deception.” Sheila Dow, ‘The Psychology of Financial Markets: Keynes, Minsky and Emotional Finance’ in Dimitri B. Papadimitriou and L. Randall Wray (eds), *The Elgar Companion to Hyman Minsky* (Elgar 2009) 246-262, 257-258.

<sup>273</sup> Eric Tymoigne, ‘The Minskyan System, Part II: Dynamics of the Minskyan Analysis and the Financial Fragility Hypothesis’ UMKC Department of Economics (June 2006).

price of assets. The psychological factors which agents use to combat uncertainty include “spontaneous optimism ... animal spirits [and] nerves and hysteria...”<sup>274</sup> As Keynes notes further:

“We should not conclude from [a discussion on speculation] that everything depends on waves of irrational psychology. [But we must remind] ourselves that ... our rational selves [are] choosing between alternatives as best we are able, calculating where we can, but often falling back for our motive on whim or sentiment or chance.”<sup>275</sup>

Overconfidence therefore provides investors with a frame of reference that colours their view of future probabilities. The ‘risky practices’ that emerge in benign economic conditions and assist in creating financial instability, are driven by confidence that strong market performance will continue, at least in the short-term:

“Unless there are strong reasons for doing otherwise, they often are guided by extrapolation of the current situation or trend, even though they may have doubts about its reliability. Because of this underlying lack of confidence, expectations and hence present values of future incomes are inherently unstable; thus a not unusual event ... can lead to a sharp revaluation of expectations and thus of asset values. It may lead not only to a sharp change in what some particular rational man expects but also to a marked change in the consenses as to the future of the economy.”<sup>276</sup>

Overconfidence may also explain why asset bubbles inflate and continue to persist:

“Some event increases confidence. Optimism sets in. Confident expectations of a steady stream of prosperity and of gross profits make portfolio plunging more appealing. Financial institutions accept liability structures that decrease liquidity and that in a more sober climate they would have rejected.”<sup>277</sup>

Thus, as predicted by the FIH, asset bubbles are natural products of the expectations of investors that positive economic conditions experienced in the recent past will persist.<sup>278</sup>

The FIH contends that it is the validation of previously successful investment strategies that determine that these strategies are adopted with greater confidence. Debt-fuelled

---

<sup>274</sup> Keynes, *General Theory* 162.

<sup>275</sup> *Id.* 163.

<sup>276</sup> Minsky, *Financial Instability Revisited* 20-21.

<sup>277</sup> Kindleberger, *Manias, Panics and Crashes* 27.

<sup>278</sup> Avgouleas, *Mechanics and Regulation* 67.

exuberance begets investment strategies based upon the expectation that a market will continue along its recently observed trajectory. This may instigate further inflation of asset market valuations, distorting stock prices as metrics of fundamental value.

#### **4.4.2 Summary: Implications of the FIH for stock-based compensation**

The FIH combines a critique of modern finance theory with an explanation for the chronic boom-and-bust cycles that beset asset markets. The theoretical analysis of these boom and bust cycles may be linked to the behavioural features of markets (the ‘animal spirits’ of Keynes) which provide empirical evidence that investors are propelled by intrinsic psychological forces rather than rational choices. A crucial psychological force under the FIH taxonomy is ‘euphoria’; periods of euphoria invariably preface a collapse in prices in some area of the economy because of the overconfidence that euphoria breeds in investors about future economic prospects. Thus, prices, in the apogee of a bubble, may lack validity, as they are driven not simply through consideration of fundamental factors, but by market sentiment.<sup>279</sup> This lack of validity is amplified by the debt structure utilised by financial companies in periods of economic prosperity.

As demonstrated by the FIH, periods of economic expansion are normally accompanied by an upsurge in leverage, as financial institutions move from stable conditions (hedge finance) and increase their borrowing levels, until they become unstable (speculative finance; Ponzi finance). This has a distorting effect on the stock prices of those firms; leverage allows companies, particularly financial institutions, to boost their value, often without a concerted change in firm fundamentals. Executives who are rewarded with remuneration linked to stock price paradoxically benefit from increases in leverage, which render their firms less stable and, in general, increase their risk profile. This may appear counterintuitive but it is a mere extension of the principles derived from the FIH.

---

<sup>279</sup> See Nicholas Mangee, ‘The Long Swings Puzzle in Equity Markets: Evidence from *Bloomberg News’s* Market Wraps’ Working Paper, University of New Hampshire (May 2011). Mangee uses data from Bloomberg News daily market-wrap (end of day) stories in his experiment on the factors driving market participants’ trading decisions. This data was collected from every trading day between January 4<sup>th</sup> 1993 and December 31<sup>st</sup> 2009. The data tracks the proportion of days over the sample in each month that a particular category or piece of news was reported to have moved stock prices. Fundamental factors (factors relating to actual information regarding a company or sector) were, as to be expected, cited in 99% of the trading days in the sample period. However, psychological considerations were cited in 55% of the trading days during the sample. This, as even behavioural finance sceptics acknowledge, indicates that psychological factors “play an important role in underpinning price fluctuations in equity markets.” See Frydman and Goldberg, *Beyond Mechanical Markets* 134.

Moreover, the incentive-structure instituted to regulate the conduct of management may not be appropriate to guard against excessive focus on stock-price. This has significant consequences for the use of stock options as the basis for executive compensation in their current form. The compensation that may be awarded to executives in euphoric markets fails to recognise the FIH's prediction that crisis in expansionist financial markets is preordained and that, during certain given periods, asset prices (including equities) will collapse in value. It is the contention of this thesis that this factor ought to be recognised in compensation awards. Subsequent chapters will expand upon this theme.<sup>280</sup>

#### **4.5 CONCLUSION**

This chapter has performed three micro-analyses in relation to the operation of financial markets. These analyses were undertaken to provide a theoretical basis for the contention that the pricing of asset markets is fallible and to highlight the various mechanisms which drive price levels away from fundamental value. They also demonstrate that financial markets, far from being stable, near-equilibrium systems, are characterised by boom and bust cycles. These market characteristics would appear to cast doubt upon the use of stock prices in determining compensation awards, at least without some forms of safeguard or alternative measurements of value.

The first section critiqued the dominant financial market theories, in particular, the ECMH. It discovered that, according to the ECMH, divergence between price and value is small and short-lived. Much of the criticism of the ECMH is 'internal'; that is, economic researchers highlight internal inconsistencies between the predictions of the ECMH and the performance of asset prices without questioning its overarching validity. Nevertheless, there are significant impediments to the effective incorporation into asset prices and obstacles to the vital functioning of arbitrage.

Further, as has been demonstrated both in this chapter of the thesis and in empirical observation of financial markets, there is significant evidence that prices fail to capture fundamental value for protracted periods. As noted in the second analysis of this chapter,

---

<sup>280</sup> Chapter 5 shall discuss the contribution of leverage and flawed incentives to the GFC and Chapter 6 shall make some proposals for reform.

the drivers of this mispricing may be attributed to behavioural finance principles, which explain why market participants may be prone to behaving irrationally in making their investments. This irrationality is exemplified in the heuristics and biases which lead to herding in markets and asset bubbles.

Armed with discussion points from this analysis, the thesis moved to consider the FIH in relation to financial markets and the role that debt-fuelled exuberance plays in exacerbating asset bubbles. This theory provides a framework to explain the instability of modern financial markets and incorporates the axioms of the behaviourist models to explain the inevitability of dislocation in financial markets and by proxy, in equity markets. This has provided further evidence for the proposition that the designers of executive remuneration packages ought, in some way, to be cognisant of the potentiality for financial crashes.

The following chapter will discuss these themes, together with those of the previous chapter on executive compensation<sup>281</sup> in the context of the GFC, to demonstrate how the observations that financial markets are prone to mispricing, investor herding and bubbles discredit the current use of stock-related compensation plans. The consequences of these system attributes, on banks and the stock market, shall be also be analysed.

---

<sup>281</sup> *Supra.* Chapter 3.



## **CHAPTER FIVE – THE CONTRIBUTION OF EXECUTIVE COMPENSATION TO THE GFC**

### **INTRODUCTION**

This chapter, in light of previous discussions, will undertake an analysis of the GFC and its implications for the future design of compensation contracts. It will consider the first stage of the final issue posed in the introductory chapter, and consider the events of the GFC, which exposed the limits of stock-price based remuneration. The GFC is relevant to the contentions of this thesis because virtually all recent financial crises have exhibited similar characteristics; namely, a combination of sovereign or private sector credit growth, which later becomes unsustainable, eventually causing mass asset price deflation (as detailed in the previous chapter under the FIH taxonomy).<sup>1</sup> A key tenet of this thesis is that irrational views concerning the future trajectory of asset markets may prevent accurate pricing of risk. Examining the GFC therefore ought to provide insights into how asset bubbles may inflate and how regulators cannot over-rely on quantitative measures such as market prices to regulate conduct.

Section One thus begins with a brief discussion of the events of the recent GFC. Section Two proceeds with an analysis of the behavioural factors and structural issues which prevented the accurate incorporation of risk premia prior to the collapse in asset market prices during the GFC. The market pricing mechanism did not reflect the likelihood that a crash was imminent. Leverage, financial innovation and institutional recklessness instead fed a cycle of price increases amid expectations of future profits. The mortgage-backed security ('MBS') asset market, in particular, was expanding at a rate which did not reflect underlying fundamentals; this was in part a consequence of poor incentives and behavioural influences at the centre of the financial system. At the same time, burgeoning senior executive pay levels, related to a large extent on the inflation of asset values, were ratcheted up.

Section Three of the chapter proceeds to analyse the incentive systems in financial institutions prior to the 2008 crash, and the role of executive remuneration in

---

<sup>1</sup> *Supra*. Chapter 4.

contributing to the GFC. This section of the chapter notes a further paradox in relation to these systems; the very compensation policies that executives push for (stock-options/stock-related remuneration) may drive financial institutions to become more unstable. This is because the investment strategies which reward executives to the greatest extent are those based upon creating further value from underlying assets (leverage via securitization and derivatives). This hastens the move toward instability because of the increased leverage that securitization allows. So, stock-based executive pay may be both a product of an increasingly fragile financial structure, and a driver of it also.

Section Three concludes by considering other research which purports to demonstrate that stock-price governance was not the cause of recklessness within financial institutions and therefore cannot be blamed for the GFC. However, this highlights a further potential paradox concerning the contribution of compensation to the GFC; even if one subscribes to the view that stock-based compensation was *not* significantly causative of the crisis, this adds greater weight to the conjecture that relying on stock-based governance to prevent corporate collapse is a fallacy. If this view is accepted, this further demonstrates the limits of governance remedies to curb incentives which undermine financial stability: even ‘well-managed’ corporations (in the sense that they subscribe to stock-based governance) may become a threat to economic stability. Greater emphasis on alternative measures of corporate performance must therefore be countenanced in the pay-setting process.

Section Four concludes.

## **5.1 THE GFC: THE BEHAVIOURAL CRITIQUE**

### **5.1.1 Background to the GFC**

In September 2007, Northern Rock, a medium-sized British bank, was forced to ask for emergency financial support from the Bank of England and, despite attempts to find a

private buyer, was eventually taken into public ownership.<sup>2</sup> Financial markets had been experiencing dislocation for some time. In July 2007, one of the five major US investment banks<sup>3</sup>, Bear Stearns, had closed two of its hedge funds.<sup>4</sup> These funds, controlled by Bear Stearns Asset Management, had \$18 billion in assets and specialized in MBS trading. The downturn in the US housing market which began in late 2006 eventually caused such large losses at Bear Stearns that it had to be rescued by JP Morgan Chase at substantial losses to shareholders.<sup>5</sup>

The collapses at Northern Rock and Bear Stearns of 2007 were simply portents of a global financial system collapse and presaged the greatest financial crisis since the Great Depression of the 1930s.<sup>6</sup> The GFC reached its peak with the collapse of Lehman Brothers, the fourth largest global investment bank, in September 2008.<sup>7</sup> The failure of Lehman caused mass panic in financial markets, driving the prices of financial assets into a calamitous descent.<sup>8</sup> Governments in the US and Europe were forced to undertake massive rescue packages to shore up the banking system and recapitalise financial institutions. In the US, the Troubled Asset Relief Program ('TARP') authorized the use of more than \$700 billion to purchase assets and equity from financial institutions,<sup>9</sup> whilst the US government was forced to rescue the world's largest insurer, AIG, and the mortgage giants Fannie Mae and Freddie Mac with direct infusions of equity capital.<sup>10</sup>

---

<sup>2</sup> See Jane Croft, 'London to nationalise troubled mortgage lender' *Financial Times* (London, 18 February 2008); Andrew Porter, 'Brown defends Northern Rock nationalisation' *The Daily Telegraph* (London, 18 February 2008).

<sup>3</sup> The others, prior to the GFC (following which some ceased to be distinct entities, or collapsed) were Goldman Sachs, Merrill Lynch, Morgan Stanley and Lehman Brothers.

<sup>4</sup> Jonathan Davis, 'How a fat tail comes home to roost' *Financial Times* (London, 30 July 2007).

<sup>5</sup> Landon Thomas Jr., and Eric Dash, 'Seeking Fast Deal, JP Morgan Quintuples Bear Stearns Bid' *New York Times* (New York, 25 March 2008). JP Morgan Chase eventually paid \$10 per share for the entire share capital of Bear Stearns, valuing the company at \$1.2 billion. As late as January 2007, Bear Stearns had been valued at \$172 per share (giving a market capitalisation of \$20.64 billion).

<sup>6</sup> Mervyn King, Governor of the Bank of England, has stated that the GFC has the potential to be the worst in history. See James Kirkup, 'World facing worst financial crisis in history, Bank of England Governor says' *The Daily Telegraph* (London, 6 October 2011).

<sup>7</sup> For a detailed discussion of the events of 2008, see The National Commission on the Causes of the Financial and Economic Crisis in the United States, *The Financial Crisis Inquiry Report*, Pursuant to Public Law 111-21 (January 2011) (hereinafter FCIC, *Financial Crisis Inquiry Report*); Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis* (March 2009) (hereinafter FSA, *Turner Review*); Paul Mizen, 'The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses' (2008) 90 Fed. Res. Bank. St. 531.

<sup>8</sup> Emiliios Avgouleas, 'The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy' (2009) 9 J.C.L.S. 23 (hereinafter Avgouleas, *Global Financial Crisis*).

<sup>9</sup> This amount was reduced to \$475 billion by the Dodd-Frank Wall Street Reform and Consumer Protection Act 2010.

<sup>10</sup> Ashley Seager and Philip Inman, 'US Steps in to Rescue Failing Home Loan Giants' *The Guardian* (London, 8 September 2008).

In the UK, the effects of the GFC were even more devastating. Following the nationalisation of Northern Rock, the UK government was forced to rescue the world's largest bank, RBS, in October 2008, followed by a rescue of Lloyds Banking Group in 2009.<sup>11</sup> There were therefore obvious and extreme spillover effects from asset markets to stock indices, adding support to the predictions of the FIH and casting doubt on the value of stock-based incentives to regulate behaviour.

Whilst there was some time lag between the deterioration in the MBS market and the consequential drop in equity prices, the falls in stock markets mirrored those in the market for complex securities. The stock market became a leading indicator of fractured market stability in mid-2008. On one day alone – September 29<sup>th</sup>, 2008 – the S&P 500 dropped 8.5 percent. For the entire 2008, the stock market dropped 38.5 percent, the largest annualized loss since the Great Depression of the 1930s.<sup>12</sup> This translated into a loss in market value of equities alone of \$10.4 trillion.<sup>13</sup> By March 2009, world stock markets had tumbled by a further 25 percent.<sup>14</sup> The cost of the GFC in rescues alone has been estimated at £7 trillion (c.\$11 trillion).<sup>15</sup> The cost to global citizens from the resultant economic catastrophe is impossible to estimate.

### **5.1.2 Behavioural factors which contributed to the GFC**

The substantial financial fragility engendered by the rapid expansion in credit and deterioration in risk controls for lending – each driven by behavioural factors – ensured that bubbles developed in all asset markets, beginning with the US housing market.<sup>16</sup> Any structured credit product created from the value of these assets was vulnerable to a reduction in underlying asset values. A Minskyian analysis of capitalist system development suggests that, in this environment, a financial crisis of significant magnitude was inevitable.<sup>17</sup>

---

<sup>11</sup> Andrew Porter, James Kirkup and Gordon Rayner, 'Financial crisis: HBOS and RBS 'to be nationalised' in £50 billion state intervention' *The Daily Telegraph* (London, 12 October 2008).

<sup>12</sup> Robert Pozen, *Too Big To Save? How to Fix the U.S. Financial System* (John Wiley & Sons, 2010) 103.

<sup>13</sup> *Id.*

<sup>14</sup> Robert Skidelsky, *Keynes: The Return of the Master* (Penguin 2009) 13.

<sup>15</sup> Edmund Conway, 'IMF puts total cost of crisis at £7.1 trillion' *The Daily Telegraph* (London, 8 August 2009).

<sup>16</sup> Avgouleas, *Global Financial Crisis* 34.

<sup>17</sup> See discussions *supra*. Chapter 4, section 4.4.

Several causes of the GFC in a global context have been identified by regulatory bodies since 2008<sup>18</sup>. The most significant of these causes in the context of this thesis were:

- (i) A massive, unsustainable build-up in systemic leverage based on euphoric overconfidence in future price increases. The connected behavioural myopia which afflicted market participants led many investors and executives to believe with confidence that asset markets would continue to appreciate in value. As losses in structured credit markets mounted, overconfidence gave way to panic and loss aversion due partly to an insufficient understanding of the risks attached to complex credit products; and
- (ii) Poorly structured compensation incentives, including a failure of risk management within financial institutions. Weak calibration of incentives within the originate-to-distribute model generated fees for executives trading in securitized products with no immediate default risk to the financial institution or employee concerned.<sup>19</sup> Short-termist views of corporate performance drove defective assessment of the risk of borrowers, and executives were incentivised by stock-based remuneration to increase the leverage of their firms.

The next section explores the first of these themes – excessive leverage – through the lens of behavioural finance and the FIH. Poor compensation incentives shall then be addressed in later sections.<sup>20</sup>

---

<sup>18</sup> In the US, the FCIC concluded that the GFC was both man-made and avoidable. According to the Commission the causes were: “Widespread failures in financial regulation, including the Federal Reserve’s failure to stem the tide of toxic mortgages; Dramatic breakdowns in corporate governance including too many financial firms acting recklessly and taking on too much risk; An explosive mix of excessive borrowing and risk by households and Wall Street that put the financial system on a collision course with crisis; Key policy makers ill prepared for the crisis, lacking a full understanding of the financial system they oversaw; and systemic breaches in accountability and ethics at all levels.” See FCIC, *Financial Crisis Inquiry Report, Conclusions xv*. In the UK, the FSA identified the causes as: (i) The growth of the financial sector; (ii) Increasing leverage – in several forms; (iii) Changing forms of maturity transformation: the growth of shadow banking; (iv) Misplaced reliance on sophisticated maths; (v) Hard-wired procyclicality: ratings, triggers, margins and haircuts. The specific problems that this led to within the financial system were attributable to: (i) failures in underwriting standards for sub-prime mortgages; (ii) market discipline for securitisation; (iii) rating agency assessments of securitised mortgage products; (iv) risk management in US and European banking institutions; and (v) regulatory policies to mitigate failures in risk management systems. See FSA, *Turner Review 16*. See also G-20, ‘The Declaration of the Washington Summit on Financial Markets and the World Economy’ (November 2008, Washington D.C., U.S.).

<sup>19</sup> John C. Duggan, Comptroller of Currency, Speech Given at the Annual Convention of The American Bankers Association (8 October 2007) (transcript available at [www.occ.treas.gov/ftp/release/2007-109a.pdf](http://www.occ.treas.gov/ftp/release/2007-109a.pdf)). Duggan observed that with the increasing use of the originate-to-distribute model of lending, lending standards shifted from evaluating the likelihood of repayment to evaluating the likelihood that the loan could be sold.

<sup>20</sup> *Infra*. Section 5.3.

## 5.2 LEVERAGE-FUELLED OVERCONFIDENCE & FINANCIAL FRAGILITY

Debt-fuelled expansion has been widely acknowledged as a proximate cause of the GFC.<sup>21</sup> It is apparent from recent research that financial companies employed massive leverage ratios.<sup>22</sup> Regulators were captured by the view that risk had been successfully contained and market actors prior to 2008, seduced by euphoria and confident of future profits from financial investments, began trading on increasing borrowing levels. The move toward financial fragility was assisted by regulators. In 2004, for example, the SEC allowed banks to increase their leverage ratios from approximately 12:1 to 30:1:<sup>23</sup>

“The ... error came in 2004, when the S.E.C. let securities firms raise their leverage sharply. Before then, leverage of 12 to 1 was typical; afterward, it shot up to more like 33 to 1. What were the S.E.C. and the heads of firms thinking? Remember, under 33-to-1 leverage, a mere 3 percent decline in asset values wipes out a company. Had leverage stayed at 12 to 1, these firms wouldn't have grown as big or been as fragile.”<sup>24</sup>

Where underlying asset values are mispriced, volatile, or unstable, the threat to financial stability from over-leveraging is amplified.<sup>25</sup> The use of short-term based performance measurement<sup>26</sup> targets provided further proclivity towards greater leverage,<sup>27</sup> ensuring – as predicted by the FIH<sup>28</sup> – that the financial system became more unstable:

---

<sup>21</sup> Almost all of the reports commissioned following the GFC cite financial leverage as a significant cause of the crisis. For a flavour of these critiques, see FCIC, *Financial Crisis Inquiry Report*.

<sup>22</sup> The de Larosiere Group, *The High Level Group on Financial Supervision in the EU* (25 February 2009) 6 (hereinafter EC, *de Larosiere*). Leverage levels at European banks in 2008 included: ING, 49:1; Deutsche Bank 53:1; and Barclays, 61:1. See also Nouriel Roubini and Stephen Mihm, *Crisis Economics: A Crash Course in the Future of Finance* (Allen Lane, 2010) (hereinafter, Roubini, *Crisis Economics*) 127. Debt within the US financial sector alone increased from 22 percent of GDP in 1987 to 117 percent of GDP in 2008.

<sup>23</sup> See SEC Final Rule 15c-3-117: ‘Alternative Net Capital Requirements for Broker-Dealers That Are Part of Consolidated Supervised Entities’, CFR Parts 200 and 240. For further discussion points see John C. Coffee, ‘Analyzing the Credit Crisis: Was the SEC Missing in Action?’ *New York Law Journal* (New York, 5 December 2008). The 2002 EU Financial Conglomerates Directive (Directive 2002/87/EC of the European Parliament and of the Council) also reduced the net capital required to be held by European banks.

<sup>24</sup> Alan S. Blinder, ‘Six Errors on the Path to the Financial Crisis’ *New York Times* (New York 25 January 2009).

<sup>25</sup> Markus K. Brunnermeier, ‘Deciphering the 2007-08 Liquidity and Credit Crunch’ (2008) 23 *J. Econ. Persp.* 77.

<sup>26</sup> Discussed *infra*. Section 5.3.

<sup>27</sup> For example, one of the key findings of the FSA in its investigation into the failure of RBS was based on a management philosophy which, amongst other things, emphasised the importance of “an overt focus

“As these [stock] options motivated financial firms to take more risk and use more leverage, the evolution of the system provided the means. Shadow banking institutions faced few regulatory constraints on leverage; changes in regulations loosened the constraints on commercial banks. OTC derivatives allowing for enormous leverage proliferated. And risk management, thought to be keeping ahead of these developments, would fail to rein in the increasing risks.”<sup>29</sup>

The GFC revealed the enormous size of the components comprising the shadow banking system including Structured Investment Vehicles (‘SIVs’)<sup>30</sup> and commercial paper conduits, used by banks to finance off-balance sheet lending.<sup>31</sup> Importantly, their exposure was not required to be included in the accounts of the parent bank;<sup>32</sup> these structures therefore permitted huge growth in the use of leverage to fund trading activities.<sup>33</sup> However, in highly-leveraged environments capital will be wiped out in the event of negligible asset price falls.<sup>34</sup> Thus, leverage makes capitalist economies much more unstable and an economy that builds itself on debt is vulnerable to complete collapse:

---

on capital ‘efficiency’, i.e. on high leverage.” See FSA Board Report, *The failure of the Royal Bank of Scotland* (December 2011) 233 (hereinafter FSA, *RBS Report*).

<sup>28</sup> Discussed *supra*. Chapter 4, Section 4.4.

<sup>29</sup> FCIC, *Financial Crisis Inquiry Report* 63.

<sup>30</sup> These “are entities that allow financial institutions to transfer risk off their balance sheet and permit exposures to remain mostly undisclosed to regulators and investors; to improve the liquidity of loans through securitization; to generate fee income; and to achieve relief from regulatory capital requirements.” See IMF, *Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness* (April 2008) (hereinafter IMF, *Containing Systemic Risks*) 69.

<sup>31</sup> These vehicles, incorporated in jurisdictions with lax regulatory environments are tools used to benefit from regulatory arbitrage; due to lower capital requirements these vehicles may leverage their capital base to fund trading to a greater degree than the bank which owns them. As noted by the Turner Review, accounting rules relating to these vehicles did not reflect underlying fundamentals: “At the individual bank level, the classification of these as off-balance sheet proved inaccurate as a reflection of the true economic risk, with liquidity provision commitments and reputational concerns requiring many banks to take the assets back on balance sheet as the crisis grew, driving a significant one-off increase in measured leverage. But even if this had not been the case, the contribution of SIVs and conduits to total system leverage ... would still have increased total system vulnerability.” See FSA, *Turner Review* 20.

<sup>32</sup> Citigroup in 2007, for example, was responsible for 25 percent of the market in SIVs. Its biggest SIV, Centauri, had lent out \$21 billion before the credit crunch. It was not included in the consolidated accounts of Citigroup plc in 2006. Citigroup announced write-downs in 2008 of approximately \$41 billion. See Paul Mason, *Meltdown: The End of the Age of Greed* (Verso, 2009) 79.

<sup>33</sup> The problem with SIVs which manifested during the GFC was that under Basel II, banks were not required to hold capital for any credit lines which were less than one year in duration. Most SIVs were therefore extended credit lines of 364 days or less; thus, many banks did not have capital buffers with which to withstand heavy losses from SIV trading. By 2007, the Federal Reserve Bank of New York had calculated that SIVs and similar vehicles had total assets of \$2.2 trillion, more than the assets of hedge funds (\$1.8 trillion) and more than half of the total of the five largest investment banks (\$4 trillion). See Gillian Tett, *Fool’s Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets and Unleashed a Catastrophe* (Little, Brown, 2009) 263.

<sup>34</sup> Roubini, *Crisis Economics* 82. See also Margaret M. Blair, ‘Financial Innovation, Leverage, Bubbles and the Distribution of Income’ (2010-2011) 30 Rev. B. Fin. L. 225 (hereinafter Blair, *Financial Innovation and Leverage*).

“[F]inancial fragility ... interact[s] dangerously with leverage. When investors or intermediaries perceive some securities to be safe, they would borrow using them as collateral, often with very low haircuts. The realization that these securities are actually risky would lead to their sales by both investors and intermediaries trying to meet their collateral requirements, leading to additional fragility from fire sales.”<sup>35</sup>

Many years of substantial returns in the MBS market and year-on-year increases in the value of property led bank management to consistently underestimate the probability that the value of these securities might become impaired, especially in conditions of market panic.<sup>36</sup> Prior to the GFC, the vast majority of investors believed that property prices, in the US and elsewhere, would continue to appreciate.<sup>37</sup> This may be explained by the fact that memories of recent large gains in the housing market were fresh and, under the availability heuristic,<sup>38</sup> some investors (wishing not to be excluded from profits in this market) began to herd in the view that property prices were in an inexorable ascendancy.<sup>39</sup> Thus: “[a] positive feedback loop was created [by the housing

---

<sup>35</sup> Nicola Gennaioli, Andrei Shleifer and Robert W. Vishny, ‘Neglected Risks, Financial Innovation, and Financial Fragility’ FEEM Working Paper No.114.2010 (October 2010) 35-36. Firesales are defined by Shleifer and Vishny as “essentially a forced sale of an asset at a dislocated price. The asset sale is forced in the sense that the seller cannot pay creditors without selling assets. The price is dislocated because the highest potential bidders are typically involved in a similar activity as the seller, and are therefore themselves indebted and cannot borrow more to buy the asset. Indeed, rather than bidding for the asset, they might be selling similar assets themselves ... Assets sold in fire sales can trade at prices far below value in best use, causing severe losses to sellers.” Andrei Shleifer and Robert W. Vishny, ‘Fire Sales in Finance and Macroeconomics’ (2011) 25 J. Econ. Persp. 29. See also Andrei Shleifer and Robert W. Vishny, ‘Unstable Banking’ (2010) 97 J. Fin. Econ. 306; Jeremy C. Stein, ‘Securitization, shadow banking and financial fragility’ (2010) 139 Daedalus 41; Markus K. Brunnermeier, Andrew Crockett, Charles Goodhart, Avinash D. Persaud and Hyun Shin, ‘The Fundamental Principles of Financial Regulation’ Geneva Reports on the World Economy 11 (January 2009) 21.

<sup>36</sup> Frank J. Fabozzi, ‘The Structured Finance Market: An Investor’s Perspective’ (2005) 61 Fin. An. J. 27.

<sup>37</sup> House price appreciation was both encouraged by and supported the granting of mortgage loans to poorer Americans underwritten by federal bodies such as Fannie Mae. See Gary B. Gorton, ‘The Panic of 2007’ NBER Working Paper No. 14358 (August 2008). The fact was that for significant numbers of mortgage defaults to occur, home prices did not have to fall; they simply had to stop rising. In fact, after rising consistently from 1997 to 2005, house prices in the US lost nearly two percent of their value in 2006. See Michael Lewis, *The Big Short: Inside the Doomsday Machine* (Allen Lane, 2010) (hereinafter Lewis, *The Big Short*). Many loan originators were aware that mortgage loan quality had deteriorated; however, they believed that house prices would continue to appreciate and borrowers would be able to refinance their loans; see Yuliya Demyanyk and Otto Van Hemert, ‘Understanding the subprime mortgage crisis’ (2011) 24 Rev. Fin. Stud. 1848.

<sup>38</sup> Discussed in depth in Chapter 4, *supra*. This interpretation of events is supported by a great deal of anecdotal evidence from the period preceding the crash. See Andrew Redleaf and Richard Vigilante, *Panic: The Betrayal of Capitalism by Wall Street and Washington* (Richard Vigilante Books, 2010) 145-160.

<sup>39</sup> Several financial companies specializing in mortgages for borrowers with poor credit histories (subprime) raised record amounts for mortgage loans prior to the collapse in the housing market. New Century Financial (‘NCF’), which collapsed in early 2007, was one such firm. In 1997, its first year of trading, it raised \$2 billion for loan originations; in 2005, it raised \$56.1 billion. This extra lending at



boom] as the rapid appreciation of the underlying assets seemed to justify a large triple-A tranche for derivative collateralised debt obligations ('CDOs') and related products."<sup>40</sup> The appetite for securitised CDOs amongst financial institutions in the early twenty-first century grew exponentially as the demand for 'safe' assets increased following regulatory changes in the US and the NASDAQ crash of 2001.<sup>41</sup> The financial sector managed to create triple-A rated assets engineered from lower quality mortgages, securitized from a host of different payment streams.<sup>42</sup>

Where confidence in the valuation of securities is shaken, panic may set in and rapid deleveraging may occur; as predicted by the FIH, a reduction in confidence regarding future economic prospects will reduce the price of assets.<sup>43</sup> This occurred during the GFC; when the irrational belief that house prices would continue to rise was revealed to be mistaken, an irrational panic ensued. Financial institutions, unsure of the size of their exposures to the asset-backed securities markets and not always cognisant of the risks attendant to these products,<sup>44</sup> began to sell assets to bolster their capital and balance sheets. As noted by Avgouleas "in the process, they lost confidence in their assessments

---

NCF occurred against a backdrop of declining equity capital; in 2004, NCF had equity of \$987 million yet by 2006 its equity had dropped to \$457 million. Further, "the appearance of the warning flags [regarding the housing market] ... did not influence management." See Allen B. Frankel, 'The risk of relying on reputational capital: a case study of the 2007 failure of New Century Financial' BIS Working Paper No. 294 (December 2009) 12 (hereinafter Frankel, *New Century Financial*); Michael Missal, Final Report of Michael Missal, Bankruptcy Court Examiner, in re: New Century Holdings, Inc. Chapter 11, case no. 07-10416 (KJC), US Bankruptcy Court of the District of Delaware, February.

<sup>40</sup> Richard J. Caballero, 'The "Other" Imbalance and the Financial Crisis' MIT Working Paper 09-32 (December 2009) 4.

<sup>41</sup> Frank Partnoy and David A. Skeel, Jr., 'The Promise and Perils of Credit Derivatives' (2007) 75 U. Cinn. L. R. 1019.

<sup>42</sup> Securities are tradable products which are based upon the value of a group of underlying assets. "The issuance of US ABS, for example, quadrupled from \$337 billion in 2000 to over \$1,250 billion in 2006 and non-agency US mortgage-backed securities (MBS) rose from roughly \$100 billion in 2000 to \$773 billion in 2006." See EC, *de Larosiere* 8.

<sup>43</sup> Ana Fostel and John Geanakoplos, 'Leverage Cycles and the Anxious Economy' (2008) 98 Am. Econ. Rev. 1211; John Geanakoplos, 'Liquidity, Default, and Crashes: Endogenous Contracts in General Equilibrium' *Advances in Economics and Econometrics: Theory and Applications*, Eighth World Conference, Volume II, Econometric Society Monographs (2003) 170.

<sup>44</sup> "Senior management typically has little time to review the research, much less guide it, and in recent years, many quants have been hired from technically sophisticated disciplines ... but without any formal training in finance or economics ... [T]he broad-based failure of the financial industry to fully appreciate the magnitude of the risk exposures in the CDO and CDS markets suggests that the problem was ... too little knowledge." See *Hedge Funds, Systemic Risk, and the Financial Crisis of 2007-2008: Hearing Before the H. Comm. on Oversight and Government Reform* *Hedge Funds*, 110th Cong. 26 (2008) (statement of Andrew W. Lo, Harris & Harris Group Professor, MIT Sloan School of Management), available at <http://oversight.house.gov/documents/20081113101922.pdf> accessed 17/04/12 (hereinafter, *Lo Statement*) 27.

of the credit risk posed by other market participants”<sup>45</sup> as the opacity of the market and general fear that gripped financial markets for the latter half of 2008 led banks to attempt to deleverage and hoard capital: “[the] rapid decay of the values of ... assets in ... banks threatened their ability to pay interests due ... Financial innovations stretch[ed] liquidity and increase[d] leverage in a way that endanger[ed] solvency.”<sup>46</sup> Market participants further “lost faith in the ratings of complex structured products ... [and] ... pulled back from a wide range of structured product markets”<sup>47</sup> as confidence in the solvency of all financial institutions dried up. Banks refused to enter the inter-bank loan markets, leading to a system-wide liquidity crunch, partly driven by fear of contagion and partly because banks were under an obligation to bolster their capital.<sup>48</sup> Thus, financial institutions which appeared highly liquid and solvent (hedge units) were forced into a cycle of deleveraging and eventually had to “sell position to make position”<sup>49</sup> (Ponzi units).<sup>50</sup>

Because baseline assets were a significant driver of firms’ share price and executives controlled significant stock options, any increase in baseline asset prices would benefit

---

<sup>45</sup> Avgouleas, *Global Financial Crisis* 38. Carney notes: “[W]idespread uncertainty about the distribution of losses ... fed concerns over counterparty risk. With the assumption that risk had been irrevocably transferred found wanting, market participants became uncertain about the true financial situations of their counterparties, and have sometimes been reluctant to lend, even at very short horizons.” See Mark Carney, Governor of the Bank of Canada, ‘Addressing Financial Market Turbulence’, Remarks to the Toronto Board of Trade (13 March 2008) 2 (hereinafter Carney, *Addressing Financial Market Turbulence*).

<sup>46</sup> Yves Rannou, ‘Banking regulation, behavioural finance and the financial crisis in Europe: Looking to the Kindleberger-Minsky paradigm’ (2010) 3 J.R.F.M. 278, 282 (hereinafter Rannou, *Looking to the Kindleberger-Minsky paradigm*).

<sup>47</sup> The President’s Working Group on Financial Markets, ‘Policy Statement on Financial Market Developments’ (March 2008) 9. This facet of the lead-up to the GFC revealed further paradoxes in the structure and operation of financial markets. Securitised products derived ratings on their creditworthiness from credit ratings agencies (the three largest are Moody’s, Standard & Poors, and Fitch). It was acknowledged widely that the ratings ascribed to many structured credit products were faulty and did not reveal their true risk, yet bank management failed to address them. As postulated by one esteemed investor in 2006: “How could you [the ratings agency] rate any portion of a bond made up exclusively of subprime mortgages triple-A?” See Lewis, *The Big Short* 103

<sup>48</sup> See Emiliios Avgouleas, *Governance of Global Financial Markets: The Law, the Economics, the Politics* (Cambridge University Press, 2012) (hereinafter Avgouleas, *Governance of Global Financial Markets*) Chapter 3. Furthermore, the fear of counterparty credit risk due to the increasing interconnectedness of the financial system may drive uncertainty and capital hoarding.

<sup>49</sup> Jan Kregel, ‘Why don’t the bailouts work? Design of a new financial system versus a return to normalcy’ (2009) 33 Camb. J. Econ. 653.

<sup>50</sup> Sudipto Bhattacharya, Charles A. E. Goodhart, Dimitrios P. Tsmoscos, and Alexandros P. Vardoulakis, ‘Minsky’s Financial Instability Hypothesis and the Leverage Cycle’ Special Paper 202, LSE Financial Markets Group Paper Series (September 2011).

an option-holder, even where these price movements were short-term.<sup>51</sup> If an executive cashes in his shares prior to any revaluation, there is no downside risk to leveraging, whereas shareholders and creditors may bear longer-term consequences:

“Financial firms, their investors and their employees have an incentive to take on greater risk via leverage because the incidence of returns and losses, from their perspective, is not symmetric. Firms get high fees, employees take home huge bonuses and shareholders get dividends in good years, when portfolio values rise, but they rarely have to give back any previously paid dividends when portfolio values decline. The downside risk falls on others...”<sup>52</sup>

Further, in concert with the FIH predictions developed earlier in this thesis,<sup>53</sup> it is evident that procyclicality contributes to higher risk-taking:<sup>54</sup>

“[I]n benign markets with no recent history of negative events managers will potentially take high risks, as they essentially underestimate low-probability, high-risk events ... The reward structures currently observed in the banking and investment industry can play their part in cyclical risk taking because they exacerbate the short-term focus and provide incentives for disaster myopia.”<sup>55</sup>

Further behavioural biases were in evidence during this episode of the GFC. The disappearance of liquidity in wholesale markets was a reaction driven by the loss aversion bias. A rational arbitrageur would have been able to take advantage of the high interest rates being offered on debt and deflated market prices to profit from an eventual subsidence of market panic. Instead, virtually all financial institutions refused to trade in

---

<sup>51</sup> Lucian A. Bebchuk and Holger Spamann, ‘Regulating Bankers’ Pay’ (2010) 98 *Geo. L. J.* 247 (hereinafter Bebchuk and Spamann, *Regulating Banker’s Pay*); Marc Chesney, Jacob Stromberg and Alexander F. Wagner, ‘Risk-taking Incentives, Governance, and Losses in the Financial Crisis’ University of Zurich Swiss Finance Institute Working Paper No. 10-18 (November 2011) (hereinafter Chesney et al, *Risk-taking Incentives*).

<sup>52</sup> Blair, *Financial Innovation and Leverage* 290.

<sup>53</sup> *Supra*. Chapter 4.

<sup>54</sup> Luc Laeven and Ross Levine, ‘Bank governance, regulation and risk taking’ (2009) 93 *J. Fin. Econ.* 259; Carl R. Chen, Thomas L. Steiner and Ann Marie Whyte, ‘Does Stock-Option-Based Compensation Induce Risk-Taking? An Analysis of the Banking Industry’ (2006) 30 *J. Bank. Fin.* 915; Anthony Saunders, Elizabeth Strock and Nickolaos G. Travlos, ‘Ownership structure, deregulation, and bank risk taking’ (1990) 45 *J. Fin.* 643.

<sup>55</sup> FSA, *Reforming remuneration practices* 4.24-4.27.

securitised markets and credit dried up.<sup>56</sup> According to Avgouleas this could have been driven only by two competing considerations: “Namely, banks’ unwillingness to lend to each other and the disappearance of willing buyers of steeply discounted structured credits meant either that all banks were virtually bankrupt and all securitised paper worthless ... or that credit markets were gripped by irrational panic.”<sup>57</sup> This would suggest further that the assumptions that professional and sophisticated traders are rational and not influenced by cognitive biases are questionable.<sup>58</sup>

### 5.3 POORLY STRUCTURED INCENTIVES

The analysis of the GFC conducted in the previous section demonstrated the role of behavioural factors in encouraging leveraged financial structures which drove the financial boom and resultant bust in securitized markets. As has been noted earlier in this thesis, leverage may be easily used to increase earnings-per-share whilst simultaneously increasing the financial fragility of the entity concerned:<sup>59</sup>

“It has been often argued that remuneration and incentive systems have played a key role in influencing not only the sensitivity of financial institutions to the macroeconomic shock occasioned by the downturn of the real estate market, but also in causing the development of unsustainable balance sheet positions in the first place. This reflects a more general concern about incentive systems ... and

---

<sup>56</sup> For a rational investor approach to this problem, see Andrei Shleifer and Robert W. Vishny, ‘Liquidation values and debt capacity: a market equilibrium approach’ (1992) 47 J. Fin. 1343 (hereinafter Shleifer and Vishny, *Liquidation Values*).

<sup>57</sup> Avgouleas, *Global Financial Crisis* 39.

<sup>58</sup> The behaviour witnessed in credit markets following the collapse of Lehman Brothers was further evidence of the loss aversion bias. As noted by Avgouleas, “[w]hile having grave concerns about the solvency of certain banking institutions and selling their stock was a rational reaction following the frustration of the implicit belief that governments would never allow a big financial institution to fail, indiscriminate selling was not. The markets being a zero-sum game, it was certain that, among many losers, there were bound to be several winners. Therefore, the indiscriminate downward price spiral experienced by all financial assets was irrational...” See *Id.* 38-39. Ironically, in its panic, the market overestimated its exposure to losses: “A lack of disclosure on CDS exposures has frequently led the market to overestimate risks: had it been realized that settlement payments on Lehman swaps would be only \$6 billion, rather than the hundreds of billions feared, much of the turmoil in debt markets could have been avoided.” See ‘Credit Derivatives: The Great Untangling’ *The Economist* (New York, 6 November 2008) 85-86.

<sup>59</sup> See Hyman P. Minsky, *Stabilizing an Unstable Economy* (2<sup>nd</sup> edn McGraw-Hill 2008) 262; Andrew G. Sutherland, ‘The Earnings Per Share Leverage Illusion’ Stern Stewart & Co. Paper, (9 June 2009) available at: [www.sternstewart.com/blogs/06\\_The%20EPS%20Leverage%20Illusion.pdf](http://www.sternstewart.com/blogs/06_The%20EPS%20Leverage%20Illusion.pdf) accessed 12/04/12.

whether they lead to excessive short term management actions and to “rewards for failure”.”<sup>60</sup>

Poorly structured incentives therefore played a key role in exacerbating risk within the financial system.<sup>61</sup> Many warnings regarding the contribution to instability of misaligned incentives within financial institution compensation packages were dismissed.<sup>62</sup> There are two aspects to the issue of failed incentive structures: poor risk management practices which allowed systematic abuse of lending practices to procure financial rewards; and short-term performance based compensation.

### 5.3.1 Poor risk management systems in financial institutions

Risk management within financial institutions was insufficiently focused on long-term performance measurements. This was a product of the wholesale approach taken toward pay-for-performance mantra adopted in the 1980s and 1990s designed to alleviate agency costs.<sup>63</sup> Under this mantra, the financial industry suffered severe problems relating to incentives and risk management. The OECD, for example, noted that evidence gathered since the GFC indicates that:

“[F]inancial sector remuneration seemed little related to company performance; risk management systems ... did not consider the firm as a whole and the risk inherent in compensation schemes, and; boards ... were in a number of cases unaware of the peril faced by their company until too late.”<sup>64</sup>

One of the key problems of the originate-to-distribute model of banking is that it

---

<sup>60</sup> See Grant Kirkpatrick, ‘The Corporate Governance Lessons from the Financial Crisis’ OECD Steering Group on Corporate Governance (11 February 2009) 12.

<sup>61</sup> The UK’s Financial Services Authority wrote to all UK bank chief executives in October 2008 expressing the view that “in many cases the remuneration structures of firms may have been inconsistent with sound risk management.” See FSA Letter on Remuneration Policies (13 October 2008) available at [www.fsa.gov.uk/pubs/ceo/ceo\\_letter\\_13oct08.pdf](http://www.fsa.gov.uk/pubs/ceo/ceo_letter_13oct08.pdf) accessed 7/5/12.

<sup>62</sup> See for example Raghuram G. Rajan, ‘Has Financial Development made the World Riskier?’ Proceedings, Federal Reserve Bank of Kansas City (August 2005) 313. Rajan warned in 2005 that bank executives were being overcompensated for short-term gains but were not being penalized for eventual losses.

<sup>63</sup> See discussion of shareholder value *supra*. Chapter 2.

<sup>64</sup> OECD, *The Corporate Governance Lessons from the Financial Crisis: Key Findings and Main Messages* (2009) 12 (hereinafter OECD, *Lessons from Financial Crisis*).

misaligns the interests of the lender with the ultimate purchaser of the loan,<sup>65</sup> creating moral hazard.<sup>66</sup> This is particularly problematic in industries specializing in instruments of significant complexity, such as investment banks<sup>67</sup> where the corporate structures provide fewer incentives to monitor risks.<sup>68</sup> In previous eras, lending institutions would have retained the loans they issued on their books and therefore had strong incentives to maintain information on their quality. With the massive growth in securitization, financial institutions were able to shift loans from their balance sheets by packaging them into securities and selling them on.<sup>69</sup> Because lenders were aware that the loan portfolio and the default risk attached to it would be sold on through collateralised debt structures, there was no incentive to ensure adequate lending standards.<sup>70</sup> Management culture at lenders rewarded its mortgage loan executives with bonuses based on the volume of mortgages sold, with no reference to their quality or risk of default.<sup>71</sup> Industry participants rarely utilised provisions for reduced commissions related to defective loan issuance and there were therefore no incentives for executive loan managers to ensure the creditworthiness of borrowers or ensure that risks in banks' loan books were well diversified.<sup>72</sup> Research into UK banks following the GFC shows that the most significant cause of risk management weaknesses in banks was the failure of

---

<sup>65</sup> Steven L. Schwarcz, 'Regulating Complexity' (2009) 87 Wash. U. L. Rev. 211. "[Failed incentives] include mismatches between the timing of trader compensation and the realization of profits from their trades, an insufficient recognition and compensation of risk-management professionals, and provision of funding at risk-free rates to trading desks that placed risky bets. All of these factors encouraged excessive risk taking." See Carney, *Addressing Financial Market Turbulence* 3.

<sup>66</sup> Martin Feldstein, 'How to Stop the Mortgage Crisis' *Wall Street Journal* (New York, 7 March 2008).

<sup>67</sup> Donald C. Langevoort, 'Global Securities Regulation after the Financial Crisis' (2010) 13 J. Int'l. Econ. L. 799, 802-03; Steven L. Schwarcz, 'Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs' (2009) 26 Y. J. on Reg. 457.

<sup>68</sup> Steven L. Schwarcz, 'Marginalizing Risk' (2012) 89 Wash. U. L. Rev. 487.

<sup>69</sup> For example, at NCF, due diligence on its loan origination was minimal: 95% of NCF's 2006 loan sales were to securities dealers, not investors. See Frankel, *New Century Financial*. This practice, which was prevalent amongst securities dealers, was believed to have dispersed risk amongst the financial system, making it more diversified and better able to withstand changes in the performance of the underlying products. Instead, however, the volume of securitization concentrated risk through the proliferation of Special Investment Vehicles amongst large financial institutions. See IMF, *Containing Systemic Risks* 70-2.

<sup>70</sup> This was compounded by an apparent lack of sophistication amongst certain financial institutions insuring the CDO market, particularly AIG, the failed insurance giant: "Goldman created a bunch of multi-billion dollar deals that transferred to AIG the responsibility for all future losses from \$20 billion in triple-B-rated subprime mortgage bonds. It was incredible: In exchange for a few million bucks a year, this insurance company was taking the very real risk that the \$20 billion would simply go *poof*." See Lewis, *The Big Short* 72.

<sup>71</sup> Carney, *Addressing Financial Market Turbulence*.

<sup>72</sup> Avgouleas, *Governance of Global Financial Markets* 46.

executives to address risk-taking in lending practices. The reason for this was that sales of mortgage loans were prioritised over effective due diligence.<sup>73</sup>

Behavioural biases were proximate drivers of the misaligned incentives problems. The originate-to-distribute model of banking prevented bankers from performing adequate due diligence on the stability of the products they were trading.<sup>74</sup> Executives may have not been incentivised to perform adequate evaluation of risk attached to mortgage products but they were also overconfident in the stability of the originate-to-distribute model.<sup>75</sup>

“Many originators and distributors felt confident that long-term credit risk had been transformed into short-term ‘warehouse’ risk prior to distribution and that distribution itself was irrevocable. Others knew that they had not fully eliminated these risks, but felt they could get out in time. Such confidence was misplaced. Risk had not disappeared, it had merely been redistributed, and that distribution was often not final.”<sup>76</sup>

Market participants were also boundedly rational.<sup>77</sup> Investors demonstrated an inability to fully evaluate the credit risk attached to certain complex securitised products. Valuing the underlying assets in the securitization process is often difficult and few investors had the computational ability to ascertain the risks attached to the asset-backed securities market.<sup>78</sup> This meant that they instead used the availability heuristic to assess the relative safety of structured credit markets. Strong performance by complex securities in the recent past together with the continuous appreciation of global property prices provided investors with a reference point which replaced strenuous credit risk assessment with an over-reliance on past returns.<sup>79</sup> The desire to match the performance

---

<sup>73</sup> Moore, Carter & Associates, ‘The RiskMinds 2009 Managers’ Survey: The causes and implications of the 2008 banking crisis’ Cranfield School of Management (2010) (hereinafter Moore et al, *RiskMinds Survey*).

<sup>74</sup> Avgouleas, *Global Financial Crisis* 39.

<sup>75</sup> This form of behaviour change is analogous to adoption of Minsky’s ‘risky practices’ referred to *supra*. Chapter 4.

<sup>76</sup> Carney, *Addressing Financial Market Turbulence* 2.

<sup>77</sup> Discussed *supra*. Chapter 4.

<sup>78</sup> This also led investors to rely on the opinions of credit ratings agencies, which are themselves limited by severe conflicts of interest and reputational constraints. See Steven L. Schwarcz, ‘Private Ordering of Public Markets: The Rating Agency Paradox’ (2002) 2 U. Ill. L. Rev. 1.

<sup>79</sup> Avgouleas, *Global Financial Crisis* 40.

of peer-group investment managers undoubtedly also placed pressure on fund managers to follow the investments of others<sup>80</sup> and to engage in momentum trading.<sup>81</sup>

As noted in Chapter Three,<sup>82</sup> managerial compensation plans may also provide behaviour-changing incentives to engage in manipulation of accounts or fraud.<sup>83</sup> Systematic accounting manipulation and fraud have been documented in relation to the trading of sub-prime mortgage loans. Bank executives manipulated the valuations of mortgage-backed securities in order to profit from trading despite their knowledge that the housing boom was becoming a bust.<sup>84</sup> Further evidence of the incentive problems within the financial sector is offered through the conflicts inherent in the investment practices of brokerage firms, which arrange investments for their clients.<sup>85</sup> In the run-up to the GFC, there is evidence that clients were mis-sold complex securities which were presented as less risky than they actually were.<sup>86</sup> These investments were often driven

---

<sup>80</sup> This was discussed in detail *supra*. Chapter 4. For full discussion, see Steven L. Schwarcz, 'Disclosure's Failure in the Subprime Mortgage Crisis' Duke Law School Research Paper No. 203 (March 2008); Judith Chevalier and Glenn Ellison, 'Career Concerns of Mutual Fund Managers' (1999) 114 Q. J. Econ. 389.

<sup>81</sup> Paul A. Gompers and Andrew Metrick, 'Institutional Investors and Equity Prices' (2001) 116 Q. J. Econ. 229; Russ R Wermers, Mutual Fund Herding and the Impact on Stock Prices (1999) 54 J. Fin. 58; David S. Scharfstein and Jeremy C. Stein, 'Herd Behavior and Investment' (1990) 80 Am. Econ. Rev. 465.

<sup>82</sup> *Supra*. Chapter 3.

<sup>83</sup> Jean Tirole, *The Theory of Corporate Finance* (Princeton University Press, 2006).

<sup>84</sup> In a prescient move, the Federal Bureau of Investigation began investigating senior bank executives for insider dealing and fraud in relation to the sub-prime mortgage market prior to the crash of 2008: "The FBI suspects that the house price boom, once seemingly endless, encouraged mortgage lenders to take increasingly large risks, making loans to people with weaker and weaker credit histories as they sought new customers. These lenders, and the brokers that arranged the mortgages, often encouraged borrowers to lie about their income ... The FBI also suspects that the Wall Street banks may have been complicit in the process, ignoring the risks posed by these home loans because they were making huge fees from packaging them into bonds and other securities and selling them on to investors. Finally, the FBI is investigating whether the Wall Street firms, which kept many of the mortgage bonds they packaged on their own balance sheets, may have failed to warn their investors of the risks they posed." See Tom Bawden, 'FBI targets senior bankers in far-reaching sub-prime fraud enquiry' *The Times* (London, 31 January 2008).

<sup>85</sup> The issue of remuneration-induced manipulation was brought to the fore again in June 2012 in the UK, where it was alleged that Barclays (amongst others) had manipulated the process used to calculate the interest rates banks use to lend to one another (the so-called LIBOR (London Interbank Offered Rate) rate). Barclays paid £290 million to the FSA and SEC to settle claims against it relating to LIBOR-rigging and its chairman and chief executive each resigned. As of July 2012, several other global banks were under investigation. See Carrick Mollenkamp and Emily Flitter, 'Insight - At least three banks seen central to Libor rigging' *Reuters* (New York, 28 July 2012) available at <http://uk.reuters.com/article/2012/07/28/uk-banking-libor-traders-idUKBRE86R03620120728> accessed 30/07/12.

<sup>86</sup> Christopher J. Green, Eric J. Pentecost and Tom Weyman-Jones (eds), *The Financial Crisis and the Regulation of Finance* (Elgar, 2011); David H. McIlroy, 'Regulating Risk: A measured response to the banking crisis' (2008) 9 J.B.R. 284.



by the quarterly reporting targets required of brokers in pursuit of short-term sales performance, rather than the financial interests of the clients themselves.<sup>87</sup>

The GFC also demonstrated the problems created when accounting rules are manipulated to mask true leverage levels. For example, it was documented by the lead counsel in the Lehman Brothers bankruptcy case that Lehman systematically attempted to conceal its true leverage ratio<sup>88</sup> by using accounting techniques to remove liabilities from the core bank to its SIVs.<sup>89</sup> This allowed Lehman to build up unreported leverage and remove debt from its balance sheet, “to create a materially misleading picture of the firm’s financial condition in late 2007 and 2008...”<sup>90</sup> This made the firm look more profitable than it actually was; of course, the real effect of this was to merely shift loss recognitions to later dates.<sup>91</sup> Thus, the pursuit of profit in the short-term encouraged bank executives to increase leverage to fund market capture.<sup>92</sup> There were strong “incentives to seek improvements in short-term results even at the cost of maintaining an excessively elevated risk of an implosion at some point down the road.”<sup>93</sup> Bankers continued to enjoy large pay awards despite the fact that the strategies they were using to bolster their compensation was leaving their firms vulnerable to collapse.<sup>94</sup>

---

<sup>87</sup> Several suits were brought between 2009 and 2011 by the SEC over the mis-selling of complex securities to investors. The allegations included a claim that the financial institutions involved sold high-risk securities to their clients in the knowledge that those securities would fail and, further, that the banks actively betted against those securities. In the result, Goldman Sachs was fined \$550 million, JP Morgan \$153.6 million, and CitiGroup \$285 million. Barclays Bank remains under investigation. None of the banks admitted nor denied wrongdoing with regard to these deals; see Kara Scanell, ‘Citi pays \$285m to settle SEC case’ *Financial Times* (London, 20 October 2011); Sean O’ Driscoll and Iain Dey, ‘Barclays in ‘fake’ mortgage storm’ *The Sunday Times* (London, 4 September 2009). For industry insights into the aspects of this incentive problem see Greg Smith, ‘Why I Am Leaving Goldman Sachs’ *New York Times* (New York, 12 March 2012).

<sup>88</sup> Lehman maintained approximately \$700 billion of assets on capital of approximately \$25 billion. See *Final Report of Anton R. Valukas, Bankruptcy Court Examiner, in re: Lehman Brothers Holdings Inc. et al, Chapter 11 Case No. 08-13555 (JMP)* US Bankruptcy Court of the District of New York, (11 March 2010) Volume I, 3.

<sup>89</sup> *Id.* Volume III, 732.

<sup>90</sup> *Id.* 732-3.

<sup>91</sup> Michael Simkovic, ‘Secret Liens and the Financial Crisis of 2008’ (2009) 83 *Am. Bankrupt. L. J.* 253.

<sup>92</sup> HofC, *The run on the Rock*. See also, *Statement by US Treasury Secretary Tim Geithner on Compensation*, (10 June 2009): “This financial crisis had many significant causes, but executive compensation practices were a contributing factor. Incentives for short-term gains overwhelmed the checks and balances meant to mitigate against the risk of excess leverage.” Available at: available at [www.ustreas.gov/press/releases/tg163.htm](http://www.ustreas.gov/press/releases/tg163.htm) accessed 21/04/12.

<sup>93</sup> Remarks of Lucian Bebchuk, ‘Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium’ Columbia Business School (27-28 March 2010) available at [www4.gsb.columbia.edu/rt](http://www4.gsb.columbia.edu/rt) accessed 20/06/12 (hereinafter Columbia Symposium, *Governance, Executive Compensation and Excessive Risk*) 7.

<sup>94</sup> Lehman’s CEO was paid a total of \$22,030,534 in 2007.

### 5.3.2 Short-term compensation targets

The reports commissioned by the various regulatory agencies following the GFC each contend that the prevalent remuneration systems in global financial institutions contributed to the eventual crash.<sup>95</sup> This is, as noted, an oft-rehearsed criticism of performance-related pay.<sup>96</sup> The belief that executive pay arrangements encouraged excessive risk-taking and fixing those arrangements has been a common theme of legislative reform since the GFC.<sup>97</sup>

Absolute levels of pay in financial institutions have been remarked upon in unfavourable tones since the banking collapses.<sup>98</sup> The main contention of critics is that the sums involved<sup>99</sup> (which, admittedly, are considerable<sup>100</sup>) induced executives to create and market securities which provided the greatest short-term returns, in order to inflate their compensation packages.<sup>101</sup> In line with conventional interpretations of the role of executive compensation in financial institutions, whilst markets were stable and returns from these products were healthy, the risk of the concentration of these investments was of no concern to top executives. Instead, profits that these products were generating for their businesses warranted the award of large bonuses and stock

---

<sup>95</sup> See for example FCIC, *Financial Crisis Inquiry Report*, which comments at *xix*: “Compensation systems –designed in an environment of cheap money, intense competition, and light regulation—too often rewarded the quick deal, the short-term gain – without proper consideration of long-term consequences. Often, those systems encouraged the big bet – where the payoff on the upside could be huge and the downside limited. This was the case up and down the line – from the corporate boardroom to the mortgage broker on the street.” See also the comments of the OECD, which argued that: “remuneration systems have in a number of cases not been closely related to the strategy and risk appetite of the company and its longer term interests ... significant failures of risk management systems in some major financial institutions [were] made worse by incentive systems that encouraged and rewarded high levels of risk taking.” See OECD, *Lessons from Financial Crisis* 2-3.

<sup>96</sup> See discussion *supra*. Chapter 3.

<sup>97</sup> For example, for companies receiving financial aid from the federal government via TARP, regulations require the elimination of compensation structures that provide the potential for excess risk-taking. See Corporate and Financial Institution Compensation Fairness Act 2009, H.R. 3269, 111<sup>th</sup> Cong.

<sup>98</sup> See for example Paul Hodgson, ‘The original sin of executive pay’ *The Washington Post* (Washington, 17 April 2012).

<sup>99</sup> US financial executives’ average compensation in 2005 was \$3.4 million. Pay in the US financial sector in 2007 was 80 percent higher than in other industries. Total bonus payments for Wall Street firms in 2007 totalled \$33 billion. See FCIC, *Financial Crisis Inquiry Report* 62-63.

<sup>100</sup> *Id.* 61-64. For example, in 2006, Dow Kim, the head of Merrill’s Global Markets and Investment Banking segment, received a base salary of \$350,000 plus a \$35million bonus. See Options Group, *2007 Global Financial Market Overview & Compensation Report* (November 2007) 73, 82.

<sup>101</sup> For example, the trading of complex securities by the major broker-dealers led to an increase in profits at the five largest investment banks from \$20 billion to \$43 billion between 2004 and 2007; in the same period, global compensation for these banks increased from \$34 billion to \$61 billion. See Bloomberg LLC, Financial Analyst Function; Bear Stearns Companies Inc., Form 10-K, for the fiscal year ended November 30, 2006, filed February 13, 2007, Exhibit 13.

grants to top management teams as both rewards for performance and as incentives for greater value creation.<sup>102</sup>

The most common objection to compensation plans as they were utilised prior to 2008 was that they encouraged excessive risk-taking.<sup>103</sup> The pursuit of short-term profit at the expense of long-term corporate stability within the banking system was a symptom of the shareholder value ethos which permeated Anglo-American corporations.<sup>104</sup> The FSA concluded: “In substantial parts of the banking industry variable compensation has a short-term focus and is not adjusted for risk.”<sup>105</sup> Research suggests that increased risk and leverage reduce the pay-performance sensitivity within financial institutions.<sup>106</sup> The incentives for management and executives in banks were not sufficiently aligned with the long-term interests of firm-wide profitability<sup>107</sup> and instead concentrated the minds of executives and traders on short-term performance targets.<sup>108</sup> Erkens et al have demonstrated that equity-based governance exacerbated losses by encouraging

---

<sup>102</sup> Lucian A. Bebchuk, Alma Cohen and Holger Spamann, ‘The Wages of Failure: Executive Compensation at Bear Stearns and Lehman 2000-2008’ Harvard Law School Discussion Paper No. 657 (February 2010) (hereinafter Bebchuk et al, *Wages of Failure*). This study examined the pay, bonuses and stock option awards of the CEOs and top executives at Bear Stearns and Lehman Brothers prior to the GFC to determine the levels of compensation awarded to the executive teams at these investment banks prior to the collapse in the market values of each. See also Lucian A. Bebchuk – ‘How to Fix Bankers’ Pay’ (2010) 139 *Daedalus* 52 (hereinafter, Bebchuk, *How to Fix Bankers’ Pay*); Demetra Arsalidou, ‘The regulation of executive pay and economic theory’ (2011) 5 *J.B.L.* 431.

<sup>103</sup> Commenting on the incentive structures prevalent at RBS, for example, the FSA commented that the board: “[s]et incentives for the RBS CEO which made it rational for him to focus on increasing revenue, profit, assets and leverage, rather than on capital, liquidity and asset quality. The CEO’s annual remuneration was heavily influenced by operating profit, EPS growth and return on equity, as distinct from return on assets. There was less regard to non-financial performance measures. *This type of incentive package was, however, not dissimilar to those at other large banks.*” [Emphasis added]. It was also noted that RBS had one of the lowest equity / asset ratios of any major European bank. See FSA, *RBS Report* 225.

<sup>104</sup> See Moore et al, *RiskMinds Survey* 10. Their survey response noted that the second most important failure of governance which contributed to causing the banking crisis in the UK was: “Remuneration practices which encouraged excessive risk taking.”

<sup>105</sup> FSA, *Reforming remuneration practices in financial services* CP 09/10 (March 2009) 4.3 (hereinafter FSA, *Reforming remuneration practices*).

<sup>106</sup> Kose John, Hamid Mehran and Yiming Qian, ‘Outside Monitoring and CEO Compensation in the Banking Industry’ (2010) 16 *J. Corp. Fin.* 383; Kose John and Yiming Qian, ‘Incentive Features in CEO Compensation in the Banking Industry’ (2003) 9 *Fed. Res. Bank N.Y. Econ. Pol. Rev.* 109.

<sup>107</sup> EC, *de Larosiere* 31; FCIC, *Financial Crisis Inquiry Report*; House of Commons Treasury Committee, *Banking Crisis: reforming corporate governance and pay in the City*, Ninth Report of Session 2008-09 HC 519 (12 May 2009) (hereinafter HofC, *Banking Crisis*).

<sup>108</sup> “It is ... likely that past remuneration policies, acting in combination with capital requirements and accounting rules, have created incentives for some executives and traders to take excessive risks and have resulted in large payments in reward for activities which seemed profit making at the time but subsequently proved harmful to the institution, and in some cases to the entire system.” See FSA, *Turner Review* 80.

executives to focus on short-term performance.<sup>109</sup> Performance-related compensation was used to reward executives at banks; however, this compensation was not calibrated to take account of long-term financial stability.<sup>110</sup>

The focus on increasing earnings<sup>111</sup> rather than on future risks,<sup>112</sup> for example, was evidence of this trend. It is clear that many firm executives acknowledged that there was a trade-off between long-term shareholder value and the pressure to realize short-term performance targets, even where meeting these benchmarks resulted in excess risk.<sup>113</sup> For example, at one of the major casualties of the GFC, Bear Stearns, the board the “selected just one metric, return on equity [‘ROE’]”<sup>114</sup> in determining top executives’ compensation. Increased ROE is a poor indicator of financial performance, especially if it is not adjusted for risk: “There are two ways to increase ROE – increase net income, or decrease the amount of shareholder equity employed”<sup>115</sup> and it is the latter method which is contingent on increased debt financing. Thus, “while earnings increased, the debt to equity ratio increased at Bear Stearns, to an astonishing 32 times equity.”<sup>116</sup> Incredibly, however, the market failed to exert any notable pressure on Bear’s stock price, despite the adoption of higher amounts of leverage and the knowledge that a 3

---

<sup>109</sup> David H. Erkens, Mingyi Hung and Pedro Matos, ‘Corporate Governance in the 2007-08 Financial Crisis: Evidence from Financial Institutions Worldwide’ (2012) 18 J. Corp. Fin. 389.

<sup>110</sup> For example, “cash bonuses awarded on the immediate results of a transaction and paid out instantly meant individuals often paid little or no regard to the overall long-term consequences and future profitability of those transactions.” HofC, *Banking Crisis* 12.

<sup>111</sup> FCIC, *Financial Crisis Inquiry Report*. The US Options Clearing Corporation (OCC) for example, commented on CitiGroup’s corporate culture in 2005 that: “Earnings and profitability growth have taken precedence over risk management and internal control.” See Comptroller of the Currency, memorandum, *Examination of Citigroup Risk Management (CRM)*, (13 January 2005) 3. However, “[t]he use of unadjusted [earnings] or net [earnings] is a particularly poor metric for measuring performance since it can provide an incentive for employees to pay insufficient regard the quality of the business undertaken or the services provided.” See FSA, *Reforming remuneration practices* 3.13.

<sup>112</sup> “Many investment banks take net revenue (typically, revenues after deduction of expenses) and then determine bonus pools by reference to a revenue to compensation ratio, frequently in the range of 45 – 50%. Profit is a better measure, but only a few firms were making satisfactory measures to adjust profit data for future risks. Few firms were accruing bonuses after accrual of profits at a rate which was sufficient to award shareholders a minimum risk adjusted return on the capital employed in the firm.” See FSA, *Reforming remuneration practices in financial services: Feedback on CP09/10 and final rules PS 09/15* (August 2009) 2.8.

<sup>113</sup> John R. Graham, Campbell R. Harvey and Shivaram Rajgopal, ‘The Economic Implications of Corporate Financial Reporting’ (2005) 40 J. Account. Econ. 3. This is often driven by the knowledge that missing quarterly earnings targets is a risk to continued employment. See Richard Mergenthaler, Jnr., Shivaram Rajgopal and Suraj Srinivasan, ‘CEO and CFO Career Penalties to Missing Quarterly Analysts Forecasts’ (January 2011) available at [ssrn.com/sol3/papers.cfm?abstract\\_id=1152421](http://ssrn.com/sol3/papers.cfm?abstract_id=1152421) accessed 18/04/12.

<sup>114</sup> Remarks of Brandon Rees, Columbia Symposium, *Governance, Executive Compensation and Excessive Risk* Recommendation 1a 5.

<sup>115</sup> *Id.*

<sup>116</sup> *Id.*

percent fall in its asset values would effectively wipe the firm out.<sup>117</sup> Demonstrating the link between poor incentives and the destabilising effects of leverage, one authority indicates that:

“[V]irtually all of the increase in ROE [Return On Equity] of major banks [since 2000] appears to have been the result of higher leverage. Banks’ return on assets – a more precise measure of their productivity – was flat or even falling over this period ... [Higher returns in this period are] likely to have been an act of risk illusion.”<sup>118</sup>

In relation to the risk-taking incentive effects of stock-options, research indicates that the higher the stock-option wealth within financial firms, the higher the systematic risk of that firm.<sup>119</sup> Because an option has no downside risk<sup>120</sup> it provides incentives for increased risks. For example, where CEOs of banks receive a greater proportion of their remuneration in salary and bonuses rather than stock options, they are less likely to engage in high-risk strategies.<sup>121</sup> As stock awards were prevalent as part of executive compensation packages, firm management were under an incentive to boost stock price of their firms; the scale of the awards simply compounded the agency problem.

There thus existed incentives for firm management to utilise leverage and complex securities to fund higher levels of trading without adjusting their exposures for the risks of price depreciation and benefit from increases in the value of their options. Although top executives failed to realize large equity-related compensation in 2008, their rewards in the period prior to 2008 were massive.<sup>122</sup> For example, whilst the CEO of Lehman

---

<sup>117</sup> At the fiscal year end of 2007, Bear Stearns had net equity of \$11.1 billion supporting \$395 billion in assets, giving it a leverage ratio of 35.5 to 1. Despite this, its stock price in January 2007 was \$172 per share and in February 2008, a month before it collapsed it was still at \$93 per share. By March 2008, the stock price had dropped to \$2 per share. See Roddy Boyd, ‘The last days of Bear Stearns’ *Fortune* (New York, 31 March 2008) available at [www.money.cnn.com/2008/03/28/magazines/fortune/boyd\\_bear.fortune/](http://www.money.cnn.com/2008/03/28/magazines/fortune/boyd_bear.fortune/) accessed 02/07/12.

<sup>118</sup> Andrew G. Haldane, Simon Brennan and Vasileios Madouras, ‘The Contribution of the Financial Sector: Miracle or Mirage?’ in Adair Turner et al. *The Future of Finance: The LSE Report* (London School of Economics, 2010) 99.

<sup>119</sup> Christopher S. Armstrong and Rahul Vashishtha, ‘Executive stock options, differential risk-taking incentives, and firm value’ (2012) 104 *J. Fin. Econ.* 70.

<sup>120</sup> Bebchuk and Spamann, *Regulating Banker’s Pay* 18.

<sup>121</sup> Darius Palia and Robert Porter, ‘The impact of capital requirements and managerial requirements on bank charter value’ (2004) 23 *Rev. Quant. Fin. Account.* 191.

<sup>122</sup> Bebchuk et al, *Wages of Failure* 9; Sanjai Bhagat and Brian J. Bolton, ‘Investment Bankers’ Culture of Ownership?’ (24 August 2010) available at [ssrn.com/abstract=1664520](http://ssrn.com/abstract=1664520) accessed 21/04/12 (hereinafter Bhagat and Bolton, *Bankers’ Culture of Ownership*). It was noted following the GFC that: “repeatedly

Brothers suffered a paper loss of \$931 million in 2008 following the bank's collapse, he cashed out over \$469 million in stock between 2000 and 2008.<sup>123</sup> More importantly, the top executives at distressed investment banks often unloaded shares and options prior to the stock prices of their firms plummeting,<sup>124</sup> indicating that they benefitted considerably from the strategies employed by their institutions between 2000 and 2008.<sup>125</sup> Further, if bank management were pursuing strategies for long-term shareholder value, it might be expected that bank management would purchase significant shareholdings for themselves, and exercise their options to sell company stock infrequently. Instead, in a sample of 14 large US financial institutions between 2000 and 2008, the CEOs of these banks, as a group, bought shares in their respective banks 73 times, yet sold their shares 2,048 times. The value of the shares bought was \$36 million, yet the shares sold totalled \$3.46 billion.<sup>126</sup> These figures indicate that the turnover of stock was driven partially by the desire to benefit from short-term target achievement.<sup>127</sup>

### 5.3.3 Potential limits of stock options to incentivise behaviour

There is a second, competing interpretation of the role of stock-based compensation as a cause of the GFC. As noted in the previous section, many contend that executive compensation and, in particular, stock options, provided flawed incentives in encouraging excess short-termism in financial institutions. There are, however,

---

cashing in large amounts of performance-based compensation based on short-term results did provide perverse incentives – incentives to improve short-term results even at the cost of an excessive rise in the risk of large losses at some (uncertain) point in the future.” See Lucian A. Bebchuk, Alma Cohen and Holger Spamann, ‘Bankers had cashed in before the music stopped’ *Financial Times* (London, 6 December 2009).

<sup>123</sup> Bebchuk et al, *Wages of Failure* 10-11. This figure does not include the salary and bonuses awarded to the Lehman CEO, Richard Fuld, which totalled approximately \$78.5 million between 2000 and 2008.

<sup>124</sup> For example, the top executives (defined as the top two to five executives) at Bear Stearns cashed out \$1.1 billion in stock between 2000 and 2007 and those at Lehman cashed out \$850 million during the same period. *Id.* 16.

<sup>125</sup> Chesney et al, *Risk-taking Incentives*. The authors assert at 6 that “...the vast majority of deals related to the subprime and mortgage backed security market originated in the early part of the decade...”

<sup>126</sup> Bhagat and Bolton, *Bankers' Culture of Ownership* 15.

<sup>127</sup> Even after accounting for the precipitous collapse in share prices in 2008, the net gain to the CEO sample was \$649 million. It is also noteworthy that the ‘losses’ that top executives at these firms incurred were *unrealized* – or paper – losses. The *realized* gains were immense. Over the 14 firms in the sample, officers and directors received almost \$127 billion in bonuses and stock awards *alone* between them. See *Id.* 19-21.

objections to this narrative. Many commentators, most notably Fahlenbrach and Stulz<sup>128</sup>, contend that the incentive arrangements at large financial institutions were not responsible for the corporate governance failings which created excess risk within the system. These commentators highlight the significant equity positions that senior management at financial institutions controlled and the paper losses that they incurred once stock prices began to fall sharply. Bankers at institutions which failed also did not take massive risks; most of the MBS products purchased by banks were low-yield, low-risk.<sup>129</sup>

The losses that these executives suffered imply that the excessive risks present in the system were simply the products of errors of judgment, rather than of misaligned incentives; executives, in this view, “managed their banks in a manner they authentically believed would benefit their shareholders.”<sup>130</sup> Instead of being reckless, senior managers were simply boundedly rational, and neither understood the risks that complex securities posed to their firms, nor the extent to which correlations in certain asset markets had been established across banking institutions.<sup>131</sup> Further, CEOs complied with shareholder pressure to take risks across the board, irrespective of their individual equity wealth: CEOs of firms with relatively high equity stakes in their firms assumed the same level of risk as CEOs of firms with commensurately lower equity stakes, indicating that incentive alignment was not a driver of decision-making.<sup>132</sup> There were also no significant reductions in equity positions amongst bank CEOs post-2006 which meant that they bore heavy losses in the market crash of 2008; in fact, CEO holdings of shares increased on net.<sup>133</sup> This would appear to suggest that even as the risk profile of bank investments appeared to change for the worse, bank CEOs did little to hedge their exposure to reduce any potential wealth losses.<sup>134</sup>

---

<sup>128</sup> Rudiger Fahlenbrach and Rene M. Stulz, ‘Bank CEO incentives and the credit crisis’ (2011) 99 *J. Fin. Econ.* 11 (hereinafter Fahlenbrach and Stulz, *Bank CEO incentives*). The value of stock and options in the ‘average’ bank CEO’s portfolio was more than ten times the value of the CEO’s salary in 2006 and CEO’s on average owned 1.6% of the outstanding stock of their bank. See also Jeffrey Friedman, ‘Bank Pay and the Financial Crisis’ *Wall Street Journal* (New York, 28 September 2009).

<sup>129</sup> Viral V. Acharya and Matthew Richardson, ‘Causes of the Financial Crisis’ (2009) 21 *Crit. Rev.* 195.

<sup>130</sup> Joseph Grundfest, ‘What’s Needed is Uncommon Wisdom’ *New York Times* (New York, 6 October 2009) 6.

<sup>131</sup> Floyd Norris, ‘It May Be Outrageous But Wall Street Pay Didn’t Cause This Crisis’ *New York Times* (New York, 30<sup>th</sup> July 2009) (hereinafter Norris, *Wall Street Didn’t Cause the Crisis*).

<sup>132</sup> Fahlenbrach and Stulz, *Bank CEO incentives*.

<sup>133</sup> *Id.* 26.

<sup>134</sup> According to the sample of Fahlenbrach and Stulz, on average, CEOs lost \$31.49 million between 2006 and 31<sup>st</sup> December 2008. They argue: “Had CEOs seen the crisis coming, they could have avoided

There are therefore, competing views as to the role of stock options in causing the GFC. Whilst this thesis does not concur with the findings of Fahlenbrach and Stulz – that stock options do not provide inappropriate risk-taking incentives – the futility of relying on stock-based governance to a significant extent remains clear. Fahlenbrach and Stulz acknowledge that their findings only hold if the market for stocks is efficient. If the market is not efficient, the market “might put more weight on short-run results and mis-valuation could create pressure on management to take actions it would not take in an efficient market.”<sup>135</sup> For example, there is strong evidence of a positive link between the level of residual executive pay and a firm’s risk measures.<sup>136</sup> Further, optimal compensation might place more weight on short-term results to take advantage of speculative behaviour in the stock market<sup>137</sup> and CEOs might favour cash bonuses than on increasing their equity wealth if their options are not realizable until a later period.

Moreover, the actual state of knowledge of market participants is irrelevant. Even where it can be shown that there is no overt assumption of risk linked to stock-based compensation awards, the net result will not differ, due to market short-termism. Because market participants are boundedly rational, have limited computational abilities and may be pressured into pursuing risk by professional career concerns,<sup>138</sup> relying on stock prices to align the incentives of management and shareholders, as a concept, is flawed. Herding may be tacitly encouraged by investments which appear to provide commensurate risk-adjusted returns and regulation which requires banks to hold ‘safe’ capital.<sup>139</sup> The prices of these investments might appear valid but mask latent dangers which require greater analysis of the economic or financial environment; however, the

---

most of the losses by selling their shares. They clearly did not do so.” *Id.* 24. These figures are skewed heavily by huge losses incurred at several large financial institutions. For example, the CEOs of Bear Stearns and Lehman Brothers incurred paper losses of \$902 million and \$931 million, respectively. The actual median loss for bank CEOs was \$5 million. See Bebchuk et al, *Wages of Failure* 9.

<sup>135</sup> Fahlenbrach and Stulz, *Bank CEO incentives* 12.

<sup>136</sup> Ing-Haw Cheng, Harrison G. Hong and Jose A. Scheinkman, ‘Yesterday’s Heroes: Compensation and Creative Risk-Taking’ ECGI - Finance Working Paper No. 285/2010 (June 2011); see also Marco Becht, Patrick Bolton and Ailsa Roell, ‘Why bank governance is different’ (2011) 27 *Ox. Rev. Econ. Pol.* 437.

<sup>137</sup> Patrick Bolton, Jose Scheinkman and Wei Xiong, ‘Executive Compensation and Short-Termist Behaviour in Speculative Markets’ (2006) 73 *Rev. Econ. Stud.* 577.

<sup>138</sup> See discussions of behavioural finance *supra*. Chapter 4. Further, “...it is worth asking what would have happened if Mr. Fuld had somehow realized in 2005 that the mortgage business was a time bomb and had gotten Lehman out of it. Within a year, its profits would have sagged and its share price collapsed. Mr. Fuld would have been labeled a dunce, and might have lost his job. The same can be said of Jimmy Cayne of Bear Stearns and Stan O’Neal of Merrill Lynch, the two runners-up in the richest bank C.E.O. sweepstakes of 2006.” See Norris, *Wall Street Didn’t Cause the Crisis*.

<sup>139</sup> Jeffrey Friedman and Wladimir Kraus, *Engineering the Financial Crisis: Systemic Risk and the Failure of Regulation* (University of Pennsylvania Press, 2011).



cognitive limitations of market participants may prevent executives from recognising the dangers in these products, or price distortions in the market.

These competing views also demonstrate the impotence of market discipline and highlight the need for regulatory reform to incentive systems. As noted earlier in this thesis<sup>140</sup>, market discipline was viewed as an effective tool with which to regulate corporate conduct.<sup>141</sup> The GFC has however demonstrated the futility in relying upon market discipline as a regulatory tool, amongst other things for the design and regulation of compensation contracts:

“There is clear evidence that, in the time leading to the GFC, market discipline ... failed. The two most important market-based indices of a bank’s financial health, the CDS premium and the share price showed (with the exception of Northern Rock) no sign of the trouble that lay ahead. Moreover, investors and analysts, instead of exercising any kind of discipline over bank management by asking for the building up of higher capital buffers, were just pushing for higher returns at the height of the boom. Such pressure from the markets provided even bigger incentives to bank management to take ever higher amounts of debt to leverage the bank’s balance sheet to expand its profits.”<sup>142</sup>

The failure of market discipline was compounded by the financial revolution which occurred in the years prior to the GFC, as financial innovation, globalisation and technological progress created a massively interconnected and interdependent complex financial system. Diverse financial centres and financial institutions were linked by a maze of markets and investment channels, yet few – if any – market participants were aware of the vast interconnectedness and potential for transmissible shocks that had been created.<sup>143</sup> The technological revolution experienced in western economies, when combined with the lack of understanding of many of the products that were being traded or knowledge of the operation of the financial system, provided huge potential for spillovers between financial institutions and, indeed, between the financial system and the real economy itself.<sup>144</sup> Regulators were captured by the view that risk had been diversified and spread amongst the various units comprising the system, yet it is clear

---

<sup>140</sup> *Supra*. Chapter 2.

<sup>141</sup> Costas Stephanou, ‘Rethinking Market Discipline’ World Bank Policy Brief (June 2009).

<sup>142</sup> Avgouleas, *Governance of Global Financial Markets* 120.

<sup>143</sup> *Id.* 138.

<sup>144</sup> This may be referred to as the Avgouleas-Kindleberger paradigm. See *Id.* 139.

that homogenisation of trading, interconnectedness spawned by the financial revolution and the speed of transmission of shocks from one area of the system to the next, created huge potential for contagion.

### **5.3.4 Forging a link between asset price collapses and executive compensation**

Whether one views the GFC as a product of compensation awards or due to a deficiency in market discipline – or views these factors as two sides of the same coin – it is clear that focus must be diverted from using options linked to equity prices as a singular metric with which to assess executive performance, both through the introduction of safeguards into executive compensation contracts to mitigate the effects of short-term strategies and additional measures of performance evaluation. Moreover, less focus on stock prices and greater consideration of stabilising devices in compensation contracts are required.

As documented earlier in the previous chapter,<sup>145</sup> there is an empirical relationship between asset prices and executive stock-based compensation levels. Asset price collapses are often driven by market contagion: when panic grips markets, negative price movements and insolvencies in one area of the economy often spillover to other areas and may cause mass defaults.<sup>146</sup> Moreover, where asset prices fall, stock prices fall also. During the GFC, the economy exhibited widespread contagion as prices in all markets dropped.<sup>147</sup> Many financial institutions and other forms of corporation, collapsed.

---

<sup>145</sup> *Supra.* Chapter 4.

<sup>146</sup> Contagion from one market to others may occur in one of three ways: negative shocks in one market affect directly the cashflows or collateral values of securities in other markets; investors who suffer losses may find their ability to obtain funding impaired leading to liquidity problems and consequently engage in the fire-sale of assets; or, a negative shock in one market leads to greater risk premia in others, negatively affecting financial unit stability. For research on market contagion, see Markus K. Brunnermeier and Lasse H. Pedersen, 'Market Liquidity and Funding Liquidity' (2009) 22 *Rev. Fin. Stud.* 2201; Franklin Allen and Douglas Gale, 'Financial Intermediaries and Markets' (2004) 72 *Econometrica* 1023; Graciela Kaminsky, Carmen Reinhart, and Carlos Vegh, 'The Unholy Trinity of Financial Contagion' (2003) 17 *J. Econ. Persp.* 51; Albert S. Kyle and Wei Xiong, 'Contagion as a Wealth Effect' (2001) 56 *J. Fin.* 1401; Franklin Allen and Douglas Gale, 'Financial Contagion' (2000) 108 *J. Polit. Econ.* 1.

<sup>147</sup> Francis A. Longstaff, 'The Subprime Credit Crisis and Contagion in Financial Markets' (2010) 97 *J. Fin. Econ.* 436.

It is clear that, from analysis of the GFC, and from the discussions on financial market instability,<sup>148</sup> that the economic cycle is characterised by regular periods of expansion and recession ('boom and bust') which limits the utility of the use of stock prices as indicators of performance. This, of course, has implications for the use of stock-options and bonuses tied to stock price performance. If it is accepted that *a priori* financial crises occur frequently<sup>149</sup>, are endogenous, and that they will cause significant effects on the market values of stocks,<sup>150</sup> the potential for contagion and asset price depressions ought to be recognised in the compensation structures employed at listed companies; in particular, firms which tie remuneration packages to stock-price performance, or use stock options to incentivise management. Moreover, measures ought to be adopted to limit the incentives to inculcate financial conditions under which asset prices are likely to collapse. Whilst the concept of pay-for-performance is certainly a laudable mechanism when used correctly, it is limited when compensation is not adjusted for long-term risk.<sup>151</sup> Management prior to the GFC were encouraged to prioritise compensation targets which contributed to financial vulnerability.<sup>152</sup>

## 5.4 CONCLUSION

It is now acknowledged in most quarters that the approach to executive remuneration in financial institutions was a significant cause for the corporate collapses that characterised Anglo-American markets during the GFC.<sup>153</sup> Despite the intentions of shareholder value theorists, executive remuneration packages created incentives which emphasised short-term growth and paid little heed to long-term sustainability. Many of

---

<sup>148</sup> *Supra*. Chapter 4.

<sup>149</sup> Carmen M. Reinhart and Kenneth S. Rogoff, 'This Time is Different: A Panoramic View of Eight Centuries of Financial Crises', NBER Working Paper No. 13882 (March 2008).

<sup>150</sup> For discussions on contagion, or 'spillover effects' see Graciela Kaminsky and Carmen Reinhardt, 'On crises, contagion and confusion' (2000) 51 *J. Int. Econ.* 145.

<sup>151</sup> J. Fred Weston, Mark L. Mitchell and J. Harold Mulherin, *Takeovers, Restructuring, and Corporate Governance* (4<sup>th</sup> Edition, Pearson Prentice Hall, New Jersey) 574.

<sup>152</sup> The following quote from Michael Jensen from 2002 derived from the period following the dot.com and Enron busts could be applied to the use of stock-related compensation at financial institutions prior to the GFC: "The way in which executive pay was typically tied to share performance through options meant that, in the bubble, the carrots became what he calls 'managerial heroin', encouraging a focus on short-term highs with destructive long-term consequences." See Michael C. Jensen, 'Face value: How to Pay Bosses' *The Economist* (New York, 14 November 2002).

<sup>153</sup> In the context of the GFC, for example, the FSA note: "Although it is hard to prove a direct causal link, there is widespread consensus that remuneration practices may have been a contributory factor to the market crisis." FSA, *Reforming remuneration practices* 3.

the mistakes that gave rise to the retreat from market-based regulation were repeated in the lead-up to the GFC, where market-based regulation of corporations was again shown to be deficient.

Recent reforms to the regulation of compensation practices shall be analysed in the following chapter. However, these reforms still exhibit limitations. In particular, the scope of some of the measures has not been expanded to reflect the unstable character of asset markets and the linkages between those markets and corporate market capitalisations (and thereby stock-based remuneration). As detailed in the previous chapter<sup>154</sup>, designers of incentive systems ought to be cognisant of the potential for swings in asset markets which affect financial institutions independent of either executive or firm risks. Market crashes are endogenous to the financial system and executive compensation packages ought to reflect the potential for severe corrections in market prices (particularly following periods of euphoria) with the common consequence of considerable depreciations in market capitalisations. Certain mechanisms ought to be introduced to reduce the incentives for financial institutions to finance a runaway investment boom through the extension of ever higher volumes of credit.

The potential for a sharp reduction in asset values would suggest that utilizing stock-based pay awards with short-term time horizons prior to vesting, or bonuses based upon the performance of share prices over a short-term period ought to be limited. Any compensation packages for executives which contain these elements ought to recognise the potential for a collapse in asset prices. Banking crises invariably lead to a prolonged slump in asset values, particularly in housing and equity markets.<sup>155</sup> The build-up of leverage within the system through the increased availability of credit is the most significant sign that a potential asset collapse is imminent. This was Minsky's great insight: that debt-fuelled expansion would always result in financial collapse. Reducing incentives to leverage will therefore reduce the probability of financial crashes.

---

<sup>154</sup> *Supra.* Chapter 4.

<sup>155</sup> Typically following a banking crisis, housing prices drop 35 percent and equity prices drop 55 percent over a period of between three-and-a-half and six years. See Carmen M. Reinhart and Kenneth S. Rogoff, 'The Aftermath of Financial Crises' NBER Working Paper No. 14656 (January 2009).

The following chapter comprehensively reviews the reforms made to executive compensation systems at financial institutions following the GFC, and makes some proposals for further reforms to executive remuneration contracts at all public corporations.

## **CHAPTER SIX – ANALYSIS OF REGULATIONS, PROPOSALS & CONCLUSION**

### **INTRODUCTION**

The previous chapter observed that the causes of the GFC were generated largely by a flawed understanding of the operation of financial markets and poor incentives in executive compensation contracts. The view that poor incentives – including executive compensation systems – were partly to blame for the eruption of the crisis is supported by analysis of the events. Euphoric financial conditions, loose monetary policies, greed and behavioural biases drove an increase in credit expansion and leverage. The risk management systems and compensation structures at financial institutions were skewed heavily in favour of increased lending and weak due diligence. Executives were rewarded for achieving short-term earnings targets even where profits from these trades evaporated and it became clear that risk had been underestimated.

The regulatory response to these multi-factor issues will be analysed in Section One of this chapter, which shall conduct an examination of the reforms to executive compensation since the GFC produced by national and global regulators. For the sake of practicality, regional reforms shall be analysed in three separate sections according to the jurisdiction concerned (US; UK; European Union ('EU')) and in a final section which encompasses global regulatory recommendations. These measures do go some way to addressing the conflicts which fracture the utility of current performance-based compensation calculations and discussion of these measures shall inform the proposals made in later sections of this chapter.

Section Two identifies common recommendations for current and future reform and discusses their shortcomings. These common threads include the introduction of several safeguards to improve the structure of executive compensation in order to focus executives' minds on planning for medium-long term shareholder value. It shall be noted that the reforms are laudable in their aims, and they are correctly focused on preventing excessive short-term rewards from generating perverse incentives for risky

financial expansion or investment strategies. However, financial crashes will still occur, and compensation systems do not adequately reflect this.<sup>1</sup>

Section Three addresses the final key question posed in the introductory chapter: how, following the GFC, alternative theories of financial markets (discussed in previous chapters<sup>2</sup>) ought to inform the design of executive compensation systems. Drawing lessons from reforms to compensation in the financial sector, it shall propose further additional reforms to incentive systems in all public corporations which, in concert with proposed and existing macro-financial reform<sup>3</sup>, will make the economy more stable. The thesis shall recommend that greater emphasis ought to be placed on the capacity of market prices to depart significantly from value for protracted periods, due in particular to leverage and behavioural factors. Executive remuneration systems may reflect this through the adoption of deferral mechanisms and leverage-based compensation adjustments in order to reduce the capacity for risk at precisely the times that the economy exhibits signs of euphoria. A greater incorporation of qualitative indices of executive performance in determining compensation awards would also reduce the reliance on quantitative metrics, which are often distorted.

Section Four concludes the thesis.

---

<sup>1</sup> Alan Greenspan himself noted in 2009 that the GFC was inevitable: “They [financial crises] are all different, but they have one fundamental source. That is the unquenchable capability of human beings when confronted with long periods of prosperity to presume that it will continue and they begin to take speculative excesses, with the consequences that have dotted the history of the globe basically since the beginning of the eighteenth and nineteenth centur[ies] ... It is human nature...” See Alan Greenspan, ‘Market crisis ‘will happen again’ (BBC Interview, 8 September 2009) available at <http://news.bbc.co.uk/1/hi/8244600.stm> accessed 14/06/12.

<sup>2</sup> *Supra*. Chapters 4 and 5.

<sup>3</sup> See for example the reforms to bank capital adequacy rules, discussed *infra*. Section 6.3.

## 6.1 THE TENOR OF POST-GFC REFORM

As noted by Coffee<sup>4</sup>, there were two major drivers of the legal reforms following the GFC, namely:

“(1) that the 2008 financial crisis was in substantial part the consequence of flawed executive compensation formulas that gave senior financial managers at major financial institutions perverse incentives to pursue short-term profits by accepting risk and high leverage; and (2) that the market’s perception that some financial institutions were ‘too big to fail’ enabled these firms to obtain capital at a discounted price commensurate with the market’s judgment that they would be bailed out. This discount in turn encouraged these firms to take on excessive leverage.”<sup>5</sup>

Doubt was therefore cast on market discipline as an effective tool in constraining harmful risk-taking.<sup>6</sup> Since the GFC, regulators have announced several significant measures to maintain future financial stability.<sup>7</sup> These measures include a revised Basel Accord<sup>8</sup> aimed at preventing bank insolvencies, and an expansion of the role of the Financial Stability Board (‘FSB’)<sup>9</sup> to guard against future systemic crises.<sup>10</sup> Regulators have also argued that necessary reform included reform to executive compensation packages.<sup>11</sup> These reforms have been recommended and/or enacted in major financial centres and shall now be considered.

---

<sup>4</sup> John C. Coffee, ‘Systemic Risk after Dodd-Frank: Contingent Capital and the Need for Strategies Beyond Oversight’ (2011) 111 Col. L. R. 796.

<sup>5</sup> *Id.* 798-99 (notes omitted).

<sup>6</sup> Constantinos Stephanou, ‘Rethinking Market Discipline in Banking: Lessons from the Financial Crisis’ World Bank Policy Research Paper No. 5227 (March 2010); Kern Alexander, Rahul Dhumale and John Eatwell, *Global Governance of Financial Systems: The International Regulation of Systemic Risk* (OUP USA, 2005); Joseph E. Stiglitz, ‘Capital Market Liberalization, Economic Growth, and Instability’ (2000) 28 World Dev. 1075.

<sup>7</sup> The UK Government, for example, has announced wholesale reform to the Tripartite Authorities including the abolition of the FSA. The role and responsibilities of the FSA will be split between the Bank of England and a new Prudential Regulatory Authority. See HM Treasury, *A new approach to financial regulation: the blueprint for reform* Cm 8083 (June 2011).

<sup>8</sup> Bank for International Settlements, *Basel III: A global regulatory framework for more resilient banks and banking systems* (December 2010) (hereinafter BIS, *Basel III*). The proposed Accord will be fully implemented across signatory countries by 2019.

<sup>9</sup> Patrick Jenkins, ‘Regulators outline banking blueprint’ *Financial Times* (London, 1 November 2010).

<sup>10</sup> G20, ‘The Declaration of the Summit on Financial Markets and the World Economy’ (Washington, November 2008).

<sup>11</sup> See especially, FSB, *Principles for Sound Compensation Practices: Implementation Standards* (September 2009) (hereinafter FSB, *Principles for Sound Compensation*). As noted by one renowned economist: “Whoever dreamed up this crazy compensation system? That’s a good question, and the answer leads straight to the doors of the top executives of the companies. So let’s consider the incentives facing the CEO and other top executives of a large bank or investment bank ... For them, it’s often: Heads, you become richer than Croesus ever imagined; tails, you receive a golden parachute that still leaves you



### 6.1.1 U.S Reform: The Dodd-Frank Act 2010

The Wall Street Reform and Consumer Protection Act of 2010<sup>12</sup> ('Dodd-Frank') was the major piece of US legislation to emerge from the GFC. Its provisions in relation to corporate governance are far-reaching. Some of the measures introduced by Dodd-Frank thus included:

- (i) A periodic non-binding shareholder vote on named executive officer compensation and non-binding votes on the approval of 'golden parachutes';<sup>13</sup>
- (ii) Allowing stock exchanges to improve listing standards on compensation committee independence;<sup>14</sup>
- (iii) Requiring additional disclosure of the relationship between executive compensation and financial performance;<sup>15</sup> and
- (iv) Permitting corporate policies on the claw-back of executive compensation in certain circumstances (thus expanding the powers granted under SOX).<sup>16</sup>

Dodd-Frank contained provisions prohibiting certain aspects of the compensation of executives at financial firms and prohibits excessive compensation or compensation to executives or officers which "could lead to material financial loss"<sup>17</sup> at certain systemically significant financial companies.<sup>18</sup> Some of the provisions relating to governance in Dodd-Frank remain non-binding. Shareholder votes (so-called 'say-on-pay') on executive compensation or the frequency of its consideration are non-binding on the board of directors and are not to be construed as capable of over-ruling the board. Further, these shareholder votes are not to be construed as creating any additional fiduciary duties for directors to follow. The 'say-on-pay' votes may also not limit the power of shareholders to include executive compensation proposals for inclusion in proxy materials.

---

richer than Croesus. So they want to flip those big coins, too." Alan Blinder, 'Crazy Compensation and the Crisis' *Wall Street Journal* (New York, 28 May 2009).

<sup>12</sup> Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub, L. No. 111/203 (2010).

<sup>13</sup> Dodd-Frank § 951 which amends § 14A of the Securities Exchange Act 1934 to require companies to conduct a shareholder advisory vote on specific executive compensation not less frequently than every three years.

<sup>14</sup> § 952.

<sup>15</sup> § 953.

<sup>16</sup> § 954.

<sup>17</sup> § 956.

<sup>18</sup> § 956 of the Dodd-Frank Act authorizes the Federal Reserve and/or the SEC to adopt rules in relation to executive officers, employees, or directors of "covered financial institutions" to limit "excessive compensation, fees, or benefits" or compensation that "could lead to material financial loss to the covered financial institution." The term "covered financial" includes most financial institutions (banks, investment banks, credit unions, broker-dealers, etc.) that have assets in excess of \$1 billion. Dodd-Frank Act § 956 (codified at 12 U.S.C. § 5641).

Section 953 requires that companies' annual proxy statements provide an exposition of the relationship between executive compensation and the firms' financial performance. The explanation must be transparent and give shareholders a clear opportunity to compare executive compensation to firm performance over the relevant period. The proxy statement must also declare whether or not individual employees are permitted to hedge the value of stock they own.<sup>19</sup> Under Section 953, companies must also report the median value of the total executive compensation at their firm (excluding the CEO).<sup>20</sup>

Finally, under Dodd-Frank s.954 (amending SOX s.304), compensation paid to certain executives at firms is now subject to potential clawback. As noted earlier in this thesis<sup>21</sup> SOX s.304 allowed for the clawback of any compensation received by the CEO or the CFO arising in the 12 months following the misreporting of financial information, along with any profit from stock sales during this period. SOX s.304 also requires that the CEO or CFO or firm be guilty of misconduct in order for clawback to operate<sup>22</sup> and may only be invoked by the SEC.<sup>23</sup> Dodd-Frank expands both the range of employees this clawback may be invoked against and the time-span over which the power may be invoked. Section 954 requires that issuer firms devise and disclose clawback policies to reclaim any "excess" compensation paid to current or former executive officers on the basis of a financial misstatement over a period of three years following the date of the original misstatement.<sup>24</sup> "Excess" compensation in this context refers to the difference in the level of compensation between what the executive was paid and what he/she would have been paid absent the misstatement.<sup>25</sup> Under Dodd-Frank, there is no requirement of misconduct on the part of executives for the s.954 power to operate;

---

<sup>19</sup> This will be discussed in more detail *infra*. Section 6.3.

<sup>20</sup> This, like the 'Say-on-Pay' issue, has the potential to be burdensome to companies: "[It] means that for every employee, the company would have to calculate his or her salary, bonus, stock awards, option awards, nonequity incentive plan compensation, change in pension value and nonqualified deferred compensation earnings, and all other compensation (eg. perquisites). This information would undoubtedly be extremely time-consuming to collect and analyze, making it virtually impossible for a company with thousands of employees to comply with this section of the Act." See Warren J. Casey and Richard Leu, 'United States: New Executive Compensation Disclosures Under Dodd-Frank' (3 August 2010) available at [www.mondaq.com/unitedstates/article.asp?articleid=106962](http://www.mondaq.com/unitedstates/article.asp?articleid=106962) accessed 5/4/12.

<sup>21</sup> *Supra*. Chapter 3.

<sup>22</sup> This was confirmed by the courts in *SEC v Jenkins*, 718 F. Supp. 2d 1070, 1074-77 (D. Ariz. 2010).

<sup>23</sup> *Neer v. Pelino*, 389 F. Supp. 2d 648, 657 (E.D. Pa. 2005). This has in practice occurred very rarely. See Jerry W. Markham, 'Regulating Excessive Executive Compensation – Why Bother?' (2007) 2 J. Bus. & Tech. 277, 299.

<sup>24</sup> See Kevin J. Murphy, 'Executive Compensation: Where We Are, and How We Got There' in George Constantinides, Milton Harris, and René Stulz (eds.), *Handbook of the Economics of Finance*. Elsevier Science North Holland (Forthcoming) available at [ssrn.com/abstract=2041679](http://ssrn.com/abstract=2041679) accessed 7/6/12.

<sup>25</sup> Senate Report No. 111-176, *The Restoring American Financial Stability Act 2010*, 135.

however clawback will only operate in the event of material non-compliance with federal securities law financial reporting requirements. Therefore, the clawback requirement under Dodd-Frank does not extend to cases where apparent strong financial performance is later revealed to have been based upon an imprudent assumption of risk or persistent market inefficiencies, a drawback to the provisions which shall be analysed in the following section.<sup>26</sup>

### 6.1.2 UK Reform

The Turner Review<sup>27</sup> recommended in 2009 that reforms to remuneration mechanisms at UK financial institutions were necessary. It commented that:

“The long-term issue [regarding executive remuneration] concerns the way in which the structure of remuneration can create incentives for inappropriate risk taking ... In the past neither the FSA nor bank regulators in other countries played significant attention to remuneration structures ... In retrospect this lack of focus, by both firms and regulators, was a mistake. There is a strong prima facie case that inappropriate incentive structures played a role in encouraging behaviour which contributed to the financial crisis.”<sup>28</sup>

The Turner Review thus instructed the FSA to include relevant provisions in its revised Remuneration Code of August 2009.<sup>29</sup> The specific provisions of this code apply to large banks and other financial institutions (‘BOFIs’) but the FSA has reserved the right to apply it to other, smaller entities.<sup>30</sup> The principles are subsumed under the overarching rule that: “A firm must establish, implement and maintain remuneration policies, procedures and practices that are consistent with and promote effective risk management.”<sup>31</sup> There are also ten principles which operate under the Rule; they are prescriptive and detailed.<sup>32</sup> These principles underscore the recognition that remuneration awards in the financial sector tend to recognise short-term revenue generation and profit targets. This gives staff in financial institutions incentives to

---

<sup>26</sup> *Infra*. Section 6.2.

<sup>27</sup> Financial Services Authority, *The Turner Review: A regulatory response to the global banking crisis* (March 2009) (hereinafter FSA, *Turner Review*).

<sup>28</sup> *Id.* 79-80.

<sup>29</sup> FSA, *Policy Statement: Reforming remuneration practices in financial services* (August 2009) PS09/15.

<sup>30</sup> *Id.*

<sup>31</sup> FSA Remuneration Code Rule 19.2.1 FSA 2009/48 (hereinafter FSA, *Remuneration Code*).

<sup>32</sup> FSA, Remuneration Code Rule 19.3 FSA 2009/48. These Principles set down rules for such issues as the best practice for corporate governance, compliance and risk management, the calculation of bonus remuneration, deferral of bonus payments and risk-adjustment of long-term incentive plans.

pursue practices with the aim of “undertaking higher risk investments or activities which provided higher income in the short run despite exposing the institution to higher potential losses in the longer run.”<sup>33</sup> Further regulatory recommendations concerning the payment of directors of public companies are derived from the 2010 UK Corporate Governance Code<sup>34</sup> (‘the Code’) which recommends that a significant proportion of executive director remuneration should be linked to corporate and individual performance<sup>35</sup>; a proportion of remuneration awarded to directors ought to be deferred<sup>36</sup>; and clawback of remuneration implemented in some circumstances.<sup>37</sup>

The most significant recent development in UK financial institution governance and executive remuneration regulation was the Walker Review on Corporate Governance<sup>38</sup> (‘The Walker Review’), which was commissioned to examine specifically the corporate governance arrangements in UK BOFIs following the GFC. The Review entrusted the enforcement of corporate governance norms to the boards of banks and financial institutions, arguing that:

“[B]oth the UK unitary board structure and the Combined Code of the FRC remain fit for purpose. Combined with tougher capital and liquidity requirements and a tougher regulatory stance on the part of the FSA, the “comply or explain” approach to guidance and provisions under the Combined Code provides the surest route to better corporate governance practice...”<sup>39</sup>

The Review made proposals for the following:

---

<sup>33</sup> FSA, *Consultation Paper: Reforming remuneration practices in financial services* (August 2009) CP09/10 1.5.

<sup>34</sup> The UK Corporate Governance Code, Financial Reporting Council, June 2010, available at: [www.frc.org.uk/documents/pagemanager/Corporate\\_Governance/UK.pdf](http://www.frc.org.uk/documents/pagemanager/Corporate_Governance/UK.pdf) accessed 20/10/11 (hereinafter FRC, *The Code*).

<sup>35</sup> FRC, *The Code* Provision D.1.

<sup>36</sup> “In normal circumstances, shares granted or other forms of deferred remuneration should not vest, and options should not be exercisable, in less than three years. Directors should be encouraged to hold their shares for a further period after vesting or exercise, subject to the need to finance any costs of acquisition and associated tax liabilities.” See FRC, *The Code* Schedule A.

<sup>37</sup> “Consideration should be given to the use of provisions that permit the company to reclaim variable components in exceptional circumstances of misstatement or misconduct.” See *Id.* In recent developments, the Association of British Insurers (‘ABI’) claimed that: “The inclusion of clawback and malus provisions in scheme designs and executive contracts is a recognised way to prevent executives receiving rewards that are undeserved. Shareholders expect to see such provisions included in relevant arrangements and for them to be enforced when appropriate.” See ABI, *Principles of Remuneration* (September 2011) available at [www.ivis.co.uk/ExecutiveRemuneration.aspx](http://www.ivis.co.uk/ExecutiveRemuneration.aspx) accessed 10/6/12.

<sup>38</sup> *Walker Review on Corporate Governance in UK Banks and Other Financial Industry Entities: Final Recommendations* (November 2009) (hereinafter, Walker Review, *Final Recommendations*).

<sup>39</sup> Walker Review, *Final Recommendations* 10.

- (i) Rules regarding executive remuneration policies ought to extend not only to senior management and the board of directors, but also to senior traders within the organisations concerned. These traders were often at the centre of unsustainable build-up in leverage and balance sheet exposures; the Review therefore proposed to extend the responsibility regarding remuneration arrangements for highly-paid executives below board level to the remuneration committees.<sup>40</sup>
- (ii) Executive officers and ‘high-end’ employees ought to be required to maintain significant equity stakes in their firms, of an amount in line with their total historic compensation. The vesting of equity awards should not be accelerated following the cessation of employment (the ‘golden parachute’) unless requested on compassionate grounds.<sup>41</sup>
- (iii) Executive remuneration in BOFIs ought to be calibrated to focus on long-term and sustainable investments rather than on short-term earnings. Scales of deferment ought to be used to ensure attention is given to longer term objectives.<sup>42</sup> There should be a significant deferral in incentive payments for all ‘high-end executives’ based on specific risk adjustment mechanisms. To this end, up to two-thirds of cash bonuses ought to be deferred, with at least half of pay or bonuses to be in the form of a long-term incentive scheme with half vesting after three years and the rest after five years.<sup>43</sup>

The Walker Review thus endorsed the view that executive compensation rules in financial institutions ought to be both risk-sensitive to changes in the financial environment and staggered in award. This, in some ways, reflects the view adopted under Dodd-Frank; the significant divergence between the two jurisdictions is that compensation clawback policies are not required of public companies in the UK; although the Code recommends that firms consider such a policy, no legal requirement is in place.<sup>44</sup>

---

<sup>40</sup> *Id.* Recommendation 29. Under Recommendation 31: “For FTSE 100-listed banks and comparable unlisted entities such as the largest building societies, the remuneration committee report for the 2010 year of account and thereafter should disclose in bands the number of “high end” employees, including executive board members, whose total expected remuneration in respect of the reported year is in a range of £1 million to £2.5 million, in a range of £2.5 million to £5 million and in £5 million bands thereafter and, within each band, the main elements of salary, cash bonus, deferred shares, performance-related long-term awards and pension contribution. Such disclosures should be accompanied by an indication to the extent possible of the areas of business activity to which these higher bands of remuneration relate.”

<sup>41</sup> *Id.* Recommendation 34.

<sup>42</sup> *Id.* Recommendation 33.

<sup>43</sup> *Id.*

<sup>44</sup> In fact, as of September 2011, only 20 percent of FTSE100 companies used clawback policies. See Department for Business, Innovation and Skills (BIS), *Executive Remuneration: discussion paper* (September 2011) 117.

### 6.1.3 EU Recommendations

The EU has responded, as is characteristic of EC legislative history, with piecemeal reform<sup>45</sup>, devolving much of the implementation of reformed financial standards to Member States.<sup>46</sup> In response to the GFC, it issued several Recommendations<sup>47</sup> in relation to executive remuneration, which amplify previous Commission pronouncements on executive pay.<sup>48</sup> The Commission Recommendation on Remuneration Policies in the Financial Sector<sup>49</sup> ('EC Remuneration Recommendation') argued that perverse incentives within the financial system contributed to excessive risk-taking and thus pan-European supervision of executive pay arrangements at financial institutions ought to be established.<sup>50</sup> The EC proposed that any remuneration rules ought to be applied across a spectrum of staff whose "professional activities have a material impact on the risk profile of the financial undertaking."<sup>51</sup> Whilst mirroring the UK Walker Review Recommendations, this stands in marked contrast to the approach adopted under Dodd-Frank, which requires oversight of the pay of bank executive officers only. The EC also recommended that more qualitative measures of bank officer performance could be utilised in place of standard quantitative metrics such as stock price or earnings.<sup>52</sup>

---

<sup>45</sup> Luca Enriques and Matteo Gatti, 'The Uneasy Case for Top-Down Corporate Law Harmonization in the European Union' (2006) 27 U. of Penn. J. Int. Econ. L. 939; Gerard Hertig, 'Ongoing Board Reforms: One Size Fits All and Regulatory Capture' (2005) 21 Ox. Rev. Econ. Pol. 269.

<sup>46</sup> Guido A. Ferrarini, Niamh Moloney and Maria-Cristina Ungureanu, 'Executive Remuneration in Crisis: A Critical Assessment of Reforms in Europe' (2010) 10 J.C.L.S. 73 (hereinafter Ferrarini et al. *Executive Remuneration in Crisis*).

<sup>47</sup> Commission Recommendation Complementing Recommendations 2004/913/EC and 2005/162 (C(2009) 3177); Commission Recommendation on Remuneration Policies in the Financial Sector (C(2009) 3159) (hereinafter, EC, *The Remuneration Recommendation*); see also Directive 2010/76/EU [2010] OJ L329/3 which amends the Capital Requirements Directive (Directive 2006/48/EC [2006] OJ L177/1 and Directive 2006/49/EC [2006] OJ L177/201) to recommend that capital requirements under the new Basel III framework be subject to adjustment by supervisors where remuneration policies appear to encourage excessive risk-taking: "The proposed amendments will impose a binding obligation on credit institutions and investment firms to have remuneration policies that are consistent with effective risk management." See the *Accompanying Document to the Proposal for a Directive of the European Parliament and of the Council Amending Capital Requirements Directive on trading book, securitization issues and remuneration policies* [COM(2009) 362 final] [SEC(2009) 974] 5. See also, EC Commission, *Green Paper on Corporate Governance in Financial Institutions and Remuneration Policies* (C(2010) 284).

<sup>48</sup> In particular see Commission Recommendations 2004/913/EC and 2005/162 (C(2009)).

<sup>49</sup> EC, *The Remuneration Recommendation*.

<sup>50</sup> Especially to avoid the effects of cross-border competitive pressures. See *Id.* para. 6.

<sup>51</sup> *Id.* para. 13.

<sup>52</sup> EC, *The Remuneration Recommendation* 5.3, which states: "When determining individual performance, non-financial criteria, such as compliance with internal rules and procedures, as well as compliance with the standards governing the relationship with clients and investors should be taken into account."

The Commission suggested that remuneration awards ought to be calibrated to align the “personal objectives of staff members with the long-term interests of the financial undertaking concerned”<sup>53</sup> and the assessment of performance on which this remuneration is based ought to be a longer-term horizon than currently employed at many financial institutions – preferably three to five years.<sup>54</sup> Clawback ought to be used where remuneration is awarded on the basis of financial performance which later transpires to have been based on unwarranted adoption of risk.<sup>55</sup> Deferral of bonus payments should be utilized to ensure that any tail-risk in a financial institution’s investment strategy has the chance to be winnowed out and “[t]he deferred element of the bonus should take into account the outstanding risks associated with the performance to which the bonus relates.”<sup>56</sup> Whilst the Commission recommended that “Member States should ensure that the remuneration policy of a financial undertaking sets a maximum limit on the variable component”<sup>57</sup> it is clear that most EU members will ignore that plea.<sup>58</sup> Crucially, the Commission also recommended that the “actual payment of performance-based components of remuneration is spread over the business cycle of the company.”<sup>59</sup> This is a significant and potentially rewarding principle which shall be returned to later in the chapter.<sup>60</sup>

---

<sup>53</sup> *Id.* para. 14.

<sup>54</sup> *Id.* The Recommendation notes: “...The assessment of the performance-based components of remuneration should be based on longer-term performance and take into account the outstanding risks associated with the performance. The assessment of performance should be set in a multi-year framework, for example of three to five years, in order to ensure that the assessment process is based on longer term performance and that the actual payment of performance-based components of remuneration is spread over the business cycle of the company.”

<sup>55</sup> *Id.* 5.1.

<sup>56</sup> *Id.* 4.4.

<sup>57</sup> *Id.* 4.1.

<sup>58</sup> In the UK, for example, “The Turner Review was careful to distinguish between the debate on levels of remuneration, which it did not regard as its concern, and the debate on appropriate incentive alignment with respect to stability, which was its concern ... The Walker Review similarly noted that it was not concerned with whether remuneration should be capped, but with the structure of remuneration, deferral, the performance link and disclosure.” See Ferrarini et al. *Executive Remuneration in Crisis* n177.

<sup>59</sup> *Id.* 5.2.

<sup>60</sup> *Infra.* Section 6.3.

#### 6.1.4 International Reform: The FSB, the BCBS and the IIF

Global standards-setting is highly challenging, particularly due to the lack of legal control that may be exerted by supranational ‘soft’ law.<sup>61</sup> However, three global authorities on the financial system have produced detailed guidance on executive compensation reform: the FSB, the Basel Committee on Banking Supervision (‘BCBS’) and the Institute of International Finance (‘IIF’).

In 2009, the FSB published nine principles for the achievement of sound compensation practices for financial institutions in April 2009<sup>62</sup> (‘FSB Principles’). These comprised:

- (i) The firm’s board of directors must actively oversee the compensation system’s design and operation;
- (ii) The firm’s board of directors must monitor and review the compensation system to ensure the system operates as intended;
- (iii) Staff engaged in financial and risk control must be independent, have appropriate authority, and be compensated in a manner that is independent of the business areas they oversee and commensurate with their key role in the firm;
- (iv) Compensation must be adjusted for all types of risk;
- (v) Compensation outcomes must be symmetric with risk outcomes;
- (vi) Compensation payout schedules must be sensitive to the time horizon of risks;
- (vii) The mix of cash, equity and other forms of compensation must be consistent with risk alignment;
- (viii) Supervisory review of compensation practices must be rigorous and sustained, and deficiencies must be addressed promptly with supervisory action; and
- (ix) Firms must disclose clear, comprehensive and timely information about their compensation practices to facilitate constructive engagement by all stakeholders.

Following this, the FSB’s 2010 Peer Review of its implementation standards delegated responsibility for devising methodologies for risk and performance alignment to the BCBS,<sup>63</sup> resulting in the publication of the BCBS Range of Methodologies (‘BCBS Range’).<sup>64</sup> The report noted that “the adjustment of remuneration to risk and

---

<sup>61</sup> Chris Brummer, ‘How International Financial Law Works (and How It Doesn’t)’ (2011) 99 *Geo. L. J.* 247.

<sup>62</sup> FSB, *Principles for Sound Compensation*.

<sup>63</sup> FSB, *Thematic Review on Compensation – Peer Review Report* (March 2010) Recommendation 7.

<sup>64</sup> BCBS, *Range of Methodologies for Risk and Performance Alignment of Remuneration* (May 2011) (hereinafter BCBS, *Range of Methodologies*).



performance is a key element to reduce incentives for excessive risk-taking in banks.”<sup>65</sup> The BCBS Range acknowledged that the compensation systems in most international banks feature deferral and vesting periods for variable remuneration and that some have instituted clawbacks applying to senior executive officers.<sup>66</sup>

The BCBS Range also recognised that several obstacles limit the effectiveness of remuneration based upon financial performance, particularly those associated with the manner in which “future outcomes are captured, the integration and proper allocation of costs or losses, and the use of income versus revenues.”<sup>67</sup> General measures of financial performance are often unable to capture long-term risks and the BCBS, in a similar vein to the EC Remuneration Recommendation, endorsed the use of qualitative metrics to measure performance and determine remuneration rewards:<sup>68</sup>

“The use of indicators like share prices (or similar external measures) may be influenced particularly in the short term by various factors like market sentiment or general economic conditions, not specifically related to firms’ or employees’ actions ... Relative performance measures may increase incentives to take more risk or may, under certain circumstances, reward failure by decoupling remuneration from absolute value generation...”<sup>69</sup>

The BCBS Range therefore suggested that remuneration structures ought to include specific reference to risk adjustment, taking into account both the nature of the risk involved and the time horizons over which those risks could emerge.<sup>70</sup> As noted in the original FSB Principles:

“Profits and losses of different activities of a financial firm are realized over different periods of time. Variable compensation payments should be deferred accordingly. Payments should not be finalized over short periods where risks are realized over long periods. Management should question payouts for income that

---

<sup>65</sup> BCBS, *Range of Methodologies* B.4.

<sup>66</sup> *Id.* 20-21.

<sup>67</sup> *Id.* 33.

<sup>68</sup> *Id.* 32.

<sup>69</sup> *Id.* 34.

<sup>70</sup> *Id.* 36. The BCBS argue that risks may be best mitigated through a mixture of ex post and ex ante adjustments to the wards: “For many activities, bad-tail risk (low frequency, high impact risk) is difficult to measure ex ante. Deferral could help reduce incentives to take such risks; In the case of risks which are difficult to measure, to model or are simply not known at the time of the award, deferral can be particularly useful because ex ante risk adjustment is less likely to work effectively; Deferral may not be fully effective in constraining the incentives of employees who have the ability to expose the firm to extremely long-term risks, as these risks are unlikely to be realised during a reasonable deferral period. In such cases, ex ante risk adjustments become more important.” See *Id.* C.37.

cannot be realized or whose likelihood of realisation remains uncertain at the time of payout.”<sup>71</sup>

The BCBS recognised, in common with the EC, that poorly calibrated remuneration systems may not reflect the potential for tail-risks or for equity markets to exhibit significant departures from long-term value, and deferral periods are thus crucial.<sup>72</sup> It therefore recommended that deferral periods be built into compensation structures, particularly to guard against unforeseen risks:

“Deferral practices can be used to address incentives associated with two kinds of risks. In the case of “ordinary” risks, meaning those that are reasonably well understood and for which severity and time horizon can be assessed, the deferral period and vesting schedule should match the time profile of risk outcomes of the business or have a longer profile, and ideally the ex post adjustments should be tightly linked to the risk outcomes.”<sup>73</sup>

The period of deferral ought to be lengthy enough to allow market or firm-specific risks to emerge and be quantified. In this vein, academics have suggested that executive incentive compensation plans should consist only of restricted stock and restricted stock options, with inbuilt deferral periods; this approach, it is argued will provide incentives for firm executives to act in investors’ longer-term interests and “diminish their incentives to make public statements, manage earnings, or accept undue levels of risk, for the sake of short-term price appreciation”.<sup>74</sup>

Finally, the IIF, the world’s only global association of financial institutions, released a collection of principles on executive compensation (‘compensation principles’) during

---

<sup>71</sup> FSB, *Principles for Sound Compensation*.

<sup>72</sup> *Id.* 39: “When designing a remuneration package, the question of the relative proportion in cash and equity instruments (like shares or options) is an important parameter. A key question is the extent to which shares and similar instruments contribute to create appropriate incentives. For purposes of affecting incentives, shares should be subject to a transfer restriction since they differ from cash only during the period when they are subject to transfer restrictions (given that unrestricted shares can be sold and converted to cash). Also, the transfer restriction period should be sufficiently long, to ensure that appropriate incentives are built and to truly differentiate it from a cash payment. However, transfer restriction should not be seen as a substitute for deferral, as deferral permits malus to be applied.”

<sup>73</sup> *Id.* 113.

<sup>74</sup> Roberta Romano and Sanjai Bhagat, ‘Reforming Executive Compensation: Focusing and Committing to the Long-term’ (2009) 26 *Yale J. Reg.* 359 (hereinafter Bhagat and Romano, *Reforming Executive Compensation*). Romano and Bhagat contend that a deferral period of 2-4 years would be appropriate to prevent managerial short-termism from unduly affecting risk appetites. See also Natasha Burns and Simi Kedia, ‘The Impact of Performance-Based Compensation on Misreporting’ (2006) 79 *J. Fin. Econ.* 35 (hereinafter Burns and Kedia, *Performance-Based Compensation and Misreporting*); Bengt Holmstrom, ‘Managerial Incentive Problems – A Dynamic Perspective’ (1999) 66 *Rev. Econ. Stud.* 169; Bengt Holmstrom, ‘Moral Hazard and Observability’ (1979) 10 *Bell J. Econ.* 4.

the most severe period of the GFC.<sup>75</sup> This was, in part, a consequence of the view that “much of the recent criticism of industry compensation practices has focused on the use of revenues or profits to calculate bonus payouts, without adequately accounting for the risk taken to generate profits.”<sup>76</sup> The seven compensation principles consist of the following:

- (i) Compensation incentives should be based on performance and should be aligned with shareholder interests and long-term, firm-wide profitability, taking into account overall risk and cost of capital;
- (ii) Compensation incentives should not induce risk-taking in excess of the firm’s risk appetite;
- (iii) Payout of compensation incentives should be based on risk-adjusted and cost of capital-adjusted profit and phased, where possible, to coincide with the risk time horizon of such profit;
- (iv) Incentive compensation should have a component reflecting the impact of business units’ returns on the overall value of related business groups and the organisation as a whole;
- (v) Incentive compensation should have a component reflecting the firm’s overall results and achievement of risk management and other general goals;
- (vi) Severance pay should take into account realised performance for shareholders over time;
- (vii) The approach principles, and objectives of compensation incentives should be transparent to shareholders.<sup>77</sup>

The IIF compensation principles were perhaps the most prescriptive voiced and the IIF was clear that remuneration ought to be reflective of the risks that sharp market swings may occur. In particular, the IIF called for compensation structures which do not reward apparent superior short-term performance which at a later date emerges to have been illusory when adjusted for risk; institutions must align compensation systems to the risk time horizon of the firm concerned. To achieve this, firms should:

“Incorporate adjustments for risk/capital usage based on the risk measures most appropriate to the business in question ... Measure performance over a multi-year period where appropriate ... Defer compensation delivery in businesses that have a multi-year risk time horizon ... Pay compensation in units with value that

---

<sup>75</sup> The first publication was in July 2008, prior to the apogee of the GFC and was entitled IIF, *Final Report of the IIF Committee on Market Best Practices: Principles of Conduct and Best Practice Recommendations, Financial Services Industry Response to the Market Turmoil of 2007-2008* (July 2008) (hereinafter IIF, *Principles*). The second publication was a follow-up review using surveys from its membership on the progress made since the release of its compensation recommendations. See IIF, *Compensation in Financial Services: Industry Progress and the Agenda for Change* (March 2009) (hereinafter IIF, *Compensation in Financial Services*).

<sup>76</sup> IIF, *Compensation in Financial Services* 3.2.1.1.

<sup>77</sup> IIF, *Principles* 49.

is linked to the individual's future performance (ie. company stock may not always be the best currency) thus focusing on alignment with performance development over time rather than on retention ... [and] ... Introduce forward looking long-term incentive plans for executives and key strategic roles, based on performance achievements beyond total shareholder return metrics.”<sup>78</sup>

### 6.1.5 Summary

This section has described the most apposite recommendations for compensation reform released since the GFC by several national and supranational regulatory agencies. The reforms are in varying stages of implementation, yet they are driven by one overarching consideration: to reduce risk within the financial system by providing appropriate incentives in executive compensation contracts.

There are two principal observations to be garnered from these discussions. The first is that all of the proposals demonstrate a firm grounding in agency theory. In this way, they are redolent of previous regulatory solutions to incentive problems in employment contracts. Orthodox methods of incentivising executives to act in the interests of firm owners and entrusting the board to monitor management are standard fare in the corporate governance literature.<sup>79</sup> The spectrum of recommendations does not depart from trust in these governance mechanisms.<sup>80</sup>

The second observation of trends within the recommendations is that supervisory authorities appear cognisant of the requirement for mechanisms to be implemented to allow for greater long-term performance consideration in executive compensation contracts. Adjustment to remuneration is cited by the majority of regulatory bodies as the appropriate principle under which to align pay with performance more efficiently. The two suggested mechanisms for remuneration adjustment are, either (i) deferral of

---

<sup>78</sup> IIF, *Compensation in Financial Services* Figure 2.

<sup>79</sup> See discussions *supra.*, Chapters 2 and 3.

<sup>80</sup> For example, the terms of reference for The Walker Review left no doubt as to the primary reforms necessary in reducing the likelihood of future financial failures: “To examine corporate governance in the UK banking industry and make recommendations, including in the following areas: the effectiveness of risk management at board level, including the incentives in remuneration policy to manage risk effectively; the balance of skills, experience and independence required on the boards of UK banking institutions; the effectiveness of board practices and the performance of audit, risk, remuneration and nomination committees; the role of institutional shareholders in engaging effectively with companies and monitoring of boards; and whether the UK approach is consistent with international practice and how national and international best practice can be promulgated.” See Walker Review, *Final Recommendations* 5.

vesting of variable compensation awards; or (ii) clawback of pre-awarded compensation. Each mechanism is hindered by considerable practical considerations yet, in principle, they would lead to greater efficiency in the pay-for-performance paradigm. There are also several suggestions for wider incorporation of qualitative data into performance appraisals in financial institutions which would, in theory, reduce the reliance on financial metrics of performance which are more manipulable.

## **6.2 POST-GFC COMPENSATION REFORMS: A CRITIQUE**

This section shall critically analyse the regulatory response in Anglo-American markets to executive compensation in the global context. It shall note that the reforms made to rules concerning bonuses and stock options reflect strong progress on this issue; however, they do not take into account the capacity for financial crisis to reveal acute overvaluation of assets and therefore remain reflective of modern finance theory.

### **6.2.1 Deferral of variable compensation**

This recommendation is ubiquitous in the reform literature and reflects current industry practice.<sup>81</sup> As noted by the EC: “The assessment of performance should be set in a multi-year framework in order to ensure that the assessment process is based on longer term performance and that the actual payment of bonuses is spread over the business cycle of the company.”<sup>82</sup> This thesis concurs with this aspect of the relevant financial regulation proposals. The in-building of deferral into compensation contracts at firms ought to be prioritised.<sup>83</sup> Deferral provides greater links between pay and performance for two primary reasons: (i) it provides long-term incentives to discourage executives from engaging in techniques such as earnings manipulation or accept undue levels of risk for short-term price rises;<sup>84</sup> and (ii) it allows greater time for the effects of the

---

<sup>81</sup> As noted, 76 percent of financial institutions use deferral schemes. See discussion *supra*. Section 6.1.4.

<sup>82</sup> EC, *The Remuneration Recommendation*, Recommendation 5.2.

<sup>83</sup> It is clear that this is happening in the US and EC. See Guido A. Ferrarini and Maria-Cristina Ungureanu, ‘Bankers’ Pay After the 2008 Crisis: Regulatory Reforms in the US and EU’ (forthcoming 2012) J. B. Law and B. available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2001492](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2001492) accessed 23/07/12.

<sup>84</sup> Bhagat and Romano, *Reforming Executive Compensation* 363.

business cycle or potential overvaluation of assets (a bubble) to dissipate, thus providing greater alignment of price levels with underlying value. Empirical evidence supports the use of restricted or deferred compensation awards; managers with greater restricted equity are less likely to engage in earnings management or financial misreporting<sup>85</sup> or embark upon value-destroying corporate acquisitions financed by stock.<sup>86</sup> Thus, there is evidence that deferring variable stock-related compensation reduces the incentives to boost or manipulate stock prices.

Practical criticisms regarding deferral must, however, be addressed. Critics of existing systems note that few companies assess performance for bonus purposes over a multi-year framework (just 8 percent).<sup>87</sup> Over half of IIF members did not incorporate any form of risk adjustment into their bonus pools.<sup>88</sup> It is also clear that while financial institutions generally use deferral mechanisms (76 percent), on average, only 20 percent of bonus compensation is deferred.<sup>89</sup> This problem with existing variable compensation deferral should therefore be examined immediately. Many jurisdictions recommend that elements of compensation ought to be deferred for at least three years;<sup>90</sup> however, “this restriction appears somewhat arbitrary; three years is not a particularly long horizon in terms of long-term performance.”<sup>91</sup> Naturally, deferral periods will assist in mitigating the effects of increased risk within a sector or institution, but it is clear that these risks may not manifest for protracted periods – many years, in some cases, and longer deferral periods might have to be invoked.

There are also legitimate concerns over its use at the expense of other ex post measures of performance. For example, in the case of deferred stock awards, where a significant portion of managements’ wealth is tied to a firm through restricted stock, this increases managements’ risk exposure to the stock price of the company. This will provide incentives for managers to embark upon risk-averse strategies in order to preserve the value of their awards, potentially diminishing shareholder wealth.<sup>92</sup> Managers may also

---

<sup>85</sup> Burns and Kedia, *Performance-Based Compensation and Misreporting*.

<sup>86</sup> Gregor Andrade, Mark Mitchell and Erik Stafford, ‘New Evidence and Perspectives on Mergers’ (2001) 15 *J. Econ. Persp.* 103.

<sup>87</sup> IIF, *Compensation in Financial Services* 3.2.2.

<sup>88</sup> *Id.* 3.2.1.1.

<sup>89</sup> *Id.*

<sup>90</sup> See for example, EC, *The Remuneration Recommendation* 4.1; FSA, *The Code* Schedule A.

<sup>91</sup> Ferrarini et al. *Executive Remuneration in Crisis* 117.

<sup>92</sup> Bryan et al., *CEO Stock-Based Compensation*; Lewellen, *Executive Compensation*.

still use their power to time their stock sales to extract maximum rents from the company,<sup>93</sup> either through trading on inside information or through manipulating the stock price.<sup>94</sup> Tax considerations also must be countenanced if deferred stock awards are to retain an incentive effect.<sup>95</sup>

### 6.2.2 Clawback

In theory, the concept of clawback is relatively simple: employers should be empowered to retrieve compensation awarded to employees in certain prescribed situations. However, there are significant practical constraints imposed on retrieving remuneration that has already been awarded (often years previously) as an ex-post adjustment. The FSA in the UK itself notes: “We recognise there are limits to the ways in which clawback can be operated as an effective performance adjustment technique.”<sup>96</sup>

It is of critical importance therefore for authorities to define the situations in which clawback is to be permitted. Clawback penalizes executives for producing erroneous financial reports (innocently or not) which ought to aid market informational transparency and increase efficiency. However, its implementation has not provided regulators with powers that may have made clawback a more effective tool with which to regulate executive pay packages. No national or supranational agency has recommended the use of clawback in situations other than those involving manipulation or restatements. Where stock prices are inaccurate due to inflation from errors in performance metrics, no clawback is permitted. Further, where qualitative (non-financial) measures of performance are used as the basis for a compensation award which later are revealed to have been inaccurately assessed, clawback could not operate, as no restatement would be required.<sup>97</sup>

---

<sup>93</sup> See generally, Myron S. Scholes, ‘Stock and Compensation’ (1991) 46 J. Fin. 803.

<sup>94</sup> Bebchuk and Fried, *Paying for long-term performance* 1924.

<sup>95</sup> The vesting of restricted stock generally gives rise to a tax liability. See US Internal Revenue Code § 83(a) (2006) (triggering tax liability when “the rights of the person having the beneficial interest in such property are transferable or are not subject to a substantial risk of forfeiture”). For further discussion see Lucian A. Bebchuk and Jesse M. Fried, ‘Paying for long-term performance’ (2010) 158 U. Penn. L. R. 1915 (hereinafter Bebchuk and Fried, *Paying for long-term performance*). See also Tod Perry & Mark Zenner, ‘Pay for Performance? Government Regulation and the Structure of Compensation Contracts’ (June 2000) available at <http://papers.srn.com/sol3/papers.cfm?abstractid=60956> accessed 17/06/12.

<sup>96</sup> FSA, *Revising the Remuneration Code* CP10/19 (July 2010) n32.

<sup>97</sup> Jesse M. Fried and Nitzan Shilon, ‘Excess-Pay Clawbacks’ (2011) 36 J. Corp. L. 722, 749 (hereinafter Fried and Shilon, *Excess-Pay Clawbacks*). Further, in jurisdictions where clawback is not mandatory,

Clawback will thus remain ineffectual as long as legislators allow companies to apply it only in narrowly prescribed contexts.<sup>98</sup> There are moves for the power to be permitted to be exercised in instances where ‘downside targets’ are breached,<sup>99</sup> although these moves remain at the discussion stage.<sup>100</sup> There are alternative occasions in which the power ought to be available to regulators in order to focus executive minds on long-term viability of firm investment strategies. In particular, it should remain open for firms to recoup compensation awarded in periods of economic euphoria where the actions of executives have led to the unsustainable build-up of risk within the institution concerned. No restatement would be needed if a business collapsed due to imprudent risk yet, at present, clawback would not operate in this situation.

### 6.2.3 Increased shareholder power – ‘say-on-pay’

This proposal, which is common to all of the recommendations reviewed in the previous section, follows in the traditional footsteps of corporate governance theory, surveyed in Chapter Two of the thesis.<sup>101</sup> According to this view of governance, shareholders should be granted increased powers to ratify or reject the compensation of key executives and board members. This move follows on from research and theory which suggests that only shareholders have the necessary incentive and detachment from the board to regulate executive pay effectively.<sup>102</sup>

---

such as the UK, only a minority of companies use them. As of 2012, only 30 percent of UK FTSE-350 firms had clawback policies. See Deloitte, *Your Guide: Executive directors’ remuneration in FTSE 250 companies* (April 2012) 3.

<sup>98</sup> A further criticism of the clawback power under Dodd-Frank § 954 is that all “executive officers” are subject to its provisions, which casts the net very wide and might lead to the power being used against blameless executives. This might incentivise executives to prefer higher base salaries rather than performance bonuses in lieu of the potential for clawback, thus removing the incentive element of pay. See Stephen M. Bainbridge, *Dodd-Frank: Quack Federal Corporate Governance Round II* (2011) 95 *Minn. L. Rev.* 1779; Daniel A. Cohen, Aiyasha Dey and Thomas Z. Lys, ‘The Sarbanes-Oxley Act of 2002: Implications for Compensation Structure and Managerial Risk-Taking’ (November 2007) available at [ssrn.com/sol3/papers.cfm?abstract\\_id=568483](http://ssrn.com/sol3/papers.cfm?abstract_id=568483) accessed 10/05/12. Moreover, perhaps, the Act’s focus on executive officers fails to provide any financial deterrent to senior proprietary traders, who may have greater power and incentives to pursue risk-laden strategies which house the potential to damage their firms. See Bhagat and Romano, *Reforming Executive Compensation*.

<sup>99</sup> Philip Aldrick, ‘Bonus clawbacks should be in all director contracts, says think tank Policy Exchange’ *The Daily Telegraph* (London, 5 June 2012).

<sup>100</sup> To build up a clawback fund, half of all bonuses would be put in an escrow account and paid out evenly over five years. The company could withdraw the funds if directors underperformed.

<sup>101</sup> *Supra*. Chapter 2.

<sup>102</sup> See Lucian A. Bebchuk, ‘The Myth of the Shareholder Franchise’ (2007) 93 *Va. L. Rev.* 675; Lucian A. Bebchuk, ‘Letting Shareholders Set the Rules’ (2006) 119 *Harv. L. Rev.* 1784; Lucian A. Bebchuk,



However, reliance on shareholder exercising of disciplinary power is fraught with difficulties. In short, ‘say-on-pay’ might be a politically popular reform to corporate governance, but its effects are likely to be negligible.<sup>103</sup> This thesis has already noted many of the practical obstacles to effective shareholder governance of firms, particularly their bounded-rationality and ability to sell stock rather than reform corporate governance.<sup>104</sup> Perhaps the biggest problem with ‘say-on-pay’ is that shareholders – particularly institutional investors – have poor incentives to rein in excessive risk-taking by executives. As noted by Coffee:

“There is a dominant, prevailing scenario shared by Congress, the public, and academics: reckless managers driven by compensation assumed excessive leverage. Shareholders are assumed to be cautious, prudent, and long-term oriented, while managers have shifted to risk-taking through incentives. The first is true, the second is a fairy tale. But [it shapes] a good deal of ... legislation.”<sup>105</sup>

Studies find that “compensation and risk-taking are not related to governance variables but co-vary with ownership by institutional investors who tend to have short-termist preferences and the power to influence firm management policies.”<sup>106</sup> Therefore, powerful shareholders will often desire managers who assume risk as opposed to conservative executives: “[S]hareholders prefer excessive risk taking. So they may have an interest in pay arrangements that encourage risk-taking too much.”<sup>107</sup> Thus, even firm owners cannot be trusted to prevent excessive risk-taking. The effective time horizon of most institutional investors (by far the largest class of investors in Anglo-

---

‘The Case for Increasing Shareholder Power’ (2005) 118 Harv. L. Rev. 833; Marcel Kahan and Edward B. Rock, ‘How I Learned to Stop Worrying and Love the Pill: Adaptive Responses to Takeover Law’ (2002) 69 U. Chi. L. Rev. 871; Stephen M. Bainbridge, ‘Director Primacy: The Means and Ends of Corporate Governance’ (2003) 97 Nw. U. L. Rev. 547. For rejoinders to these see Leo E. Strine Jr., ‘Towards a True Corporate Republic: A Traditionalist Response to Lucian’s Solution for Improving Corporate America’ (2006) 119 Harv. L. Rev. 1759; Theodore N. Mirvis, Paul K. Rowe, & William Savitt, ‘Bebchuk’s “Case for Increasing Shareholder Power”: An Opposition’ Harvard Law School Discussion Paper No. 586 (May 2007).

<sup>103</sup> Kym Sheehan, ‘Say on pay and the outrage constraint’ in Jennifer Hill & Randall Thomas (eds), *Research Handbook on Executive Compensation* (Edward Elgar, 2012).

<sup>104</sup> See *supra*. Chapter 2 for discussions on the problems of shareholder engagement, bounded rationality, the Wall Street rule and other such factors.

<sup>105</sup> Remarks of John C. Coffee, ‘Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium’ Columbia Business School (27-28 March 2010) available at [www4.gsb.columbia.edu/rt](http://www4.gsb.columbia.edu/rt) accessed 20/06/12 (hereinafter Columbia Symposium, *Governance, Executive Compensation and Excessive Risk*) 10.

<sup>106</sup> Ing-Haw Cheng, Harrison Hong and Jose A. Scheinkman, ‘Yesterday’s Heroes: Compensation and Creative Risk-Taking’ NBER Working Paper 16176 (July 2010).

<sup>107</sup> Remarks of Lucian Bebchuk, Columbia Symposium, *Governance, Executive Compensation and Excessive Risk* 11.

American markets) is only around one year. Many large shareholders will therefore encourage a focus on the short-term and certainly cannot be expected to provide a source of extra discipline on management.<sup>108</sup>

Other specific criticisms of ‘say-on-pay’ focus on the costs of implementing a non-binding vote on boards of directors which will reduce shareholder returns and have no legal basis,<sup>109</sup> rendering it ineffectual;<sup>110</sup> jurisdictions which advocate a ‘say-on-pay’ advisory vote have not witnessed significant effects on compensation levels<sup>111</sup> and in Anglo-American jurisdictions, the votes remain merely advisory.<sup>112</sup> This might lead to the introduction of standardised executive compensation contracts which do not reflect the diversity of the corporate landscape.<sup>113</sup> There are also concerns that the reliance institutional investors place on proxy advisers will lead to a shift in power from shareholders to advisory firms.<sup>114</sup>

#### 6.2.4 Qualitative indicators of performance

Post-GFC, several supranational bodies have recommended the use of qualitative indicators of executive performance rather than wholesale reliance on financial data in designing compensation. The use of qualitative data is already standard practice across financial institutions; the BCBS Range noted that:

---

<sup>108</sup> Kenneth Froot, Andre Perold and Jeremy C. Stein, ‘Shareholder Trading Practices and Corporate Investment Horizons’ NBER Working Paper No. 3638 (March 1991)

<sup>109</sup> Stephen M. Bainbridge, ‘The Corporate Governance Provisions of Dodd-Frank’ UCLA School of Law, Law-Econ Research Paper No. 10-14 (October 2010) available at [ssrn.com/abstract=1698898](http://ssrn.com/abstract=1698898) accessed 5/6/12.

<sup>110</sup> Notwithstanding the criticisms of ‘say-on-pay’, there is evidence that the tide may be turning on this issue, as activist institutional investors have questioned a string of remuneration proposals at UK public companies, including Barclays, Aviva, Trinity Mirror, Pendragon, and WPP. For an overview of the so-called “shareholder-spring”, see Rose Jacobs, ‘Investor activism re-emerges’ *Financial Times* (London, 1 June 2012). However, for the reasons posited in Chapter 2 and in this chapter, the author of this thesis doubts that shareholder-based remedies are a sustainable solution to remuneration issues at public companies.

<sup>111</sup> Jeffrey N. Gordon, “‘Say on Pay’: Cautionary Notes on the UK Experience and the Case for Shareholder Opt-in’ (2009) 46 *Harv. J. Legis.* 323, 325 (hereinafter Gordon, *Say on Pay*).

<sup>112</sup> The UK Coalition Government has stated publicly that it intends to empower shareholders to pass binding resolutions on executive pay, although this has not yet been legislated and the original proposals have been watered down considerably. See David Oakley and Jim Pickard, ‘Cable to unveil revised executive pay plans’ *Financial Times* (London, 13 June 2012).

<sup>113</sup> Gordon, *Say on Pay*.

<sup>114</sup> *Id.* 326; Stephen M. Bainbridge, ‘Will the Unaccountable Power of RiskMetrics Put Teeth in the Dodd Bill’s Say on Pay Provision?’ (22 April 2010) available at [www.professorbainbridge.com/2010/04/will-the-unaccountable-power-of-risk-metrics-put-teeth-in-the-dodd-bills-say-on-pay-provision.html](http://www.professorbainbridge.com/2010/04/will-the-unaccountable-power-of-risk-metrics-put-teeth-in-the-dodd-bills-say-on-pay-provision.html) accessed 5/4/12.

“Both qualitative and quantitative performance measures should be considered [in compensation structures]. While performance measures are normally focused on financial metrics, it is also important that financial institutions include non-financial metrics in developing the risk-based remuneration hurdles.”<sup>115</sup>

Similarly, the EC recommended that:

“In order for remuneration policy to be in line with the objectives, the business strategy, the values and the long-term interests of the financial institution, other factors, apart from financial performance, should be considered, such as compliance with systems and controls of the financial institution, as well as compliance with the standards governing the relationship with clients and investors.”<sup>116</sup>

Non-financial indicators of performance currently form approximately 23 percent of determined bonus awards in banks.<sup>117</sup> The measures used to assess performance ordinarily include: “The franchise nature of the employee’s business (client oriented businesses are favoured over proprietary trading); Quality of revenues (businesses with large illiquid risks appear to be discounted qualitatively in addition to the quantitative liquidity charges); Performance appraisals from managers and colleagues; Resources and behaviours used to achieve the results; Teamwork; Individual employee compliance with controls or adherence to the rules; and Track record / multiple years of performance.”<sup>118</sup> Future compensation systems therefore ought to “[i]ncrease [the] weighting of non-financial input and output criteria”<sup>119</sup> in calibrating awards.

Of course, criticisms of qualitative performance appraisal remain: the absence of quantitative data might make the process too subjective and difficult to benchmark. Further, there are certainly latent dangers that ‘soft’ targets are more malleable than hard, financial data. Nevertheless, as outlined in the concluding section of this thesis,<sup>120</sup> increasing the consideration of qualitative performance metrics would go some way to alleviating the problems associated with over-reliance on financial indices and give recognition to other measures of value-addition.

---

<sup>115</sup> BCBS, *Range of Methodologies* 58.

<sup>116</sup> EC, *The Remuneration Recommendation* 17.

<sup>117</sup> IIF, *Compensation in Financial Services* 12.

<sup>118</sup> BCBS, *Range of Methodologies* 91.

<sup>119</sup> IIF, *Compensation in Financial Services* Figure 2.

<sup>120</sup> *Infra.* Section 6.3.

### 6.2.5 Risk and leverage-adjusted remuneration

This proposal is, perhaps, the one which accords most with the thrust of this thesis. When viewed in conjunction with the proposals concerning deferral of compensation, it is this aspect of suggested reforms to executive remuneration which goes farthest in reducing the propensity for economies to become over-leveraged during euphoric periods, and thereby unstable. The EC, BCBS, and IIF each recommended that some recognition be made of the power of the leverage and business cycles in accentuating executive compensation.<sup>121</sup> This thesis has postulated that a significant portion of accelerated executive compensation, particularly since the 1980s, is the result mainly of asset value inflation, exaggerated by a massive increase in the use of leverage,<sup>122</sup> allowing executives to capture excess rents. Compensation per employee grows considerably in periods of excessive leverage.<sup>123</sup>

Mechanisms used to reduce the incentives to leverage or assume risk therefore ought to be included in any reform packages to executive compensation. The IIF has voiced the view that compensation ought to “be based on risk-adjusted and cost of capital-adjusted profit and phased, where possible, to coincide with the risk time horizon of such profit”.<sup>124</sup> Similarly, the BCBS contends that:

“In the case of “ordinary” risks, meaning those that are reasonably well understood and for which severity and time horizon can be assessed, the deferral period and vesting schedule should match the time profile of risk outcomes of the business or have a longer profile, and ideally the ex post adjustments should be tightly linked to the risk outcomes.”

There is thus a clear consensus amongst international bodies that remuneration systems ought to recognise that risk which is inbuilt into an institution’s profile may not be realized for some time. In the absence of compensation deferral periods of significant lengths the very real probability exists that increased leveraging will be undertaken.

---

<sup>121</sup> See discussions *supra*. Section 6.1.

<sup>122</sup> Margaret M. Blair, ‘Financial Innovation, Leverage, Bubbles and the Distribution of Income’ (2010-11) 30 Rev. Bank & Fin. L. 275 (hereinafter Blair, *Financial Innovation and Leverage*); Thomas Philippon ‘The Evolution of the US Financial Industry from 1860 to 2007: Theory and Evidence’ NBER Working Paper (November 2008) available at [http://economics.stanford.edu/files/Philippon5\\_20.pdf](http://economics.stanford.edu/files/Philippon5_20.pdf) accessed 17/06/12.

<sup>123</sup> In 2007 alone, Wall Street bonuses totalled over \$200,000 per employee (inclusive of secretaries and clerks). See Thomas Phillippon, ‘Are Bankers Paid Too Much?’ VOX (2 February 2009) available at [www.voxeu.org/index.php?q=node/2966](http://www.voxeu.org/index.php?q=node/2966) accessed 14/06/12.

<sup>124</sup> IIF, *Principles* 49.

This risk becomes much more acute when one incorporates the findings of behavioural finance and the FIH in the analysis.<sup>125</sup> As memories of previous crises fade, market actors will be willing to countenance returns to higher leverage ratios, particularly if their financial fortunes are linked to the volume of credit in the economy or asset prices (credit and asset prices mutually reinforce one another). There must be therefore some mechanism, in addition to those proposed by regulators, to restrict compensation linked to price levels in periods of economic euphoria. This reform is the core proposal of this thesis, each of which shall now be outlined.

### **6.3 PROPOSALS FOR EXECUTIVE COMPENSATION: MEASURES TO MITIGATE THE EFFECTS OF PRICE DISTORTIONS**

This penultimate section of this thesis makes some proposals for future reform to executive compensation structures. Despite the strong progress made on the issue of executive compensation since the GFC, seriously radical measures for oversight regarding the pay of executives and senior employees have not been countenanced. The GFC provided regulators with the opportunity to effect meaningful reform to corporate governance in recognition of the failure of market-led solutions to restrain excessive risk.<sup>126</sup> Much of the public mood regarding shareholder votes on executive remuneration appears to be driven by outrage at perceived ‘excess’ rather than any discernible objections to the pay-for-performance paradigm.<sup>127</sup> It is unfortunate that absolute levels of executive pay have become the focus of much political and media attention – and there appears little sign of dissipation – whereas the methods used to design executive pay systems (by far the more important elements in terms of efficiency) have received scant public scrutiny. Instead, focus has centred on measures such as shareholder votes on executive remuneration. According to this thesis there are far more

---

<sup>125</sup> See discussions *supra*. Chapter 4.

<sup>126</sup> Stefano Pagliari, ‘Who Governs Finance? The Shifting Public–Private Divide in the Regulation of Derivatives, Rating Agencies and Hedge Funds’ (2012) 18 *Eur. L. J.* 44.

<sup>127</sup> See, for example, James Moore, ‘Fury as Goldman Sachs unveils bankers’ pay’ *The Independent* (London, 15 January 2012); Alistair Gray and Kate Burgess, ‘Investor fury at executive pay policies’ *Financial Times* (London, 12 May 2012). As noted by the IIF: “The structure and governance of compensation have received far less attention [than bonus levels] and it is the Institute of International Finance’s view that these are more important in driving the desired level of prudence in the behaviour of front-line employees, managers and executives.” See IIF, *Compensation in Financial Services*, 1.

significant reforms to compensation systems required, which ought to provide more sustainable solutions to issues relating to performance-related pay.

In considering the proposals three issues must be noted. Firstly, reforms to executive compensation are not a panacea: they must be part of a wide-ranging package of reforms which target key weaknesses in the overarching legal framework under which companies operate.<sup>128</sup> Secondly, whilst simplification of compensation systems might be desirable, complex pay packages are unavoidable, because the risk control associated with one form of reward may create additional risk in another area.<sup>129</sup> Thirdly, any reform to compensation structures must be implemented on a global scale, in the form of a supra-nationally agreed accord. Anything less will find regions of regulatory laxity rewarded with an influx of public companies in a ‘race to the bottom’.

The three proposals are designed to guard against the dangers of stock-price based governance and are derived from three complementary perspectives relating in some way to the preceding analysis of flawed corporate governance systems charted in this thesis. The first proposal – significant deferral plans – shall mitigate the effects of the business cycle by making variable stock-based compensation awards contingent on the fulfilment of a mandatory holding period which ought to reduce the capacity of market prices to deviate from fundamental value for protracted periods. It will also thereby reduce incentives for executives to pursue short-term price-appreciating corporate strategies. The second proposal – the incorporation of qualitative indices of performance – shall reduce the role of potentially flawed financial market pricing in setting compensation awards. The third proposal – a leverage-based compensation stabiliser – shall reduce the incentives for firm executives to undertake leverage-based expansion which, as charted earlier in this thesis,<sup>130</sup> is a common precursor to financial crisis.

---

<sup>128</sup> In relation to the financial system, for example, for an excellent discussion of existing reforms and insightful proposals for new reform, see Emiliós Avgouleas, *Governance of Global Financial Markets: The Law, the Economics, the Politics* (Cambridge University Press, 2012) (hereinafter Avgouleas, *Governance of Global Financial Markets*).

<sup>129</sup> Stephen Bryan, LeeSeok Hwang, Steven Lilien, ‘CEO Stock-Based Compensation: An Empirical Analysis of Incentive-Intensity, Relative Mix, and Economic Determinants’ (2000) 73 *J. Bus.* 661 (hereinafter Bryan et al., *CEO Stock-Based Compensation*); Wilbur Lewellen, Claudio Loderer and Kenneth Martin, ‘Executive Compensation and Executive Incentive Problems: An Empirical Analysis’ (1987) 9 *J. Account. Econ.* 287, 288. (hereinafter Lewellen, *Executive Compensation*).

<sup>130</sup> *Supra*. Chapter 4.

### 6.3.1 Proposal I – Three/Ten-year deferral plans

Many jurisdictions have already mandated deferral periods for equity-based compensation.<sup>131</sup> These deferral periods in the financial sector currently range from two to five years.<sup>132</sup> This thesis proposes that all equity-based compensation ought to be postponed from vesting for ten years, with fifty percent of the rewards being paid out after three years and the remainder vesting after ten. The rationale for this is that the market must be permitted sufficient time to adjust and correct distortions. As noted by the Turner Review:

“...[If] irrational exuberance pushes the price of assets to irrationally high levels, mark to market accounting will swell declared profit in an unsustainable way. A significant element of trading book profits recorded in the years running up to the crisis proved in retrospect illusory. These illusory profits were however used as the basis for bonus decisions, and created incentives for traders and management to take further risk.”<sup>133</sup>

The imperfections in the market pricing mechanism, charted in Chapter Four,<sup>134</sup> are serious enough that price inefficiency may persist for considerable periods. There thus ought to be a long-term horizon inbuilt into the vesting of stock-based executive compensation in order to reduce the potential for risk-laden strategies to contribute to the inflation of stock prices. Research demonstrates that executive compensation contracts encourage risk-taking “to profit from a speculative stock price surge even if a later date share prices collapse ... [and] ... stock-based compensation rises in speculative markets.”<sup>135</sup> Managers have incentives to pursue this to increase the speculative component of stock prices.<sup>136</sup> Research also demonstrates that significant compensation deferral may deter talented executives from entry into particular

---

<sup>131</sup> See discussions *supra*. Section 6.2.

<sup>132</sup> For example, UK banks are advised to have deferral plans of two-to-five years; Dodd-Frank mandates clawback of compensation for up to five years; the EC mandates a deferral period of three-to-five years.

<sup>133</sup> FSA, *Turner Review* 49.

<sup>134</sup> *Supra*. Chapter 4.

<sup>135</sup> Patrick Bolton, Jose Scheinkman and Wei Xiong, ‘Pay for Short-Term Performance: Executive Compensation in speculative Markets’ ECGI Finance Working Paper No. 79/2005 (April 2005) 6.

<sup>136</sup> Patrick Bolton, Jose Scheinkman and Wei Xiong, ‘Executive Compensation and Short-Termist Behaviour in Speculative Markets’ (2006) 73 *Rev. Econ. Stud.* 577.

industries;<sup>137</sup> therefore, deferral periods must become mandatory across industries, save for particular circumstances.<sup>138</sup>

The proposal would require the use of clawback. Clawback would only be permitted in the period between the initial vesting of fifty percent of the bonus (the end of the third year) and the end of the assessment period (the end of the tenth year). Its ambit would be extended under this proposal from the current legislative position in the UK and US (where misconduct or misstatement is required for clawback to be invoked) to recoupment of financial rewards that later transpired to have been captured through short-term price movements. This would require neither misconduct nor a financial misstatement. If it emerged that performance had breached a downward threshold in this period, the clawback system could be invoked to reduce executives' windfalls. Provided that the downward threshold remained breached for the rest of the intervening period, all further bonuses linked to that executive's performance would be forfeited. However, once the ten-year period matured, clawback would cease to operate (in the absence of accounting restatements due to fraud or manipulation in the relevant period).

Ten years has been selected because this strikes the appropriate balance between reigning in risk and allowing the financial cycle to 'smooth out' stock prices and performance measurements. Writers such as Roubini and Mihm have called for stock deferral periods to last for well over a decade with no element of early vesting.<sup>139</sup> This seems excessive. Whilst there are undoubtedly merits in postponing certain compensation awards, corporations must be allowed to attract and retain talent. The ten-year deferral period avoids the costly and difficult process of risk-adjustment within the compensation system in calculating regular grants of deferred compensation:

“The challenge facing the industry is how, in practice, to incorporate an accurate measure of risk into the compensation setting process. In relatively simple business areas, there are imperfect yet accepted risk metrics that capture economic capital usage. In more complex business areas, the problem of capturing risk is amplified by product intricacies and deal time horizons. Given the uncertainty surrounding accurate risk assessment, the industry may be

---

<sup>137</sup> See Alex Edmans and Xavier Gabaix, 'Is CEO Pay Really Inefficient? A Survey of New Optimal Contracting Theories' (2009) 15 *Eur. Fin Man.* 486.

<sup>138</sup> For example, retirement on compassionate grounds.

<sup>139</sup> Nouriel Roubini and Stephen Mihm, *Crisis Economics: A Crash Course in the Future of Finance* (Allen Lane, 2010) 187.



inclined to shift towards more conservative compensation practices and increased use of deferral.”<sup>140</sup>

Whilst investment risks may take years to emerge, the overwhelming majority will become apparent within a time-frame of ten years. A lengthened time horizon ought to capture tail-risk and prevent managers from extracting rents from the effects of a major credit boom. It is extremely difficult to price rationally when risk appears remote.<sup>141</sup> It is clear that calibrating systems to assess risk is incredibly difficult<sup>142</sup>; this deferral period (with attendant clawback) reduces the need for this calibration. Furthermore, behavioural biases, discussed earlier in the thesis,<sup>143</sup> discourage prudence and instead focus on optimism as “apparent success breeds an inability to imagine the possibility of failure.”<sup>144</sup> Finally, any opportunities for executives to hedge their exposure to deferred compensation ought to be rescinded.<sup>145</sup>

An increase in the deferral period for bonuses would concentrate the minds of executives on the long-term and reduce incentives for profit-seeking short-term earnings management or stock price manipulation. The proposal is simple, transparent and portable.

### 6.3.2 Proposal II – Qualitative Indicators of Performance

As discussed in the previous chapter<sup>146</sup>, stock-based governance arguably failed to prevent the GFC. It is clear that reliance on quantitative measures of performance led executives to a dangerous obsession with short-term performance measurements. This included stock-price levels, which guided performance-related compensation. The

---

<sup>140</sup> See IIF, *Compensation in Financial Services* 3.2.1.1.

<sup>141</sup> Former President of New York Federal Reserve, Tim Geithner, quoted in Gillian Tett and James Drummond, ‘NY Fed president warns of risk to structured credit’ *Financial Times* (London, 12 May 2005).

<sup>142</sup> One only has to consider the failures of Basel II to recognise that calibrating risk in relation to financial services systems provides legions of issues.

<sup>143</sup> *Supra*. Chapter 4.

<sup>144</sup> Joseph V. Rizzi, ‘Behavioral Basis of the Financial Crisis’ (2008) 18 J. Appl. Fin. 84, 93 (hereinafter Rizzi, *Behavioral Basis of the Financial Crisis*). This has been confirmed by the FSA in the UK in their report into the failings of HBOS. The FSA noted that: “There was a collective denial [within HBOS] of the impact of the financial crisis ... The culture of optimism which pervaded the business impeded the identification and effective management of transactions as they became stressed...” See FSA, *Final Notice: Bank of Scotland Plc*, Ref. 169628 (9 March 2012) at 4.116.

<sup>145</sup> Lucian A. Bebchuk, ‘How to Fix Bankers’ Pay’ (2010) 139 *Daedalus* 52.

<sup>146</sup> *Supra*. Chapter 5.

adoption of qualitative indices of performance would assist in alleviating the over-reliance on stock options and other stock-based compensation: “It is ... clear that [these sort of] recommendations from supervisors would help solve the collective action problems relative to the adoption of pay mechanisms that are not directly tied to wealth maximization purposes...”<sup>147</sup>

In practical terms, many businesses already utilise non-financial performance indicators in setting pay levels.<sup>148</sup> Currently, many businesses utilise the ‘balanced scorecard approach’<sup>149</sup>, which emphasises four key measures of performance: (i) Financial measures (including shareholder returns); (ii) innovation (this could include for example, the number of patents granted or the cost-savings made in restructurings); (iii) employee measures (including satisfaction and retention); and (iv) customer satisfaction (satisfaction, retention, and profitability). Further qualitative measures used to gauge performance might include the contribution of an employee to a firm’s corporate social responsibility (‘CSR’).<sup>150</sup> Following high profile corporate collapses and notable instances of corporate abuse, CSR has become a common indicator of good governance and corporate awareness. The resultant reputational advantages enjoyed by corporations through the positive impact generated by employees reaching CSR benchmarks and ensuring active compliance with ethical and legal standards therefore ought to be rewarded.<sup>151</sup>

Existing foundations must be built upon, with targets that focus not only on financial performance, but on all areas that are critical for future corporate success. Research from cognitive sciences questions seriously the capacity of quantitative performance-based pay – in isolation – to ever work.<sup>152</sup> The bounded rationality and bounded

---

<sup>147</sup> Guido Ferrarini, ‘Bankers’ Compensation and Prudential Supervision: The International Principles’ in Jennifer Hill & Randall Thomas (eds), *Research Handbook on Executive Compensation* (Edward Elgar, 2012) 130.

<sup>148</sup> See Thomas L. Albright, Christopher M. Burgess, Aleecia R. Hibbets, and Michael L. Roberts, ‘Four Steps to Simplify Multimeasure Performance Evaluations Using the Balanced Scorecard’ (2010) 21 *J. Corp. Acc. Fin.* 63; Adrian Payne, Sue Holt and Pennie Frow, ‘Integrating employee, customer and shareholder value through an enterprise performance model: an opportunity for financial services’ (2000) 18 *I. J. Bank Mark.* 258.

<sup>149</sup> Robert S. Kaplan and David P. Norton, ‘The Balanced Scorecard – Measures that Drive Performance’ (1992) 70 *Harv. Bus. Rev.* 71.

<sup>150</sup> R. Edward Freeman, *Strategic Management :A Stakeholder Approach* (Pitman 1984).

<sup>151</sup> Donna J. Wood, ‘Corporate Social Performance Revisited’ (1991) 16 *Acad. Man. Rev.* 691.

<sup>152</sup> Jaap Winter, ‘Corporate Governance Going Astray: Executive Remuneration Built to Fail’ in Jennifer Hill & Randall Thomas (eds), *Research Handbook on Executive Compensation* (Edward Elgar, 2012).

ethicality<sup>153</sup> of market participants may prevent the incentive effects of bonuses based upon monetary targets. It has been demonstrated that targets based on financial performance indicators may lead to narrow focus, motivate risk-taking, encourage unethical behaviour, shorten time-horizons and decrease intrinsic motivation.<sup>154</sup> Non-monetary based targets provide an additional benefit: by incentivising executives to deliver customer-focused results, rather than concentrating their minds completely on increasing profits for shareholders, the potential to inculcate an improvement in business culture would arise. More responsible compensation policies and a greater customer focus might improve trust in corporations; this has been a problem for many businesses in recent years, particularly financial institutions.<sup>155</sup> Compensation policies ought to focus on targets which encourage integrity<sup>156</sup> and trust<sup>157</sup>, each of which enhances productivity and creates value.

Allying greater consideration of qualitative performance indicators with the previous proposal of this thesis for an increase in the deferral period relating to variable compensation would lower the incentives for short-termist executive behaviour. Instead of large-scale reliance on quantitative metrics to determine short-medium term incentives, future compensation design ought to focus on 'softer' measures of value creation. This would reduce incentives for executives to concentrate on financial variables, which is often a source of short-termism. Bonuses could still be granted, but could be based on non-quantitative indices. This would theoretically provide much less risk to companies; it is much more difficult to manipulate qualitative metrics than quantitative measures of performance.<sup>158</sup> Moreover, when performance is based upon

---

<sup>153</sup> Max H. Bazerman and Don Moore, *Judgment in Managerial Decision-Making* (John Wiley & Sons 2009).

<sup>154</sup> Lisa D. Ordonez, Maurice E. Schweitzer, Adam D. Galinsky, and Max H. Bazerman, 'Goals Gone Wild: The Systematic Side Effects of Overprescribing Goal Setting' (2009) 23 *Acad. Man. Persp.* 6; Maurice E. Schweitzer, Lisa Ordonez and Bambi Douma, 'Goal Setting as a Motivator of Unethical Behavior' (2004) 47 *Acad. Man. J.* 422.

<sup>155</sup> Merryn Somerset Webb, 'Trust index sinks to an all-time low' *Financial Times* (London, 29 June 2012).

<sup>156</sup> Werner Erhard, Michael C. Jensen and Steve Zaffron, 'Integrity: A Positive Model that Incorporates the Normative Phenomena of Morality, Ethics and Legality' Harvard Business School NOM Working Paper No. 06-11 (March 2009) available at <http://ssrn.com/abstract=920625> accessed 25/07/12.

<sup>157</sup> George Baker, Robert Gibbons and Kevin J. Murphy, 'Subjective Performance Measures in Optimal Incentive Contracts' NBER Working Paper No. 4480 (September 1993).

<sup>158</sup> For example, at Heinz in the 1980s, executives recognised revenues prematurely in order to receive earnings-based bonuses. See Kenneth E. Goodpaster, Richard J. Post, 'H.J. Heinz Co.: The Administration of Policy (B)' Harvard Business School (October 1981) Case Study: 382.035 available at <http://hbr.org/product/h-j-heinz-co-the-administration-of-policy-b/an/382035-PDF-ENG> accessed 25/07/12.

several forms of metric, rather than focused primarily on financial indicators, ‘gaming the system’ is more difficult.

### 6.3.3 Proposal III – Leverage-cycle adjustments to compensation

Executive compensation plans may encourage an increase in risk-taking, including an increase in leverage.<sup>159</sup> Managers benefit generally from changes in the volatility of their options.<sup>160</sup> This is the case to the extent that the value of the stock price of a levered financial firm may be equated with the value of a call option which increases in accordance with the riskiness of the assets held by the firm:<sup>161</sup>

“If there exists a capital structure where stock value is maximized, all else constant, the manager seeking to maximize his own utility may choose levels of leverage that exceed the stock-value maximizing level in order to increase the value of his options. Thus option grants have the potential to induce increases in leverage.”<sup>162</sup>

There are therefore risk-taking incentives for executive officers to increase stock return volatility in order to profit from fluctuations in the value of stock prices. The most efficient method to achieve volatility is an increase in financial leverage: “leverage was an endogenous managerial choice variable during the crisis, affected by managerial compensation.”<sup>163</sup> Leverage-based incentives in compensation contracts not only encourage managers to amplify equity risk, but they also contribute to the build-up of

---

<sup>159</sup> Some recent publications on this issue include, Sjoerd Van Bakkum, ‘Inside Debt and Enterprise-Wide Bank Risk’ (June 2012) (hereinafter Van Bakkum, *Inside Debt*) available at [ssrn.com/sol3/papers.cfm?abstract\\_id=1682139](http://ssrn.com/sol3/papers.cfm?abstract_id=1682139); Alon Raviv and Elif Sisli Ciamarra, ‘Executive Compensation, Risk Taking and the State of the Economy’ (August 2011) available at [ssrn.com/abstract=1719426](http://ssrn.com/abstract=1719426) (hereinafter Raviv and Ciamarra, *Executive Compensation and the State of the Economy*); Robert DeYoung, Emma Y. Peng, Meng Yan, ‘Executive Compensation and Business Policy Choices at US Commercial Banks’ (Federal Reserve Bank of Kansas City Working Paper 10-02 (January 2010); Jeffrey L. Coles, Naveen D. Daniel, Lalitha Naveen, ‘Managerial incentives and risk-taking’ (2006) 79 J. Fin. Econ. 431. Each electronic paper accessed 01/017/12.

<sup>160</sup> Philip G. Berger, Eli Ofek and David Yermack, ‘Managerial Entrenchment and Capital Structure Decisions’ (1997) 52 J. Fin. 1411.

<sup>161</sup> A point made forcefully in Lucian A. Bebchuk and Holger Spamann, ‘Regulating Bankers’ Pay’ (2010) 98 Geo. L. J. 247.

<sup>162</sup> Lee W. Sanning, ‘Executive Stock Options and Leverage: Incentives or Optimal Contracting, A Test of Causality’ (April 2003) 7 available at [ssrn.com/sol3/papers.cfm?abstract\\_id=394600](http://ssrn.com/sol3/papers.cfm?abstract_id=394600). For a rejoinder to this view see Hamid Mehran and Joshua Rosenberg, ‘The Effect of CEO Stock Options on Bank Investment Choice, Borrowing, and Capital’ Federal Reserve Bank of New York Staff Report No. 305 (June 2008).

<sup>163</sup> Van Bakkum, *Inside Debt* 4.

asset risk<sup>164</sup> within investment portfolios, and thereby systemic risk.<sup>165</sup> Asset writedowns during the GFC were more strongly related to asset volatility in highly leveraged financial institutions: there was “a positive and significant interaction between [firm risk] and leverage.”<sup>166</sup> Stock-based compensation thus provides incentives to leverage and increased leverage is symptomatic of an increasingly fragile financial structure (an obvious parallel with the predictions of the FIH, charted in the previous chapter).<sup>167</sup>

This is all the more important because evidence indicates that leverage is strongly procyclical and thus contributes to both bubbles and crashes.<sup>168</sup> Borio and Lowe document that “sustained rapid credit growth combined with large increases in asset prices appears to increase the probability of an episode of financial instability.”<sup>169</sup> As noted by Avgouleas:

“Since during times of economic growth, economic leverage builds in the system causing systemic disruptions during the unwinding phase of the leverage cycle, limiting leverage means that the reduction of credit growth during the deleveraging phase might become much less severe ... Thus it can be used to contain the consequences of Ponzi finance, as per Minsky’s ‘financial instability’ hypothesis...”<sup>170</sup>

This has been documented forcefully in research into the lead-up to the GFC; in financial institutions prior to 2008 “risk incentives significantly induced managers to implement a more aggressive financial policy, manifested by progressively high levels of leverage and leading to higher downside risk.”<sup>171</sup> The systemic build-up of leverage

---

<sup>164</sup> Marc Chesney, Jacob Stromberg and Alexander F. Wagner, ‘Risk-taking Incentives and Losses in the Financial Crisis’ (Swiss Finance Institute Research Paper Series No. 10-18 (November 2011) 28 (hereinafter Chesney et al. *Risk-taking Incentives*). See also Clifford W. Smith and Rene M. Stulz, ‘The Determinants of Firms’ Hedging Policies’ (1985) 20 J. Fin. Quant. An. 391; Robert A. Haugen and Lemma W. Senbet, ‘Resolving the Agency Problems of External Capital through Options’ (1981) 36 J. Fin. 629.

<sup>165</sup> Christopher S. Armstrong and Rahul Vashishtha, ‘Executive stock options, differential risk-taking incentives, and firm value’ (2012) 104 J. Fin. Econ. 70.

<sup>166</sup> Chesney et al. *Risk-taking Incentives* 26.

<sup>167</sup> The FIH predicts that ‘risky practices’ will be assumed by financial institutions as euphoric financial conditions persist. These risky practices are defined *supra*. Chapter 4.

<sup>168</sup> Tobias Adrian and Hyun Song Shin, ‘Liquidity and Leverage’ (2010) 19 J. Fin. Int. 418. See also Raviv and Ciamarra, *Executive Compensation and the State of the Economy*.

<sup>169</sup> Claudio Borio and Philip Lowe, ‘Asset prices, financial and monetary stability: exploring the nexus’ BIS Working Paper No. 114 (July 2002).

<sup>170</sup> Avgouleas, *Governance of Global Financial Markets* 332.

<sup>171</sup> Van Bakkum, *Inside Debt* 3.

within the financial system led to an increased risk of spillovers between banks and the real economy and therefore the likelihood of a downward spiral in prices.<sup>172</sup>

On this basis, all executive compensation contracts should contain a contingency clause to permit companies' compensation committees to restrain stock or asset-based executive compensation which arises due – in part or in full – to an increase in leverage levels. Executives cannot be incentivized to adopt moderate level of leveraging because of the concave relationship between asset volatility and the value of total compensation. Leverage in euphoric economic conditions will not be restrained by executives or boards of directors at because to do so would indirectly limit their own compensation and, as was documented in earlier chapters, due to board ineffectiveness.<sup>173</sup> Regulation in this area would therefore be required.

The options available to cement this form of stabilisation differ in the mechanisms employed. Landskroner and Raviv propose that the strike price of stock options ought to be allowed to vary with the price of the debt incurred by the company. Applying this to the proposal concerned, the risk-taking appetite of the executive would be a function of the firm's leverage ratio. As the leverage ratio increased, so would the default probability and the executive would be motivated to assume a lower threshold of risk to compensate.<sup>174</sup> Edmans and Liu contend that managers ought to be paid with debt, rather than equity, which would effectively restrain executives' risk-taking by making their compensation contingent on the firm remaining solvent. This would theoretically reduce the incentives to leverage because higher leverage levels carry a relatively increased threat of bankruptcy.<sup>175</sup>

The most radical proposal in this area is perhaps proffered by Bolton, Mehran and Shapiro.<sup>176</sup> This proposal would require that the compensation of CEOs (and, presumably other top-ranking corporate executives) be linked to the firm's CDS spread.

---

<sup>172</sup> Markus K. Brunnermeier and Lasse H. Pedersen, 'Market Liquidity and Funding Liquidity' (2009) 22 Rev. Fin. Stud. 2201.

<sup>173</sup> *Supra.* Chapter 2.

<sup>174</sup> Alon Raviv and Yoram Landskroner, 'The 2007-2009 Financial Crisis and Executive Compensation: Analysis and a Proposal for a Novel Structure' NYU Working Paper No. FIN-09-003 (June 2009).

<sup>175</sup> Alex Edmans and Qi Liu, 'Inside Debt' (2011) 15 Rev. Fin. 75. See also Frederick Tung, Pay for Banker Performance: Structuring Executive Compensation for Risk Regulation Emory Public Law Research Paper No. 10-93 (March 13, 2010) available at SSRN: <http://ssrn.com/abstract=1546229> accessed 25/07/12.

<sup>176</sup> Patrick Bolton, Hamid Mehran and Joel Shapiro, 'Executive Compensation and Risk-Taking' Federal Reserve Bank of New York Working Paper No. 456 (November 2011).

Deferred bonuses of CEOs would be placed in a standalone fund by the company and then paid out under a pre-specified formula dependent on whether the companies' CDS spread deviates from the average companies' spread. In other words, the higher the default spread (and, by proxy, the riskier the firm), the lower the executive's variable compensation. Empirical analysis confirms that market participants believe that linking executive compensation to the risk of default will reduce firm riskiness.<sup>177</sup> Higher leverage would, in most cases, present to analysts an increased risk of default and therefore, credit spreads on its bonds would widen.

The limits to the systems of risk-limitation discussed above are commensurate with the limits to market pricing and behavioural factors traced earlier in the thesis.<sup>178</sup> They are also not leverage-specific, and would have to be tailored in order to apply to all public corporations in this context. Market inefficiency might prevent the appropriate stabilisation of executive compensation based on the metrics discussed (option strike price; price of debt; CDS spreads). It is clear, for example, that in the run-up to the GFC, CDS spreads were not immediately indicative of distress amongst the portfolios of financial institutions. Whilst financial instability began to increase rapidly (calculated based on equity to market value of assets) in the final quarter of 2006, it was not until the third quarter of 2007 that CDS spreads began to react.<sup>179</sup>

For this reason, these proposals require some form of regulatory direction. An alternative to the suggestions above would be the introduction of a 'leverage-compensation stabiliser' to mirror proposals on leverage ratios in the Basel III financial supervision structure.<sup>180</sup> The new BCBS Capital Accord ('Basel III') has introduced a

---

<sup>177</sup> *Id.* 2.

<sup>178</sup> *Supra.* Chapters 4 & 5.

<sup>179</sup> Mark J. Flannery, 'What to do about TBTF?' Paper presented at the Federal Reserve Bank of Atlanta 2010 Financial Markets Conference: 'Up from the Ashes: The Financial System after the Crisis' Atlanta, Georgia (May 12, 2010) Figure 4 available at [www.frbatlanta.org/documents/news/conferences/10fmc\\_flannery.pdf](http://www.frbatlanta.org/documents/news/conferences/10fmc_flannery.pdf) accessed 01/07/12. As noted by the manager of hedge fund Scion Capital LLC, which made over \$800 million shorting US subprime mortgages, it was inconceivable that CDS spreads failed to reflect the default probabilities on the CDOs written by Wall Street's bank until June 2007: "I was in a state of perpetual disbelief. I would have thought that someone would have recognized what was coming before June 2007. If it really took that [long] to cause a ... realization, well, it makes me wonder what a 'Wall Street analyst' really does all day." See Michael Lewis, *The Big Short: Inside the Doomsday Machine* (Allen Lane 2010) 198.

<sup>180</sup> BIS, *Basel III*.

non-risk based leverage ratio of 3 percent of Tier 1 assets.<sup>181</sup> Basel III also introduces a ‘capital conservation buffer’, “designed to ensure that banks build up capital buffers outside periods of stress which can be drawn down as losses are incurred.”<sup>182</sup> The buffer therefore constrains the ability of bank boards to issue discretionary payments, dividends and bonuses: “The capital conservation buffer is indispensable in addressing the collective action problem associated with payment of discretionary bonuses and higher dividends, even in the face of deteriorating capital positions.”<sup>183</sup> Linked to the capital conservation buffer is a ‘countercyclical buffer’, which is designed to protect the financial system from deleveraging during crisis. This, according to Avgouleas, is “the most potent regulatory weapon so far to counter bubbles and the debilitating effects these have on the financial sector once they diminish...”<sup>184</sup> The countercyclical buffer will be triggered based upon a credit-to-GDP ratio; where the volume of credit within a country breaches a certain level in relation to its GDP, the buffer will be activated and financial institutions will be forced to conserve capital.

This form of evaluation could be applied in relation to the proposed leverage-compensation stabiliser. Where the financial structure of a particular company appears to be progressing to a less robust state – evidenced by an increase in its leverage – its compensation committee could use a stabilising mechanism to reduce its overall risk. Where a firm’s stability breached some threshold, executives’ compensation awards could be limited accordingly. The compensation-leverage stabiliser would therefore act in tandem with the measures announced under Basel III to reduce the potential for damaging credit expansion. If executives are aware that inculcating fragile financial structures will not provide returns in the form of short-term stock or asset-based compensation, they will be far less likely to advocate an increase in leverage. Current BCBS policy is rightly focused on reducing the propensity for credit-based expansion to destroy solidity in the financial system. Certainly Basel III will reduce the likelihood of financial crisis. However, if it is assumed *a priori* that the GFC was driven, in part, by flawed incentives, reforming capital requirements might not prove sufficient to guard

---

<sup>181</sup> Martin Hellwig, ‘Capital Regulation after the Crisis: Business as Usual?’ Max Planck Institute for Research on Collective Goods Bonn 2010/31 (July 2010) available at [www.coll.mpg.de/pdf\\_dat/2010\\_31online.pdf](http://www.coll.mpg.de/pdf_dat/2010_31online.pdf) accessed 01/07/12.

<sup>182</sup> BIS, *Basel III* 54.

<sup>183</sup> Avgouleas, *Governance of Global Financial Markets* 324.

<sup>184</sup> *Id.* 325-326.



completely against tail risks generated by poor incentives, or assumptions of market efficiency.<sup>185</sup>

Augmenting current protections enshrined in Basel III with incentive-moulding regulation of all executive compensation contracts will provide an extra defence against future periods of systemic instability by incentivising corporate management to maintain appropriate leverage ratios. As noted in relation to removing structures which inhibit reactions to high impact events: “Chief among the obstacles are short-term compensation systems which reinforce behavioural biases [which] leads to a fatal neglect of the longer-term build up of risk.”<sup>186</sup> If leverage-based expansion can be contained by reducing incentives for investors and executives to herd (which often amplifies leverage), or engage in other strategies which inflate asset and stock prices,<sup>187</sup> greater stability and lower price distortion will result. Limiting discretionary awards of stock or asset-based compensation awards to executives – particularly at financial institutions – in periods of euphoria will promote a more risk-based approach to corporate investment strategies.

## 6.4 CONCLUSION

The aim of this thesis has been to demonstrate that the market pricing mechanism is an inefficient tool upon which to base executive compensation at public corporations. Specifically, to achieve this task, the thesis has provided answers to three key questions: Firstly, how the dominant view of the firm in economic theory influences remuneration systems in publicly-listed companies and determines the use of stock-based compensation schemes; secondly, why this view is flawed in light of alternative theories of asset and securities markets behaviour which explain how market prices may become distorted; and thirdly, whether those alternative financial market theories ought to be considered by regulators in the design of future compensation systems following the

---

<sup>185</sup> Felix Salmon, ‘The Biggest Weakness of Basel III’ *Reuters* (24 September 2010) available at [blogs.reuters.com/felix-salmon/2010/09/15](http://blogs.reuters.com/felix-salmon/2010/09/15) accessed 01/07/12.

<sup>186</sup> Rizzi, *Behavioral Basis of the Financial Crisis* 95.

<sup>187</sup> Discussed *supra*. Chapter 4.

GFC, which exposed the limitations of market discipline and the futility of relying on market pricing to deliver optimal compensation awards.

Chapter Two reviewed the literature on corporate law theory and corporate governance. It demonstrated that, certainly prior to recent reform in Anglo-American markets, neoliberal economic ideology has regarded public corporations as mere microcosms of the free market itself; companies are collective vehicles designed to further the interests of their owners. Until recently, absolute faith was placed in modern finance theory (which contends that the market is comprised of an agglomeration of supremely rational, calculating and self-interested beings) and free market principles underpinned the regulation of corporate governance.<sup>188</sup> Market discipline was trusted to deliver optimal governance arrangements, through the actions of shareholders, board engagement, the influence of the market for corporate control, and the role of creditors and other outside corporate monitors. Whilst this view of the firm regards investors and market participants through the lens of modern finance theory, governance theorists recognised that costs are inherent whenever companies are managed by agents who do not own them. Structural problems also exist which dent the capacity of the market to regulate agents' conduct. Agency theory was thus conceptualised with regard to the firm to explain the problems derived from the separation of ownership and control; shareholder value theory was proffered as the solution to these problems. In order to prevent corporate managers from exploiting the benefits of control, it was suggested that they ought to share in the financial success of the firm. The most efficient method in aligning principal and agent interests was to grant agents rewards of equivalence with principals; in the case of corporations, this meant company stock, or bonuses linked to stock performance.

Chapter Three reviewed the literature on stock-based executive compensation to provide context for a discussion of the failures of shareholder value theory. This theory was

---

<sup>188</sup> This view was not without its logical flaws. As noted in Chapter One of this thesis, Alan Greenspan, former Chairman of the US Federal Reserve System, claimed in the months following the GFC that “the modern risk-management paradigm held sway for decades ... The whole intellectual edifice, however, collapsed in the summer of last year [2008].” This statement encapsulates the collective ideological myopia characteristic of certain modern finance adherents. Prior to 2008, there were numerous failures of risk management at public and private corporations, many of which (such as Enron and LTCM) have been discussed in this thesis. Certain of these crises – whilst not as serious as the GFC – also threatened to collapse the entire financial system. See Edmund L. Andrews, ‘Greenspan Concedes Error on Regulation’ *New York Times* (New York, 23 October 2008).

embraced by successive generations of financial economists and investors, particularly following the initial success of the LBO revolution. However, stock-based remuneration – a central plank of shareholder value theory – created incentives for executives to engage in short-termist strategies and dubious investments in order to capture rents from corporations. Instead of aligning the interests of managers and owners, stock-based compensation schemes provided serious incentives to adopt risk-laden corporate strategies. In many high-profile cases in the early twenty-first century, outright malfeasance resulted, most notably in the Enron collapse. In the US, in particular, a strong legislative response was demanded; the result was SOX. However, as Chapter Three noted, SOX failed to curb incentives for risk-taking by top executives, motivated as they often are by greed and pursuit of short-term gains. SOX also ignored the possibility that stock prices might be influenced by factors beyond overt manipulation and that asset bubbles may arise naturally as the result of capitalist processes. Where asset bubbles and price distortions occur, the link between stock-based compensation and performance is broken.

Chapter Four introduced into the analysis the concept that financial markets, far from being stable and equilibrium-seeking (as posited by modern finance theory), are afflicted by multiple problems which undermine the pricing mechanism. The ECMH, used as the basis for the regulation of financial markets, and deriving its predictive authority from rational choice theory, does not provide an accurate approximation of systemic behaviour. Instead, markets are prone to extreme volatility and exhibit extreme swings in price and capital allocation. Most of these issues are caused by investor behavioural traits and the procyclicality of investment strategies. These strategies often drive asset bubbles and price distortions. The FIH predicts that, by their very nature, financial markets are prone to instability, and explains how financialized economies progress from debt-fuelled periods of expansion to inevitable collapse. Moreover, both behavioural finance and the FIH explain how stock-based compensation systems may exacerbate financial crises by making executive rewards contingent on the inflation of asset prices.

Chapter Five investigated how behavioural factors, such as irrational exuberance, combined with lax monetary policy and failed incentives, contributed to massive losses in financial markets during the GFC. There was an acute failure of modern finance

theory to account for financial instability and for its role in devising inappropriate regulatory structures. This chapter demonstrated that many of the failed incentives which contributed to collapse were driven by compensation awards. These awards were often contingent on inappropriate assumptions of risk or short-term myopia within financial markets. The issue was further exacerbated by investor cognitive limitations and extreme financial product complexity. Stock-based compensation awards played a significant role in the incentives misalignment which led to over-leveraging and eventual financial collapse. If compensation structures provide perverse incentives to pursue leverage-based expansion, which itself presages asset value inflation, there are serious incentives for executives to link their pay to asset values, including stock prices. Therefore, not only may excess rents be captured by executives in upward markets, executive reward systems themselves may play a decisive role in driving asset bubbles. The paradox here remains all the more powerful when it becomes apparent that it does not actually matter whether executives believe that asset prices are inflated, or conspire actively to inflate them. Cognitive boundaries may blur the capacity of market participants – shareholders, institutional investors and other corporate monitors – to recognise that instability within an economy has increased, particularly in a highly financialized environment. This thesis therefore recognises that the power of market discipline cannot be relied upon to establish valid compensation structures.

Chapter Six has examined the regulatory response to the GFC in the context of executive compensation and the attempts to insulate the financial system from the damaging effects of perverse incentives. The chapter has noted that impressive steps have been made in tackling the issue of flawed incentives and that reform to executive remuneration packages has rightly focused on the issues caused by market short-termism. In this way, therefore, policies recommending deferral of bonus payments and the clawback of certain variable compensation chime particularly well with the thrust of the thesis. If these issues were not addressed, flawed incentives would continue to weaken corporate governance and increase economic instability. Further, the consideration of non-quantitative indices of performance would provide a more holistic view of employee contributions to firm success and reduce the incentives for manipulation of financial data in the pursuit of short-term rents. This chapter has thus made three proposals to guard against the dangers of stock-price based governance: (i) an increase in deferral periods to reflect the progression of the business cycle; (ii)

greater use of qualitative performance measurements in calculating executive remuneration rewards; and (iii) reflecting the contribution of leverage to financial instability in the wider economy, a compensation-leverage stabiliser which would limit incentives to increase credit expansion.

This thesis has therefore attempted to provide a theoretical explanation for why stock-based compensation is fundamentally flawed; however, it cannot answer all questions regarding the failure of incentives to guard against systemic instability. Further research into the role of flawed incentives would assist in compiling a more accurate picture of the causes of financial distress in large sectors of the economy. It would be useful to ask, for example, in light of the multitude of corporate governance failures that have plagued securities markets over the past decade, whether wholesale reform to corporate governance and executive compensation packages is even worthwhile. There remains a marked reliance on market discipline to constrain corporate behaviour. Despite the failures evident in the run-up to the GFC, regulators contend that any reforms to financial regulation must be “grounded in a commitment to free market principles.”<sup>189</sup> It appears these regulators still devolve much of their responsibility for maintaining market stability to the markets themselves, and are instead concentrating their efforts on providing liquidity backstops and insolvency guarantees for large corporations. Certain measures emanating from the BCBS appear to be steps in the right direction, although it is unclear how they will link corporate executive remuneration reform to the macro-measures on bank capital adequacy that have been announced.<sup>190</sup> Beyond recourse to the ‘tried-and-failed’ system of board monitoring of executives and compensation committee reform, it is doubtful whether meaningful or significant changes to executive incentive systems will be made.

This thesis also recognises that executive compensation was but one of a plethora of interconnected factors which was implicated in instigating the GFC. The issues that were generated through the aforementioned failures and collective regulatory inertia permitted executives to ride credit bubbles until they burst. However, many of the factors responsible for the GFC – including fiscal laxity and corporations drunk on

---

<sup>189</sup> G20, *The Washington Declaration*.

<sup>190</sup> See BCBS, *Basel III: A Global Regulatory Framework for more Resilient Banks and Banking Systems* (December 2010).

credit – were facilitated by the appetite and greed of humans for ever-higher financial rewards, which eventually span out of control. Failed incentives were the reason that structural weaknesses in the financial system were not tackled: greed, recklessness and market myopia were translated into a credit binge which eventually collapsed a large portion of the global economy. Reform to incentive structures at public corporations, particularly stock-based compensation, therefore ought to be prioritised. This will aid the long-term viability and sustainability of the economy, improve market welfare and ensure that stockholder value is preserved for the long-term.

## BIBLIOGRAPHY

### ARTICLES:

1. Abreu D, and Brunnermeier MK, 'Bubbles and Crashes' (2003) 71 *Econometrica* 173.
2. Aboody D, Hughes JS, Liu J, and Su W, 'Are executive stock option exercises driven by private information?' (2008) 13 *Rev. Acc. Stud.* 551.
3. Aboody D, and Kasznik R, 'CEO stock option awards and the timing of corporate voluntary disclosures' (2000) 29 *J. Acc. Econ.* 73.
4. Abowd JM, and Kaplan DS, 'Executive Compensation: Six Questions That Need Answering' (1999) 13 *J. Econ. Persp.* 145.
5. Viral V. Acharya and Matthew Richardson, 'Causes of the Financial Crisis' (2009) 21 *Crit. Rev.* 195.
6. Renee B. Adams, Heitor Almeida and Daniel Ferreira, 'Powerful CEOs and Their Impact on Corporate Performance' (2005) 18 *Rev. Fin. Stud.* 1403.
7. Anat R. Admati, Paul C. Pfleiderer, and Josef Zechner, 'Large Shareholder Activism, Risk Sharing, and Financial Market Equilibrium' (1994) 102 *J. Polit. Econ.* 1097.
8. Admati AR, and Pfleiderer P C, 'The 'Wall Street Walk' and Shareholder Activism: Exit as a Form of Voice' (2009) 22 *Rev. Fin. Stud.* 2445.
9. Admati AR, DeMarzo PM, Hellwig MF, and Pfleiderer P, 'Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is *Not* Expensive' Rock Center for Corporate Governance at Stanford University Working Paper No. 86 (August 2010).
10. Adrian T, and Shin HS, 'Liquidity and Leverage' (2010) 19 *J. Fin. Int.* 418.
11. Aggarwal RJ and Samwick AA, 'Performance Incentives within Firms: The Effect of Managerial Responsibility' (2003) 58 *J. Fin.* 1613.
12. – – 'Executive Compensation, Strategic Competition, and Relative Performance Evaluation: Theory and Evidence' (1999) 54 *J. Fin.* 1999.
13. – – 'The Other Side of the Trade-Off: The Impact of Risk on Executive Compensation' (1999) 107 *J. Polit. Econ.* 65.
14. Agrawal, A, & Chadha, S, 'Corporate Governance and Accounting Scandals' (2005) 48 *J. L. Econ.* 371.
15. Akerlof, G. A., 'The market for lemons: quality uncertainty and the market mechanism' (1970) 84 *Q. J. Econ.* 488.
16. Albright TL, Burgess CM, Hibbets AR, and Roberts ML, 'Four Steps to Simplify Multimeasure Performance Evaluations Using the Balanced Scorecard' (2010) 21 *J. Corp. Acc. Fin.* 63.
17. Alexander, K, Eatwell, J., et al, 'Financial Supervision and Crisis Management in the EU', prepared for the European Parliament's Committee on Economic and Monetary Affairs, IP/A/ECON/IC/2007-069 (December 2007).
18. Albuquerque AM, 'Peer firms in relative performance evaluation' (2009) 48 *J. Acc. Econ.* 69.
19. Alchian AA, 'Uncertainty, Evolution and Economic Theory' (1950) 58 *J. Polit. Econ.* 211.

20. Allen F, and Gale D, 'Financial Intermediaries and Markets' (2004) 72 *Econometrica* 1023.
21. – – 'Financial Contagion' (2000) 108 *J. Polit. Econ.* 1.
22. Andrade G, Mitchell M, and Stafford E, 'New Evidence and Perspectives on Mergers' (2001) 15 *J. Econ. Persp.* 103.
23. Andrikopoulos P, 'Modern finance vs. behavioural finance: an overview of key concepts and major arguments' (2007) 4 *ICFAI J. Behav. Fin.* 53.
24. Ang JS, Cole RA, and Wuh Lin J, 'Agency Costs & Ownership Structure' (2000) 4 *J. Fin.* 81.
25. Angel JJ, and McCabe DM, 'Market-Adjusted Options for Executive Compensation' (2005) 4 *Gl. Econ. Rev.* 1.
26. Armstrong CS, and Vashishtha R, 'Executive Stock Options, Differential Risk-Taking Incentives, and Firm Value' (2012) 104 *J. Fin. Econ.* 70.
27. Arrow K, and Debreu G, 'The Existence of an Equilibrium for a Competitive Economy' (1954) 22 *Econometrica* 265.
28. Arsalidou D, 'The regulation of executive pay and economic theory' (2011) 5 *J.B.L.* 431.
29. Attenborough D, 'Giving purpose to the corporate purpose debate: an Equitable Maximisation and Viability principle' (2012) 32 *Leg. Stud.* 4.
30. Avgouleas, E., 'Cognitive Biases and Investor Protection Regulation: An Evolutionary Approach' (September 2006), unpublished manuscript.
31. – – 'International financial regulation, access to finance, systemic stability, and development' Brookings World Poverty Institute Working Paper No. 49 (June 2008).
32. – – 'The Global Financial Crisis, Behavioural Finance and Financial Regulation: In Search of a New Orthodoxy' (2009) 9 *J.C.L.S.* 23.
33. – – 'A New Framework for the Global Regulation of Short Sales: Why Prohibition is Inefficient and Disclosure Insufficient' (2010) 15 *Stan. J. L. Bus. Fin.* 376.
34. Bachelier L, 'Theorie de la speculation' (1900) 3 *Ann. Sci. Ecole Norm. S.* 21.
35. Bainbridge SM, 'Why a Board? Group Decision-Making in Corporate Governance' (2002) 55 *Vand. L. Rev.* 51.
36. – – 'Director Primacy: The Means and Ends of Corporate Governance' (2003) 97 *Nw. U. L. Rev.* 547.
37. – – 'Director Primacy and Shareholder Disempowerment' (2006) 119 *Harv. L. Rev.* 1735.
38. – – 'The Corporate Governance Provisions of Dodd-Frank' UCLA School of Law, Law-Econ Research Paper No. 10-14 (October 2010).
39. – – 'Dodd-Frank: Quack Federal Corporate Governance Round II' (2011) 95 *Minn. L Rev.* 1779.
40. Baker GP, Gibbons R, and Murphy KJ, 'Subjective Performance Measures in Optimal Incentive Contracts' NBER Working Paper No. 4480 (September 1993).
41. Baker GP, Jensen MC and Murphy KJ., 'Compensation and Incentives: Practice vs. Theory' (1988) 43 *J. Fin.* 593.
42. Balachandran S, Kogut B, and Harnal H, 'The Probability of Default, Excessive Risk, and Executive Compensation: A Study of Financial Services Firms from 1995 to 2008' Columbia Business School Research Paper Series (November 2010).



43. Bancel F, and Mittoo U, 'Cross-country Determinants of Capital Structure Choice: A Survey of European Firms' (2004) 33 *Fin. Man.* 103.
44. Banerjee AV, 'A Simple Model of Herd Behavior' (1992) 107 *Q. J. Econ.* 797.
45. Banz, R.W., 'The Relationship Between Return and Market Value of Common Stocks' (1981) 9 *J. Fin. Econ.* 3.
46. Barber BM, and Odean T, 'All That Glitters: The Effect of Attention and News on the Buying Behavior of Individual and Institutional Investors' (2008) 21 *Rev. Fin. Stud.* 785.
47. Basu S, 'Investment Performance of Common Stocks in Relation to their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis' (1977) 12 *J. Fin.* 129.
48. Bebchuk LA, 'Asymmetric Information and the Choice of Corporate Governance Arrangements' Harvard University Law School Discussion Paper No. 398 (December 2002).
49. -- 'The Case for Shareholder Access to the Ballot' (2003) 59 *Bus. L.* 43.
50. -- 'The Myth of the Shareholder Franchise' (2007) 93 *Va. L. Rev.* 675.
51. -- 'How to Fix Bankers' Pay' (2010) 139 *Daedalus* 52.
52. Bebchuk LA and Bar-Gill O, 'Misreporting Corporate Performance' Harvard Law School Discussion Paper 400 (December 2002).
53. Bebchuk LA, and Cohen A, 'The Cost of Entrenched Boards' (2005) 78 *J. Fin. Econ.* 409.
54. Bebchuk LA, Cohen A, and Ferrell A, 'What Matters in Corporate Governance' (2009) 22 *Rev. Fin. Stud.* 783.
55. Bebchuk LA, Cohen A, and Spamann H, 'The Wages of Failure: Executive Compensation at Bear Stearns and Lehman 2000-2008' (2010) 27 *Yale J. Reg.* 257.
56. Bebchuk LA, and Fried JM, 'Paying for Long-Term Performance' (2010) 158 *U. of Penn. Law Rev.* 1915.
57. -- 'Executive Compensation as an Agency Problem' (2003) 17 *J. Econ. Persp.* 71.
58. Bebchuk LA, Fried JM and Walker DI, 'Executive Compensation in America: optimal contracting or extraction of rents?' NBER Working Paper Series No. 8661 (December 2001).
59. -- 'Managerial Power and Rent Extraction in the Design of Executive Compensation' Harvard Law School Discussion Paper No. 366 (June 2002).
60. Bebchuk LA, and Grinstein Y, 'Firm Expansion and CEO Pay' Harvard Law School John M. Olin Center for Law, Economics and Business Discussion Working Paper 533 (November 2005).
61. -- 'The Growth of Executive Pay' (2005) 21 *Ox. Rev. Econ. Pol.* 283.
62. Bebchuk LA, Grinstein Y, and Peyer U, 'Lucky CEOs and Lucky Directors' (2010) 65 *J. Fin.* 2363.
63. Bebchuk LA and Spamann H, 'Regulating Bankers' Pay' (2010) 98 *Geo. L. J.* 247.
64. Becht M, Bolton P, and Roell A, 'Corporate Governance and Control' ECGI Finance Working Paper No. 02/2002 (August 2005).
65. -- 'Why bank governance is different' (2011) 27 *Ox. Rev. Econ. Pol.* 437.

66. Beekes W, Pope P, and Young S, 'The Link Between Earnings Timeliness, Earnings Conservatism and Board Composition: evidence from the UK' (2004) 12 Corp. Gov. Int. Rev. 47.
67. Belden S, Fister T, and Knapp B, 'Dividends and Directors: Do Outsiders Reduce Agency Costs?' (2005) 110 Bus. Soc. Rev. 171.
68. Benartzi S, and Thaler RH, 'Myopic Loss Aversion and the Equity Premium Puzzle' (1995) 110 Q. J. Econ. 73.
69. Bender R, 'Why Do Companies Use Performance-Related Pay for Their Executive Directors?' (2004) 12 Corp. Gov. Int. Rev. 521.
70. Berger PG, Ofek E, and Yermack DL, 'Managerial Entrenchment and Capital Structure Decisions' (1997) 52 J. Fin. 1411.
71. Bem DJ, 'An experimental analysis of self-persuasion' (1965) 1 J. Exp. Soc. Psych. 199.
72. Bertrand M, and Mullainathan S, 'Agents With and Without Principals' (2000) 90 Am. Econ. Rev. 203.
73. – – 'Are CEOs Rewarded for Luck? The Ones without Principals Are' (2001) 116 Q. J. Econ. 901.
74. Bertrand M, and Schoar A, 'Managing with Style: The Effect of Managers on Firm Policies' (2003) 118 Q. J. Econ. 1169.
75. Bhagat S and Romano R, 'Reforming Executive Compensation' (2009) 26 Yale J. Reg. 359.
76. Bhagat S, and Bolton BJ, 'Investment Bankers' Culture of Ownership?' (August 2010) unpublished manuscript.
77. Bhandari LC, 'Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence' (1988) 43 J. Fin. 507.
78. Bhattacharya S, Goodhart CAE, Tsomocos DP, and Vardoulakis AP, 'Minsky's Financial Instability Hypothesis and the Leverage Cycle' Special Paper 202, LSE Financial Markets Group Paper Series (September 2011).
79. Bikhchandani S, Hirshleifer D and Welch I, 'A theory of fads, fashion, custom and cultural change as informational cascades' (1992) 100 J. Polit. Econ. 992.
80. Bismarck R, and Pasaribu F, 'About Stock Bubbles' Econometric Research Institute Working Paper (September 2009).
81. Black BS, 'Shareholder Passivity Reexamined' (1990) 89 Mich. L. Rev. 520.
82. Black F, 'Capital Market Equilibrium with Restricted Borrowing' (1972) 45 J. Bus. 444.
83. Blair MM, 'Financial Innovation, Leverage, Bubbles and the Distribution of Income' (2010-2011) 30 Rev. B. Fin. L. 225.
84. Blair MM, and Stout LA, 'A Team Production Theory of Corporate Law' (1999) 85 Va. L. Rev. 248.
85. Bolton P, Mehran H, and Shapiro J, 'Executive Compensation and Risk-Taking' Federal Reserve Bank of New York Working Paper No. 456 (November 2011).
86. Bolton P, Scheinkman J, and Xiong W, 'Pay for Short-Term Performance: Executive Compensation in Speculative Markets' ECGI Finance Working Paper No. 79/2005 (April 2005).
87. – – 'Executive Compensation and Short-Termist Behaviour in Speculative Markets' (2006) 73 Rev. Econ. Stud. 577.

88. Bordo MD, and Landon-Lane JS, 'The Global Financial Crisis of 2007-08: Is it Unprecedented?' NBER Working Paper 16589 (December 2010).
89. Borio C, and Lowe P, 'Asset prices, financial and monetary stability: exploring the nexus' BIS Working Paper No. 114 (July 2002).
90. Boschen JF, and Smith KJ, 'You Can Pay Me Now *and* You Can Pay Me Later: The Dynamic Response of Executive Compensation to Firm Performance' (1995) 68 J. Bus. 577.
91. Boschen JF, Duru A, Gordon LA, and Smith KJ, 'Accounting and Stock Price Performance in Dynamic CEO Compensation Arrangements' (2003) 78 Acc. Rev. 143.
92. Bratton WW, 'Enron and the Dark Side of Shareholder Value' (2002) 76 Tul. L. Rev. 1275.
93. Bratton WW, 'Enron, Sarbanes-Oxley and Accounting: Rules versus Principles versus Rents' (2003) 48 Vill. L. Rev. 1023.
94. Brennan N, and McDermott M, 'Alternative Perspectives on Independence of Directors' (2004) 12 Corp. Gov. Int. Rev. 325.
95. Brenner M, Sundaram RK, and Yermack DL, 'Altering the terms of executive stock options' (2000) 57 J. Fin. Econ. 103.
96. Brummer C, 'How International Financial Law Works (and How It Doesn't)' (2011) 99 Geo. L. J. 247.
97. Brunarski K, Harman Y, and Kehr JB, 'Agency Costs and the Dividend Decision' (2004) 1 Corp. Own. Cont. 44.
98. Brunnermeier MK, 'Deciphering the 2007-08 Liquidity and Credit Crunch' (2009) 23 J. Econ. Persp. 77.
99. Brunnermeier MK, and Pedersen LH, 'Market Liquidity and Funding Liquidity' (2009) 22 Rev. Fin. Stud. 2201.
100. Brunnermeier MK, Crockett A, Goodhart CA, Persaud AD, and Shin H, 'The Fundamental Principles of Financial Regulation' Geneva Reports on the World Economy 11 (January 2009).
101. Bryan S, Hwang LS, and Lilien S, 'CEO Stock-Based Compensation: An Empirical Analysis of Incentive-Intensity, Relative Mix, and Economic Determinants' (2000) 73 J. Bus. 661.
102. Bums N, and Kedia S, 'The Impact of Performance-Based Compensation on Misreporting' (2006) 79 J. Fin. Econ. 35.
103. Caballero, R.J., 'The "Other" Imbalance and the Financial Crisis' MIT Working Paper 09-32 (December 2009).
104. Callaghan SR, Saly PJ and Subramaniam C, 'The Timing of Option Repricing' (2004) 59 J. Fin. 1651.
105. Campbell JY, and Cochrane JH, 'By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behaviour' (1999) 107 J. Polit. Econ. 205.
106. Campbell JY, and Shiller RJ, 'The dividend-price ratio and expectations of future dividends and discount factors' (1988) 1 Rev. Fin. Stud. 195.
107. Carney WJ, 'The Costs of Being Public after Sarbanes-Oxley: The Irony of 'Going Private'' (2006) 55 Em. L. J. 141.
108. Carter ME, and Lynch LJ, 'An Examination of Executive Stock Option Re-pricing' (2001) 61 J. Fin. Econ. 209.

109. Case KE, Quigley JM, and Shiller RJ, 'Comparing Wealth Effects: The Stock Market vs. the Housing Market' NBER Working Paper No. 8606 (November 2001).
110. Chance DM, Kumar R, and Todd RB, 'The 'Re-pricing' of Executive Stock Options' (2000) 57 J. Fin. Econ. 148.
111. Chatterjee A, and Hambrick DC, 'It's all about me': Narcissistic CEOs and their effects on company strategy and performance' (2007) 52 Admin. Sci. Q. 351.
112. Cheffins, BR, 'Current Trends in Corporate Governance: Going from London to Milan via Toronto' (1999) 10 Duke J. Comp. Int. L. 5.
113. – – 'Will Executive Pay Globalise Along American Lines?' (2003) 11 Corp. Gov. Int. Rev. 8.
114. Chen CR, Steiner TL, and Whyte AM, 'Does Stock-Option-Based Compensation Induce Risk-Taking? An Analysis of the Banking Industry' (2006) 30 J. Bank. Fin. 915.
115. Chen, HH, and Stein J, 'Breadth of Ownership and Stock Returns' (2002) 66 J. Fin. Econ. 171.
116. Cheng IH, Hong HG, and Scheinkman JA, 'Yesterday's Heroes: Compensation and Creative Risk-Taking' ECGI Finance Working Paper No. 285/2010 (June 2011).
117. Cheng Q, and Warfield TB, 'Equity Incentives and Earnings Management' (2005) 80 Acc. Rev. 441.
118. Chesney M, Stromberg J, and Wagner AF, 'Risk-taking Incentives, Governance, and Losses in the Financial Crisis' University of Zurich Swiss Finance Institute Working Paper No. 10-18 (November 2011).
119. Chevalier J, and Ellison G, 'Career Concerns of Mutual Fund Managers' (1999) 114 Q. J. Econ. 389.
120. Cicero DC, 'The Manipulation of Executive Stock Option Exercise Strategies: Information Timing and Backdating' (2009) 64 J. Fin. 2627.
121. Cipriani M, and Guarino A, 'Herd Behavior and Contagion in Financial Markets' (2008) 8 B.E. J. of Theo. Econ. (Contributions) Article 24.
122. Clawson MA, and Klein TC, 'Indexed Stock Options: A Proposal for Compensation Commensurate with Performance' (1997) 3 Stan. J. L. Bus. Fin. 31.
123. Coffee Jnr JC, 'Liquidity versus Control: The Institutional Investor as Corporate Monitor' (1991) 91 Col. L. Rev. 1277.
124. – – 'Privatization and Corporate Governance: The Lessons from Securities Market Failure' (1999) 25 J. Corp. L. 1.
125. – – 'Competition Among Securities Markets: A Path Dependent Perspective' Columbia Law School, Center for Law and Economic Studies Working Paper No. 192 (April 2002).
126. – – 'Understanding Enron: It's About the Gatekeepers, Stupid' Columbia Law School, Center for Law and Economic Studies Working Paper No. 207 (July 2002).
127. – – 'Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms' Columbia Law School, Center for Law and Economic Studies Working Paper No. 237 (September 2003).
128. – – 'Gatekeeper Failure and Reform: The Challenge of Fashioning Relevant Reforms' (2004) 84 Bu. L. Rev. 301.

129. – – John C. Coffee, Jr., ‘What Caused Enron?: A Capsule Social and Economic History of the 1990s’ (2004) 89 *Cor. L. Rev.* 269.
130. – – ‘A Theory Of Corporate Scandals; Why the US and Europe Differ’ (2005) 21 *Ox. Rev. Econ. Pol.* 198.
131. – – ‘Systemic Risk after Dodd-Frank: Contingent Capital and the Need for Strategies Beyond Oversight’ (2011) 111 *Col. L. Rev.* 796.
132. Cohen DA, Dey A, and Lys TZ, ‘The Sarbanes-Oxley Act of 2002: Implications for Compensation Structure and Managerial Risk-Taking’ (November 2007) unpublished manuscript.
133. Colander D, Follmer H, Haas A, Goldberg MD, Juselius K, Kirman A, Lux T, and Sloth B, ‘The Financial Crisis and the Systemic Failure of Academic Economics’ Univ. of Copenhagen Dept. of Economics Discussion Paper No. 09-03 (March 2009).
134. Coles JL, Daniel ND, Naveen L, ‘Managerial incentives and risk-taking’ (2006) 79 *J. Fin. Econ.* 431.
135. Conyon MJ, Mallin C, and Sadler G, ‘The Disclosure of Director Share Option Information in UK Companies’ (2002) 12 *Appl. Fin. Econ.* 95.
136. Core JE, Holthausen RW, and Larcker DF, ‘Corporate Governance, CEO Compensation, and Firm Performance’ 51 (1999) *J. Fin. Econ.* 371.
137. Core JE, Guay WR, and Larcker DF, ‘Executive Equity Compensation and Incentives: A Survey’ (2003) 9 *Econ. Pol. Rev.* 27.
138. Cox JD, and Thomas, RS, ‘Letting Billions Slip Through Your Fingers: Empirical Evidence and Legal Implications of the Failure of Financial Institutions to Participate in Securities Class Action Settlements’ (2005) 58 *Stan. L. Rev.* 411.
139. Cremers M, Bebchuk LA, and Peyer U, ‘CEO Centrality’ Harvard Law and Economics Discussion Paper No. 601 (May 2008).
140. Dallas LL, ‘Two Models of Corporate Governance: Beyond Berle and Means’ (1988) 22 *U. Mich. J.L. Ref.* 19.
141. Dallas LL, ‘The Relational Board: Three Theories of Corporate Boards of Directors’ (1996) 22 *J. Corp. L.* 1.
142. Daniel K, Hirshleifer D, and Subramanyam A, ‘Investor Psychology and Security Market Under-and-Overreactions’ (1998) 53 *J. Fin.* 1839.
143. D’Avolio G, Gildor E, and Shleifer A, ‘Technology, Information Production, and Market Efficiency’ Harvard Institute of Economic Research Paper No. 1929 (September 2001).
144. Deakin S and Hughes A, ‘Economic Efficiency and the Proceduralisation of Company Law’ ESRC Centre for Business Research University of Cambridge Working Paper No. 133 (June 1999).
145. De Grauwe P, and Grimaldi M, ‘Bubbles and Crashes in a Behavioural Finance Model’ Central Bank of Sweden Working Paper No. 164 (June 2006).
146. Delli Gatti D, and Gallegati M, ‘Financial Instability, Income Distribution, and the Stock Market’ (1990) 12 *J. Post-Keynes. Econ.* 356.
147. De Long JB, Shleifer A, Summers LH, and Waldmann RJ, ‘Noise Trader Risk in Financial Markets’ University of California Working Paper (December 1989).
148. – – ‘The Size and Incidence of the Losses from Noise Trading’ NBER Working Paper No. 2875 (December 1989).

149. – – ‘Positive Feedback Investment Strategies and Destabilising Rational Speculation’ (1990) 45 J. Fin. 379.
150. Demsetz H, and Lehn K, ‘The Structure of Corporate Ownership: Causes and Consequences’ (1985) 93 J. Polit. Econ. 1155.
151. Demyanyk Y, and Van Hemert O, ‘Understanding the subprime mortgage crisis’ (2011) 24 Rev. Fin. Stud. 1848.
152. Denis DJ, Hanouna P, and Sarin A, ‘Is there a dark side to incentive compensation?’ (2006) 12 J. Corp. Fin. 467.
153. Devers CE, Cannella Jnr AA, Reilly GP, and Yoder ME, ‘Executive Compensation: A Multidisciplinary Review of Recent Developments’ (2007) 33 J. Man. 1016.
154. DeYoung R, Peng EY, Yan M, ‘Executive Compensation and Business Policy Choices at US Commercial Banks’ (Federal Reserve Bank of Kansas City Working Paper 10-02 (January 2010).
155. Dignam A, ‘The Role of Competition in Determining Corporate Governance Outcomes: Lessons from Australia’s Corporate Governance System’ (2005) 68 M.L.R. 765.
156. Dooley MP, ‘Two Models of Corporate Governance’ (1992) 47 Bus. L. 461.
157. Deutsch M, and Gerard HB, ‘A Study of Normative and Informational Social Influences upon Individual Judgement’ (1955) 51 J. Abn. Soc. Psych. 629.
158. Devers CE, Cannella Jr AA, Reilly GP, and Yoder ME, ‘Executive Compensation: A Multidisciplinary Review of Recent Developments’ (2007) 33 J. Man. 1016.
159. Ding X, Granger CWJ, and Engle RF, ‘A long memory property of stock returns and a new model’ (1993) 1 J. Emp. Fin. 83.
160. Dooley MP, ‘Two Models of Corporate Governance’ (1992) 47 Bus. L. 461.
161. Dybvig PH, and Loewenstein M, ‘Employee Reload Options: Pricing, Hedging, and Optimal Exercise’ (2003) 16 Rev. Fin. Stud. 145.
162. Earley C, Obadashian K, and Willenborg M, ‘Corporate Governance and Professional Ethics Post-Enron: Some Thoughts on the Audit Failure at Enron, the Demise of Andersen and the Ethical Climate of Public Accounting Firms’ (2003) 35 Conn. L. Rev. 1013.
163. Edlin, AS and Stiglitz JE, ‘Discouraging Rivals: Managerial Rent-Seeking and Economic Inefficiencies’ (1995) 85 Am. Econ. Rev. 1301.
164. Edmans A and Gabaix X, ‘Is CEO Pay Really Inefficient? A Survey of New Optimal Contracting Theories’ (2009) 15 Eur. Fin Man. 486.
165. Edmans A, and Liu Q, ‘Inside Debt’ (2011) 15 Rev. Fin. 75.
166. Efendi J, Srivastava A, and Swanson EP, ‘Why Do Corporate Managers Misstate Financial Statements? The Role of Option Compensation and Other Factors’ (2007) 85 J. Fin. Econ. 667.
167. Eggertsson GB, and Krugman P, ‘Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo approach’ Federal Reserve Bank of New York Working Paper (November 2010).
168. Engel E, Hayes R, and Wang X, ‘The Sarbanes-Oxley Act and Firms’ Going Private Decisions’ (2004) 44 J. Acc. Econ. 116.

169. Enriques L, and Gatti M, 'The Uneasy Case for Top-Down Corporate Law Harmonization in the European Union' (2006) 27 U. of Penn. J. Int. Econ. L. 939.
170. Epstein L, and King G, 'The Rules of Inference' (2002) 69 U. Chi. L Rev. 1.
171. Erhard W, Jensen MC, and Zaffron S, 'Integrity: A Positive Model that Incorporates the Normative Phenomena of Morality, Ethics and Legality' Harvard Business School NOM Working Paper No. 06-11 (March 2009).
172. Erkens DH, Hung M, and Matos P, 'Corporate Governance in the 2007-08 Financial Crisis: Evidence from Financial Institutions Worldwide' (2012) 18 J. Corp. Fin. 389.
173. Fabozzi FJ, 'The Structured Finance Market: An Investor's Perspective' (2005) 61 Fin. An. J. 27.
174. Fahlenbrach R and Stulz RM, 'Bank CEO incentives and the credit crisis' (2011) 99 J. Fin. Econ. 11.
175. Fama EF, 'Random Walks in Stock Market Prices' (1965) 21 Fin. An. J. 55.
176. -- 'Efficient Capital Markets: A Review of Theory and Empirical Work' (1970) 25 J. Fin. 383.
177. -- 'Agency Problems and Residual Claims' (1980) 26 J. L. Econ. 327.
178. -- 'Agency Problems and the Theory of the Firm' (1980) 88 J. Polit. Econ. 288.
179. -- 'Efficient Capital Markets: II' (1991) 46 J. Fin. 1575.
180. Fama EF, and French KR, 'Permanent and Temporary Components of Stock Prices' (1988) 96 J. Polit. Econ. 246.
181. -- 'The Capital Asset Pricing Model: Theory and Evidence' (2004) 18 J. Econ. Persp. 25.
182. Fama EF, and Jensen MC, 'Separation of Ownership and Control' (1983) 26 J. L. Econ. 301.
183. Fazzari SM, 'Keynes, Harrod and the Rational Expectations Revolution' (1985) 8 J. Post-Keynes. Econ. 66.
184. Feltham GA, and Wu MGH, 'Incentive Efficiency of Stock Versus Options' (2001) 6 Rev. Acc. Stud. 77.
185. Ferrarini GA, Moloney N, and Ungureanu MC, 'Executive Remuneration in Crisis: A Critical Assessment of Reforms in Europe' (2010) 10 J.C.L.S. 73.
186. Ferrarini GA and Ungureanu MC, 'Bankers' Pay After the 2008 Crisis: Regulatory Reforms in the US and EU' (forthcoming, 2012) J. B. Law and B.
187. Fisch JE, 'Measuring efficiency in corporate law: the role of shareholder primacy' (2006) 31 J. Corp. L. 637.
188. Fisher KL, and Statman M, 'Blowing Bubbles' (2002) 3 J. Psych. Fin. Mar. 53.
189. Fleckenstein M, Longstaff FA, and Lustig HN, 'Why Does the Treasury Issue TIPS? The TIPS-Treasury Bond Puzzle' NBER Working Paper No. 16358 (September 2010).
190. Flood RP, and Hodrick RJ, 'On Testing for Speculative Bubbles' (1990) 4 J. Econ. Persp. 85.

191. Fostel A, and Geanakoplos J, 'Leverage Cycles and the Anxious Economy' (2008) 98 Am. Econ. Rev. 1211.
192. Frankel AB, 'The risk of relying on reputational capital: a case study of the 2007 failure of New Century Financial' BIS Working Paper No. 294 (December 2009).
193. Frankel JA, and. Froot KA, 'Understanding the U.S Dollar in the Eighties: The Expectations of Chartists and Fundamentalists' (1987) Econ. Rev. (Special Edition) 24.
194. Fried JM, 'Reducing the Profitability of Corporate Insider Trading through Predating Disclosure' (1998) 71 S. Cal. L. Rev. 303.
195. Fried JM, and Shilon N, 'Excess-Pay Clawbacks' (2011) 36 J. Corp. L. 722.
196. Friedman BM, Laibson DI and Minsky HP, 'Economic Implications of Extraordinary Movements in Stock Prices' (1989) Brook. Pap. Econ. Ac. 137.
197. Froot KA, and Obstfeld M, 'Intrinsic Bubbles: The Case of Stock Prices' (1991) 81 Am. Econ. Rev. 1189.
198. Froot KA, Perold A, and Stein JC, 'Shareholder Trading Practices and Corporate Investment Horizons' NBER Working Paper No. 3638 (March 1991).
199. Froot KA, Scharfstein DS, and Stein JC, 'Herd on the Street: Informational Inefficiencies in a Market with Short-term Speculation' (1992) 47 J. Fin. 1461.
200. Froot KA, and Dabora E., 'How are stock prices affected by the location of trade?' (1999) 53 J. Fin. Econ. 189.
201. Fuller J, and Jensen MC, 'Just Say No to Wall Street' (2002) 14 J. Appl. Corp. Fin. 41.
202. Gabaix X, and Landier A, 'Why has CEO Pay Increased So Much?' (2008) 123 Q. J. Econ. 49.
203. Garvey GT, and Milbourn T, 'Asymmetric Benchmarking in Compensation: Executives are Rewarded for Good Luck But Not Penalized for Bad' (2006) 82 J. Fin. Econ. 197.
204. Gennaioli N, Shleifer A and Vishny RW, 'Neglected Risks, Financial Innovation, and Financial Fragility' FEEM Working Paper No.114.2010 (October 2010).
205. Gibbons R, and Murphy KJ, 'Relative Performance Evaluation for Chief Executive Officers' (1990) 43 Ind. Lab. Rel. Rev. 30.
206. Gilson RJ, and Kraakman RH, 'The Mechanisms of Market Efficiency' (1984) 70 Va. L. Rev. 549.
207. – – 'Reinventing the Outside Director: An Agenda for Institutional Investors' (1991) 43 Stan. L. Rev. 863.
208. – – 'The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias' Columbia Law and Economics Working Paper No. 240 (November 2003).
209. Goetzmann WN, and Dhar R, 'Bubble Investors: What Were They Thinking?' Yale ICF Working Paper No. 06-22 (August 2006).
210. Gompers PA, and Metrick A, 'Institutional Investors and Equity Prices' (2001) 116 Q. J. Econ. 229.
211. Gompers PA, Ishii JL, and Metrick A, 'Corporate Governance and Equity Prices' (2003) 118 Q. J. Econ. 107.



212. Goodpaster KE, and Post RJ, 'H.J. Heinz Co.: The Administration of Policy (B)' Harvard Business School (October 1981) Case Study: 382.035.
213. Gopalan R, Milbourn TT, and Song F, 'Strategic Flexibility and the Optimality of Pay for Luck' (September 2008) unpublished manuscript.
214. Gordon JN, "'Say on Pay": Cautionary Notes on the UK Experience and the Case for Shareholder Opt-in' (2009) 46 Harv. J. Legis. 323.
215. Gorton GB, 'The Panic of 2007' NBER Working Paper No. 14358 (August 2008).
216. Graham JR, Harvey CR, and Rajgopal S, 'The Economic Implications of Corporate Financial Reporting' (2005) 40 J. Acc. Econ. 3.
217. Grantham R, 'The doctrinal basis of the rights of company shareholders' (1998) 57 Camb. L. J. 554.
218. Greene MT, and Fielit, BD, 'Long-term dependence in common stock returns' (1977) 4 J. Fin. Econ. 339.
219. Greenwald BC, Stiglitz JE, and Weiss A, 'Informational Imperfections in the Capital Market and Macroeconomic Fluctuations' (1984) 74 Am. Econ. Rev. 194.
220. Greenwald BC, and Stiglitz JE, 'Financial Market Imperfections and Business Cycles' (1993) 108 Q. J. Econ. 77.
221. Grossman SJ, and Hart OD, 'Takeover Bids, The Free-Rider Problem, and the Theory of the Corporation' (1980) 11 Bell J. Econ. 42.
222. Grossman SJ, and Stiglitz JE, 'Information and Competitive Price Systems' (1976) 66 Am. Econ Rev. 246.
223. -- 'On the Impossibility of Informationally Efficient Markets' (1990) 70 Am. Econ. Rev. 393.
224. Habib MA, and Ljungqvist A, 'Firm Value and Managerial Incentives: A Stochastic Frontier Approach' (2005) 78 J. Bus. 2053.
225. Hall BJ, 'Six Challenges in Designing Equity-Based Pay' (2003) 15 J. App. Corp. Fin. 21.
226. Hall BJ, and Knox TA, 'Managing Option Fragility' NBER Working Paper No. 9059 (July 2002).
227. Hall BJ, and Liebman JB, 'Are CEOs Really Paid Like Bureaucrats?' (1998) 113 Q. J. Econ. 653.
228. Hall BJ, and Murphy KJ, 'The Trouble with Stock Options' (2003) 17 J. Econ. Persp. 49.
229. Hallock KF, 'Reciprocally Interlocking Boards of Directors and Executive Compensation' (1997) 32 J. Fin. Quant. An. 331.
230. Hansmann H, and Kraakman R, 'The End of History for Corporate Law' (2001) 89 Geo. L. J. 439.
231. Hart OD, 'Corporate Governance: Some Theory and Implications' (1995) 105 Econ. J. 678.
232. Harvey CR, 'The World Price of Covariance Risk' (1991) 46 J. Fin. 111.
233. Haugen RA, and Senbet LW, 'Resolving the Agency Problems of External Capital through Options' (1981) 36 J. Fin. 629.
234. Hayward MLA, and Hambrick DC, 'Explaining the Premiums Paid for Large Acquisitions: Evidence of CEO Hubris' (1997) 42 Admin. Sci. Q. 103.
235. Heard JE, 'Executive Compensation: Perspective of the Institutional Investor' (1995) 63 U. Cin. L. Rev. 749.

236. Hellwig MF, 'Capital Regulation after the Crisis: Business as Usual?' Max Planck Institute for Research on Collective Goods Working Paper 2010/31 (July 2010).
237. Hemmer T, Matsunaga S, and Sherlin T, 'Optimal Exercise and the Cost of Granting Employee Stock Options with a Reload Provision' (1998) 36 *J. Acc. Res.* 234.
238. Hermalin BE, and Weisbach MS, 'The Effects of Board Composition and Direct Incentives on Firm Performance' (1991) 20 *Fin. Man.* 101.
239. – – 'Endogenously Chosen Boards of Directors and Their Monitoring of the CEO' (1998) 88 *Am. L. Rev.* 96
240. Herring RJ, 'Credit risk and financial instability' (1999) 15 *Ox. Rev. Econ. Pol.* 63.
241. Hertig G, 'Ongoing Board Reforms: One Size Fits All and Regulatory Capture' (2005) 21 *Ox. Rev. Econ. Pol.* 269.
242. Holmstrom B, 'Moral Hazard and Observability' (1979) 10 *Bell J. Econ.* 4.
243. – – 'Moral Hazard in Teams' (1982) 13 *Bell J. Econ.* 74.
244. – – 'Managerial Incentive Problems – A Dynamic Perspective' (1999) 66 *Rev. Econ. Stud.* 169.
245. – – 'Pay without Performance and the Managerial Power Hypothesis: A Comment' (2005) 30 *J. Corp. L.* 703.
246. Holmstrom B, and Kaplan SN, 'Corporate Governance and Merger Activity in the U.S.: Making Sense of the 1980s and 1990s' (2001) 15 *J. Econ. Persp.* 121.
247. – – 'The State of U.S. Corporate Governance: What's Right and What's Wrong?' (2003) 15 *J. Appl. Corp. Fin.* 8.
248. Hubbard RG, 'Pay Without Performance: A Market Equilibrium Critique' (2005) 30 *J. Corp. L.* 717.
249. Ireland P, 'Shareholder Primacy and the Distribution of Wealth' (2005) 68 *M.L.R.* 49.
250. Jackson G, 'A New Financial Capitalism? Explaining the persistence of voice over exit in contemporary corporate governance' (2008) 5 *Eur. Man. Rev.* 23.
251. Jarrow RA, 'Risk Management Models: Construction, Testing, Usage' Johnson School Research Paper Series No. 38-2010 (March 2011).
252. Jegadeesh N, and Titman S, 'Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency' (1993) 48 *J. Fin.* 65.
253. Jensen MC, 'The Performance of Mutual Funds in the Period 1945-1964' (1968) 23 *J. Fin.* 389.
254. – – 'Some Anomalous Evidence Regarding Market Efficiency' (1978) 6 *J. Fin. Econ.* 95.
255. – – 'Agency Costs of Free Cashflow, Corporate Finance, and Takeovers' (1986) 76 *Am. Econ. Rev.* 323.
256. – – 'Eclipse of the Public Corporation' (1989) 67 *Harv. Bus. Rev.* 61.
257. – – 'Corporate Control and the Politics of Finance' (1991) 4 *J. App. Corp. Fin.* 13.
258. – – 'Corporate Budgeting is Broken – Let's Fix It' (2001) *Harv. Bus. Rev.* 94.
259. – – 'Value Maximization, Stakeholder Theory, and the Corporate Objective Function' (2001) 14 *J. Appl. Corp. Fin.* 8

260. -- ‘Agency Costs of Overvalued Equity’ (2005) 34 *Fin. Man.* 5.
261. Jensen MC, and Meckling WH, ‘Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure’ (1976) 3 *J. Fin. Econ.* 305.
262. Jensen MC, and Murphy KJ, ‘Performance Pay and Top-Management Incentives’ (1990) 98 *J. Polit. Econ.* 225.
263. Jensen MC, and Ruback RS, ‘The market for corporate control: The scientific evidence’ (1983) 11 *J. Fin. Econ.* 5.
264. Jiménez-Angueira CE, and Stuart NV, ‘CEO Bonuses, Relative Performance Evaluation, and Pay-for-Luck’ (September 2010) unpublished manuscript.
265. John K, and Qian Y, ‘Incentive Features in CEO Compensation in the Banking Industry’ (2003) 9 *Bank N.Y. Econ. Pol. Rev.* 109.
266. John K, Mehran H, and Qian Y, ‘Outside Monitoring and CEO Compensation in the Banking Industry’ (2010) 16 *J. Corp. Fin.* 383.
267. Johnson SA, and Tian YS, ‘The Value and Incentive Effects of Non-Traditional Executive Stock Option Plans’ (2000) 57 *J. Fin. Econ.* 3.
268. -- ‘Indexed Executive Stock Options’ (2000) 57 *J. Fin. Econ.* 35.
269. Johnson SA, Ryan HE, and Tian YS, ‘Managerial Incentives and Corporate Fraud: The Sources of Incentives Matter’ (2009) 13 *Ox. Rev. Fin.* 115.
270. Jolls C, Sunstein CR and Thaler RH, ‘A Behavioral Approach to Law and Economics’ (1998) 50 *Stan. L. Rev.* 1471.
271. Jones BD, ‘Bounded Rationality’ (1999) 2 *Ann. Rev. Pol. Sci.* 297.
272. Jorion P, ‘Risk Management Lessons from Long-Term Capital Management’ (2000) 6 *Eur. Fin. Man.* 277.
273. Kahan M, ‘Securities Laws and the Social Costs of “Inaccurate” Stock Prices’ (1992) 41 *Duke L. J.* 989.
274. Kahan M, and Rock EB, ‘How I Learned to Stop Worrying and Love the Pill: Adaptive Responses to Takeover Law’ (2002) 69 *U. Chi. L. Rev.* 871.
275. Kahneman D, ‘Maps of Bounded Rationality: Psychology for Behavioral Economics’ (2003) 93 *Am. Econ. Rev.* 1449.
276. Kahneman D, and Tversky A ‘Prospect Theory: An Analysis of Decision under Risk’ (1979) 47 *Econometrica* 263.
277. Kahneman D, and Lovallo D, ‘Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking’ (1993) 39 *Man. Sci.* 17.
278. Kaminsky G, and Reinhardt C, ‘On crises, contagion and confusion’ (2000) 51 *J. Int. Econ.* 145.
279. Kaminsky G, Reinhardt C, and Vegh C, ‘The Unholy Trinity of Financial Contagion’ (2003) 17 *J. Econ. Persp.* 51.
280. Kaplan RS, and Norton DP, ‘The Balanced Scorecard – Measures that Drive Performance’ (1992) 70 *Harv. Bus. Rev.* 71.
281. Kaplan SN, ‘The Effects of Management Buyouts on Operating Performance and Value’ (1989) 24 *J. Fin. Econ.* 217.
282. Kaplan SN, and Stein JC, ‘The Evolution of Buyout Pricing and Financial Structure in the 1980s’ (1983) 108 *Q. J. Econ.* 313.
283. Kay J, ‘The Map is Not the Territory: An Essay on the State of Economics’ Institute For New Economic Thinking (September 2011).

284. Kershaw D, 'Evading Enron: Taking Principles Too Seriously In Accounting Regulation' (2005) 68 M.L.R 594.
285. Kirkbride J, and Letza S, 'The CEO in Law and in Practice: a study of categorisation and control' (2002) 10 Corp. Gov. 136.
286. Klausner M, 'The Contractarian Theory of Corporate Law: A Generation Later' (2006) 31 J. Corp. L. 779.
287. Klein B, and Leffler KB, 'The Role of Market Forces in Assuring Contractual Performance' (1981) 89 J. Polit. Econ. 615.
288. Kocherkalota NR, 'The Equity Premium: It's Still a Puzzle' (1996) 34 J. Econ. Lit. 42.
289. Kole SR, 'The complexity of compensation contracts' (1997) 43 J. Fin. Econ. 79.
290. Kregel J, 'Why don't the bailouts work? Design of a new financial system versus a return to normalcy' (2009) 33 Camb. J. Econ. 653.
291. Kyle AS, and Xiong W, 'Contagion as a Wealth Effect' (2001) 56 J. Fin. 1401.
292. LaBeouf RA, and Shafir E, 'Deep Thoughts and Shallow Frames: On the Susceptibility to Framing Effects' (2003) 16 J. Behav. Dec. 77.
293. Laeven L, and Levine R, 'Bank governance, regulation and risk taking' (2009) 93 J. Fin. Econ. 259.
294. Lambert RA, Larcker DF, and Verrechia RE, 'Portfolio Considerations in Valuing Executive Compensation' (1991) 29 J. Acc. Res. 129.
295. Langer EJ, and Roth J, 'Heads I win, tails it's chance: The illusion of control as a function of the sequence of outcomes in a purely chance task' (1975) 32 J. Pers. Soc. Psych. 951.
296. Langevoort DC, 'Global Securities Regulation after the Financial Crisis' (2010) 13 J. Int'l. Econ. L. 799.
297. La Porta R, Lopez-de-Silanes F, and Shleifer A, 'Corporate Ownership Around the World' (1999) 54 J. Fin. 471.
298. Lee C, Shleifer A, and Thaler RH, 'Investor sentiment and the closed-end fund puzzle' (1991) 46 J. Fin. 75.
299. LeRoy SF, and Porter RD, 'The Present-value Relation: Tests Based on Implied Invariance Bounds (1981) 49 Econometrica 555.
300. Letza S, Sun X and Kirkbride J, 'Shareholding versus Stakeholding: A Critical Review of Corporate Governance' (2004) 12 Corp. Gov. 242.
301. Letza S, Kirkbride J, Sun X, and Smallman C, 'Corporate governance theorising: limits, critics and alternatives' (2008) 50 Int. J. L. Man. 17.
302. Leuz C, Nanda D, and Wysocki PD, 'Investor Protection and Earnings Management: An International Comparison' (2003) 69 J. Fin. Econ. 1.
303. Lewellen W, Loderer C, and Martin K, 'Executive Compensation and Executive Incentive Problems: An Empirical Analysis' (1987) 9 J. Acc. Econ. 287.
304. Lintner J, 'The Valuation of Risky Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets' (1965) 47 Rev. Econ. Stat. 13.
305. Lo AW, 'Long-Term Memory in Stock Market Prices' (1991) 59 Econometrica, 1279.
306. – – 'The Adaptive Markets Hypothesis' (2004) J. Port. Man. (30<sup>th</sup> Anniversary Issue) 15.

307. Longstaff FA, 'The Subprime Credit Crisis and Contagion in Financial Markets' (2010) 97 *J. Fin. Econ.* 436.
308. Lucas RE, 'Asset Prices in an Exchange Economy' (1978) 46 *Econometrica* 1429.
309. Lux T, 'Herd Behaviour, Bubbles and Crashes' (1995) 105 *Econ. J.* 881.
310. Main BG, O'Reilly III CA, and Wade J, 'The CEO, the Board of Directors, and Executive Compensation: Economic and Psychological Perspectives' (1990) 11 *Ind. Corp. Change* 302.
311. Malkiel BG, 'The Efficient Market Hypothesis and Its Critics' (2003) 17 *J. Econ. Persp.* 59.
312. Mandelbrot BB, 'Variation of Certain Speculative Prices' (1963) 36 *J. Bus.* 394.
313. – – 'Forecasts of Future Prices, Unbiased Markets, and Martingale Models' (1966) 39 *J. Bus.* 242.
314. – – 'Long-run interdependence in price records and other economic time series' (1970) 38 *Econometrica* 122.
315. Mangee N, 'The Long Swings Puzzle in Equity Markets: Evidence from Bloomberg News's Market Wraps' Working Paper, University of New Hampshire (May 2011).
316. Markham JW, 'Regulating Excessive Executive Compensation – Why Bother?' (2007) 2 *J. Bus. & Tech.* 277.
317. Markowitz HM, 'Portfolio Selection' (1952) 7 *J. Fin.* 77.
318. Marsh TA, and Merton RC, 'Dividend variability and variance bounds tests for the rationality of stock market prices' (1986) 76 *Am. Econ. Rev.* 483.
319. Masulis RC, Wang C, and Xie F, 'Corporate Governance and Acquirer Returns' (2007) 62 *J. Fin.* 1851.
320. McConnell JJ, and Servaes H, 'Additional Evidence on Equity Ownership and Corporate Value' (1990) 27 *J. Fin. Econ.* 595.
321. McIlroy DH, 'Regulating Risk: A measured response to the banking crisis' (2008) 9 *J.B.R.* 284.
322. Mehra R, and Prescott EC, 'The Equity Premium: A Puzzle' (1985) 15 *J. Mon. Econ.* 145.
323. Mehran H, 'Executive Incentive Plans, Corporate Control and Capital Structure' (1992) 27 *J. Fin. Quant. An.* 539.
324. Mehran H, and Rosenberg J, 'The Effect of CEO Stock Options on Bank Investment Choice, Borrowing, and Capital' Federal Reserve Bank of New York Staff Report No. 305 (June 2008).
325. Mergenthaler Jnr R, Rajgopal S, and Srinivasan S, 'CEO and CFO Career Penalties to Missing Quarterly Analysts Forecasts' (January 2011) unpublished manuscript.
326. Miller DT, and Ross M, 'Self-serving bias in attribution of causality: Fact or fiction?' (1975) 82 *Psych. Bull.* 213.
327. Millstein, IM, 'The Role and Independence of Boards and Their Advisors — and the Role of Compensation' (2002) 10 *Corp. Gov. Adv.* 5.
328. Millstein IM, and MacAvoy PW, 'The Active Board of Directors and Performance of the Large Publicly Traded Corporation' (1998) 11 *J. Appl. Corp. Fin.* 8.
329. Minsky HP, 'Financial Instability Revisited: The Economics of Disaster', Policy Paper prepared for the Steering Committee for the Fundamental

- Reappraisal of the Discount Mechanism Appointed by the Board of Governors of the Federal Reserve System (January 1970).
330. – – ‘Capitalist Financial Processes and the Instability of Capitalism’ (1980) 14 J. Econ. Iss. 505.
331. – – ‘The Capital Development of the Economy and the Structure of Financial Institutions’ The Jerome Levy Economics Institute Working Paper 72 (1992).
332. – – ‘The Financial Instability Hypothesis’ The Jerome Levy Economics Institute of Bard College Working Paper No.74 (1992).
333. – – ‘Longer Waves in Financial Relations: Financial Factors in the More Severe Depressions II’ (1995) 29 J. Econ. Iss. 83.
334. – – ‘Uncertainty and the Institutional Structure of Capitalist Economies: Remarks upon Receiving the Veblen-Commons Award’ (1996) 30 J. Econ. Iss. 357.
335. Mirvis TN, Rowe PK, and Savitt W, ‘Bebchuk’s “Case for Increasing Shareholder Power”: An Opposition’ Harvard Law School Discussion Paper No. 586 (May 2007).
336. Mitchell L, ‘The Sarbanes-Oxley Act and the Reinvention of Corporate Governance?’ (2003) 48 Vill. L. Rev. 1189.
337. Mizen P, ‘The Credit Crunch of 2007-2008: A Discussion of the Background, Market Reactions, and Policy Responses’ (2008) 90 Fed. Res. Bank. St. 531.
338. Modigliani F, and Miller MH, ‘The Cost of Capital, Corporate Finance and the Theory of Investment’ (1958) 48 Am. Econ. Rev. 251.
339. Monks, R, ‘Executive and director compensation 1984 REDUX’ (1998) 6 Corp. Gov. Int. Rev. 135.
340. – – ‘Redesigning Corporate Governance Structures and Systems for the Twenty First Century’ (2001) 9 Corp. Gov. Int. Rev. 142.
341. – – ‘Modern Company Law for a Competitive Economy: The Strategic Framework’ (2000) 8 Corp. Gov. Int. Rev. 16.
342. Montgomery CA, and Kaufman R, ‘The Board’s Missing Link’ (2003) Harv. Bus. Rev. 81.
343. Montier J, ‘Mind Matters: The tao of investing’ Societe Generale Global Strategy Research Paper (24 February 2009).
344. Randall Morck, Andrei Shleifer and Robert W. Vishny, ‘Alternative Mechanisms for Corporate Control’ (1989) 7 Am. Econ. Rev. 842.
345. – – ‘Do Managerial Objectives Drive Bad Acquisitions?’ (1990) 45 J. Fin. 31.
346. – – ‘Management Ownership and Market Valuation: An Empirical Analysis’ (1998) 20 J. Fin. Econ. 293.
347. Murphy KJ, ‘Corporate Performance and Managerial Remuneration: An Empirical Analysis’ (1985) 7 J. Acc. Econ. 11.
348. – – ‘Executive Compensation’ Marshall School of Business Working Paper (June 1999).
349. – – ‘Performance Standards in Incentive Contracts’ (2001) 30 J. Acc. Econ. 273.
350. – – ‘Explaining Executive Compensation: Managerial Power vs. the Perceived Cost of Stock Options’ (2002) 69 U. Chi. L. Rev. 851.
351. Muth J, ‘Rational Expectations and the Theory of Price Movements’ (1961) 29 Econometrica 315.

352. Nohel T, and Todd S, 'Stock Options and Managerial Incentives to Invest' (2004) 1 J. Deriv. 29.
353. Novaes W, and Zingales L, 'Capital structure choice when managers are in control: Entrenchment versus efficiency' (1995) 76 J. Bus. 49.
354. O'Connor MA, 'The Enron Board: The Perils of Groupthink' (2003) 71 U. Cin. L. Rev. 1233.
355. Odean T and Barber BM, 'Trading is Hazardous to Your Wealth: The Common Stock Investment Performance of Individual Investors' (2000) 55 J. Fin. 773.
356. Ordonez LD, Schweitzer ME, Galinsky AD, and Bazerman MH, 'Goals Gone Wild: The Systematic Side Effects of Overprescribing Goal Setting' (2009) 23 Acad. Man. Persp. 6.
357. Orlean A, 'Mimetic contagion and speculative bubbles' (1989) 27 Theor. Decis. 63.
358. Oskamp S, 'Overconfidence in case study judgments' (1965) 29 J. Consult. Psych. 261.
359. Pagliari S, 'Who Governs Finance? The Shifting Public-Private Divide in the Regulation of Derivatives, Rating Agencies and Hedge Funds' (2012) 18 Eur. L. J. 44.
360. Palia D, and Porter R, 'The impact of capital requirements and managerial requirements on bank charter value' (2004) 23 Rev. Quant. Fin. Acc. 191.
361. Palmrose ZV, Richardson VJ, and Scholz S, 'Determinants of Market Reactions to Restatement Announcements' (2004) 37 J. Acc. Econ. 59.
362. Parthiban D, Kochar R, and Levitas E, 'The Effect of Institutional Investors on the Level and Mix of CEO Compensation' (1998) 41 Acad. Man. J. 200.
363. Partnoy F, and Skeel Jnr DA, 'The Promise and Perils of Credit Derivatives' (2007) 75 U. Cin. L. R. 1019.
364. Payne A, Holt S, and Frow P, 'Integrating employee, customer and shareholder value through an enterprise performance model: an opportunity for financial services' (2000) 18 I. J. Bank Mark. 258.
365. Perry T, and Zenner M, 'Pay for Performance? Government Regulation and the Structure of Compensation Contracts' (June 2000) unpublished manuscript.
366. Persaud A, 'Sending the herd off the cliff edge: The disturbing interaction between herding and market-sensitive risk management practices' (2000) 1 Wrl. Econ. 15.
367. Philippon T, 'The Evolution of the US Financial Industry from 1860 to 2007: Theory and Evidence' NBER Working Paper November (2008).
368. Prowse S, 'Corporate governance in an international perspective: A survey of corporate control mechanisms among large firms in the United States, the United Kingdom, Japan, and Germany' BIS Economics Working Paper No.41 (July 1994).
369. Rajan RG, 'Has Financial Development made the World Riskier?' Proceedings, Federal Reserve Bank of Kansas City (August 2005).
370. Raheja CG, 'Determinants of Board Size and Composition: A Theory of Corporate Boards' (2005) 40 J. Fin. Quant. An. 283.

371. Rannou Y, 'Banking regulation, behavioural finance and the financial crisis in Europe: Looking to the Kindleberger-Minsky paradigm' (2010) 3 J.R.F.M. 278.
372. Rappaport A, 'New Thinking on How to Link Executive Pay With Performance' (1999) 77 Harv. Bus. Rev. 91.
373. Raviv A and Ciamarra ES, 'Executive Compensation, Risk Taking and the State of the Economy' (August 2011) unpublished manuscript.
374. Raviv A and Landskroner Y, 'The 2007-2009 Financial Crisis and Executive Compensation: Analysis and a Proposal for a Novel Structure' NYU Working Paper No. FIN-09-003 (June 2009).
375. Read D, Lowenstein G, and Rabin M, 'Choice Bracketing' (1999) 19 J. Risk. & Uncert. 171.
376. Reinhart CM, and Rogoff KS, 'This Time is Different: A Panoramic View of Eight Centuries of Financial Crises' NBER Working Paper No. 13882 (March 2008).
377. – – 'The Aftermath of Financial Crises' NBER Working Paper No. 14656 (January 2009).
378. Ribstein L, 'Market vs. Regulatory Responses to Corporate Fraud: A Critique of the Sarbanes-Oxley Act 2002' (2002) 28 J. Corp. L. 1.
379. – – 'Sarbanes-Oxley after three years' University of Illinois Working Paper LE05-016 (August 2005).
380. Richardson SA, Tuna IA, and Wu M, 'Predicting Earnings Management: The case of earnings restatements' (October 2005) unpublished manuscript.
381. Rizzi JV, 'Behavioral Basis of the Financial Crisis' (2008) 18 J. Appl. Fin. 84.
382. Romano R, 'The Sarbanes-Oxley Act and the Making of Quack Corporate Governance' (2005) 114 Yale L. J. 1521.
383. Rosenberg B, Reid K, and Lanstein, R, 'Persuasive Evidence of Market Inefficiency' (1985) 11 J. Port. Man. 9.
384. Ross SA, 'The Economic Theory of Agency: The Principal's Problem' (1973) 63 Am. Econ. Rev. 134.
385. Rosser Jnr JB, 'A Nobel Prize for Asymmetric Information: The economic contributions of George Akerlof, Michael Spence and Joseph Stiglitz' (2003) 15 Rev. Polit. Econ. 3.
386. Saffi PAC, and Sigurdson K, 'Price Efficiency and Short Selling' IESE Business School University of Navarra Working Paper No.748 (April 2008).
387. Sah RK, and Stiglitz JE, 'The Architecture of Economic Systems: Hierarchies and Polyarchies' (1986) 76 Am. Econ. Rev. 716.
388. – – 'The Quality of Managers in Centralized versus Decentralized Organizations' (1991) 106 Q. J. Econ. 289.
389. Salop S, and Stiglitz JE, 'Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersions' (1977) 44 J. Econ. Stud. 493.
390. Saly JP, Jagannathan R, and Huddart SJ, 'Valuing the Reload Features of Executive Stock Options' (1999) 12 Acc. Horiz. 220.
391. Samuelson P, 'Proof that Properly Anticipated Prices Fluctuate Randomly' (1965) 6 Ind. Man Rev. 41.



392. Sanning LW, 'Executive Stock Options and Leverage: Incentives or Optimal Contracting, A Test of Causality' (April 2003).
393. Saunders A, Strock E, and Travlos NG, 'Ownership structure, deregulation, and bank risk taking' (1990) 45 J. Fin. 643.
394. Scharfstein DS, 'The Disciplinary Role of Takeovers (1988) 55 Rev. Econ. Stud. 185.
395. Scharfstein DS, and Stein JC, 'Herd Behavior and Investment' (1990) 80 Am. Econ. Rev. 465.
396. Scholes MS, 'Stock and Compensation' (1991) 46 J. Fin. 803.
397. Schwarcz SL, 'Private Ordering of Public Markets: The Rating Agency Paradox' (2002) 2 U. Ill. L. Rev. 1.
398. – – 'Enron and the Use and Abuse of Special Purpose Entities in Corporate Structures' (2002) 70 U. Cin. L. Rev. 1309.
399. – – 'Disclosure's Failure in the Subprime Mortgage Crisis' Duke Law School Research Paper No. 203 (March 2008).
400. – – 'Conflicts and Financial Collapse: The Problem of Secondary-Management Agency Costs' (2009) 26 Yale J. Reg. 457.
401. – – 'Regulating Complexity' (2009) 87 Wash. U. L. Rev. 211.
402. – – 'Marginalizing Risk' (2012) 89 Wash. U. L. Rev. 487.
403. Schweitzer ME, Ordonez L, and Douma B, 'Goal Setting as a Motivator of Unethical Behavior' (2004) 47 Acad. Man. J. 422.
404. Seligman J, 'The Reformulation of Federal Securities Law Concerning Nonpublic Information' (1985) 73 Geo. L. J. 1083.
405. Seybert N, and. Yang HI, 'The party's over: The role of earnings guidance in resolving sentiment-driven overvaluation' (2012) 12 Man. Sci. 308.
406. Seyhun HN, 'Stock Market Extremes and Portfolio Performance' University of Michigan & Towneley Capital Management Research Paper (1994).
407. Shapiro C, 'Premiums for High Quality Products as Returns to Reputations' (1983) 98 Q. J. Econ. 658.
408. Sharpe WF, 'Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk' (1964) 19 J. Fin. 425.
409. Sharpe S, 'Re-examining Stock Valuation and Inflation: The Implications of Analysts' Earnings Forecasts' (2002) 84 Rev. Econ. Stat. 632.
410. Shiller RJ, 'Do Stock Prices Move Too Much to Be Justified by Subsequent Changes in Dividends?' (1981) 71 Am. Econ. Rev. 421.
411. – – 'Measuring Bubble Expectations and Investor Confidence' (2000) 1 J. Psych. Fin. Mar. 49.
412. – – 'Bubbles, Human Judgment, and Expert Opinion' (2002) Fin. An. J. 18.
413. – – 'From Efficient Market Theory to Behavioral Finance' (2003) 17 J. Econ. Persp. 83.
414. Shleifer A, and Summers LH, 'The Noise Trader Approach to Finance' (1990) 4 J. Econ. Persp. 19.
415. Shleifer A, and Vishny RW, 'Large Shareholders and Corporate Control' (1986) 94 J. Polit. Econ. 461.
416. – – 'Management Entrenchment: The Case of Manager-Specific Investments' (1989) 25 J. Fin. Econ. 123.

417. -- 'Liquidation values and debt capacity: a market equilibrium approach' (1992) 47 J. Fin. 1343.
418. -- 'Limits of Arbitrage' (1997) 52 J. Fin. 35.
419. -- 'A Model of Investor Sentiment' (1998) 49 J. Fin. Econ. 307.
420. -- 'Unstable Banking' (2010) 97 J. Fin. Econ. 306.
421. -- 'Fire Sales in Finance and Macroeconomics' (2011) 25 J. Econ. Persp. 29.
422. Shojai S, and Feiger G, 'Economists' Hubris: The Case of Asset Pricing' (2009) 27 J. Fin. Trans. 9.
423. Sidak GJ, 'The Failure of Good Intentions: The WorldCom Fraud and the Collapse of American Telecommunications after Deregulation' (2003) 20 Yale J. Reg. 207.
424. Simkovic M, 'Secret Liens and the Financial Crisis of 2008' (2009) 83 Am. Bankrupt. L. J. 253.
425. Simon HA, 'A Behavioral Model of Rational Choice' (1955) 69 Q. J. Econ. 99.
426. -- 'Rationality as Process and Product of thought' (1978) 68 Am. Econ. Rev. 1.
427. Smerdon R, 'Shareholder Access in the United Kingdom' (2003) 11 Corp. Gov. Adv. 7.
428. Smith CW, and Stulz RM, 'The Determinants of Firms' Hedging Policies' (1985) 20 J. Fin. Quant. An. 391.
429. Smith DG, 'The shareholder primacy norm' (1998) 23 J. Corp. L. 277.
430. Sonnenfeld JA, 'What makes great boards great' (2002) 80 Harv. Bus. Rev. 106.
431. Spence AM., 'Job market signaling' (1973) 87 Q. J. Econ. 355.
432. Von Holstein CAS, 'Probabilistic forecasting: An experiment related to the stock market' (1972) 8 Org. Behav. Hum. Perf. 139.
433. Stapledon G, 'The Pay for Performance Dilemma' University of Melbourne Legal Studies Research Paper No. 83 (May 2004).
434. Stein JC, 'Securitization, shadow banking and financial fragility' (2010) 139 Daedalus 41.
435. Stephanou C, 'Rethinking Market Discipline in Banking: Lessons from the Financial Crisis' World Bank Policy Research Paper No. 5227 (March 2010).
436. Stigler GJ, 'Imperfections in the Capital Market' (1967) 75 J. Polit. Econ. 287.
437. Stiglitz JE, 'Equilibrium Wage Distributions' (1985) 95 Econ. J. 595.
438. -- 'Capital Market Liberalization, Economic Growth, and Instability' (2000) 28 Wrl. Dev. 1075.
439. -- 'Contributions of the Economics of Information' (2000) 115 Q. J. Econ. 1441.
440. Stiglitz JE, and Rothschild ME, 'Equilibrium in competitive insurance markets' (1976) 90 Q. J. Econ. 629.
441. Stout, L.A., 'Are Takeover Premiums Really Premiums? Market Price, Fair Value, and Corporate Law' (1990) 99 Yale L.J. 1235.
442. -- 'Bad and Not-So-Bad Arguments for Shareholder Primacy' (2002) 75 S. Cal. L. Rev. 1189.
443. -- 'The Mechanisms of Market Inefficiency: An Introduction to the New Finance' (2003) J. Corp. L. 635.

444. – – ‘New Thinking On “Shareholder Primacy”’ UCLA School of Law, Law-Econ. Research Paper No. 11-04 (February 2011).
445. Strine Jnr LE, ‘Towards a True Corporate Republic: A Traditionalist Response to Lucian’s Solution for Improving Corporate America’ (2006) 119 Harv. L. Rev. 1759.
446. Subramanian G, ‘The Influence of Antitakeover Statutes on Incorporation Choice: Evidence on the “Race” Debate and Antitakeover Overreaching’ (2002) 150 U. Penn. Law Rev. 1795.
447. Sutherland AG, ‘The Earnings Per Share Leverage Illusion’ Stern Stewart & Co. Paper (9 June 2009).
448. Taylor B, ‘Shell Shock: why do good companies do bad things?’ (2006) 14 Corp. Gov. 181.
449. Taylor SE, and Brown JD, ‘Illusion and well-being: A social psychological perspective on mental health’ (1988) 103 Psych. Bull. 193.
450. Thaler RH, ‘Mental Accounting and Consumer Choice’ (1985) 4 Mar. Sci. 199.
451. – – ‘Anomalies: The January Effect’ (1987) 1 J. Econ. Persp. 197.
452. Thomas RS, and Martin KJ, ‘The Determinants of Shareholder Voting on Stock Option Plans’ (2000) 35 Wake F. L. Rev. 46.
453. Topol R, ‘Bubbles and Volatility of Stock Prices: Effect of Mimetic Contagion’ (1991) 101 Econ. J. 786.
454. Tosi Jnr HL, and Gomez-Meija L, ‘The decoupling of CEO pay and performance: An agency theory perspective’ (1989) 34 Admin. Sci. Q. 169.
455. Tung F, ‘Pay for Banker Performance: Structuring Executive Compensation for Risk Regulation’ Emory Public Law Research Paper No. 10-93 (March 2010).
456. Tversky A and Kahneman D, ‘Judgement under Uncertainty: Heuristics and Biases’ (1974) 185 Science 1124.
457. – – ‘The Framing Decision and the Psychology of Choice’ (1981) 211 Science 453.
458. – – ‘Rational Choice and the Framing of Decisions’ (1986) 59 J. Bus. 251.
459. – – ‘Loss Aversion in Riskless Choice: A Reference-Dependent Model’ (1991) 106 Q. J. Econ. 1039.
460. Tymoine E, ‘The Minskyan System, Part II: Dynamics of the Minskyan Analysis and the Financial Fragility Hypothesis’ UMKC Department of Economics (June 2006).
461. Useem M, ‘Corporate governance is directors making decisions: reforming the outward foundations for inside decision-making’ (2003) 7 J. Man. Gov. 241.
462. Van Bekkum S, ‘Inside Debt and Enterprise-Wide Bank Risk’ (June 2012) unpublished manuscript.
463. Van den Berghe LAA, and Levrau A, ‘Evaluating Boards of Directors: what constitutes a good corporate board?’ (2004) 12 Corp. Gov. Int. Rev. 461.
464. Varian H, ‘A Model of Sales’ (1980) 70 Am. Econ. Rev. 651.
465. Wallison PJ, ‘Sarbanes-Oxley and the Ebberts Conviction’ American Enterprise Institute for Public Policy Research (June 2005).

466. Warner JB, Watts RL, and Wruck KH, 'Stock Prices and Top Management Changes' (1988) 20 J. Fin. Econ. 461.
467. Weinstein N, 'Unrealistic optimism about future life events' (1980) 39 J. Pers. Soc. Psych. 806.
468. Weisbach M, 'Optimal Executive Compensation versus Managerial Power: A Review of Lucian Bebchuk and Jesse Fried's Pay without Performance: The Unfulfilled Promise of Executive Compensation' (2007) 45 J. Econ. Lit. 419.
469. Wermers RR, Mutual Fund Herding and the Impact on Stock Prices (1999) 54 J. Fin. 58.
470. Whalen CJ, 'Understanding the Credit Crunch as a Minsky Moment' (2008) 51 Challenge 91.
471. Wood DJ, 'Corporate Social Performance Revisited' (1991) 16 Acad. Man. Rev. 691.
472. Yermack DL, 'Higher Market Valuation for Firms with a Small Board of Directors' (1996) 40 J. Fin. Econ. 185.
473. – – 'Good timing: CEO stock option awards and company news announcements' (1997) 52 J. Fin. 449.
474. Youngusband V, 'Corporate Governance in the UK' (1998) 9 Int. Comp. Comm. L. Rev. 275.
475. Zhong M, Darrat AF, and Anderson DC, 'Do US stock prices deviate from their fundamental values? Some new evidence' (2003) 27 J. Bank Fin. 673.

#### **BOOKS:**

476. Aleskerov F, Bouyssou D and Monjardet B, *Utility Maximization, Choice and Preference* (2<sup>nd</sup> edn, Springer 2007).
477. Alexander K, Dhumale R, and Eatwell J, *Global Governance of Financial Systems: The International Regulation of Systemic Risk* (Oxford University Press USA 2005).
478. American Law Institute, *Principles of Corporate Governance: Analysis and Recommendations* (ALI 1994).
479. Asch S, *Social Psychology* (Prentice Hall 1952).
480. Avgouleas E, *The Mechanics and Regulation of Market Abuse: A Legal and Economic Analysis* (Oxford University Press 2005).
481. Avgouleas E, *Governance of Global Financial Markets: The Law, the Economics, the Politics* (Cambridge University Press 2012).
482. Bailey RE, *The Economics of Financial Markets* (Cambridge University Press 2005).
483. Bazerman MH, and Moore D, *Judgment in Managerial Decision-Making* (John Wiley & Sons 2009).
484. Bebchuk LA and Fried JM, *Pay Without Performance: The Unfulfilled Promise of Executive Compensation* (Harvard University Press 2004).
485. Bebczuk RN, *Asymmetric Information in Financial Markets* (Cambridge University Press 2003).
486. Beinhocker ED, *The Origin of Wealth: Evolution, Complexity and the Radical Remaking of Economics* (Random House 2007).

487. Berle AA, and Means GC, *The Modern Corporation and Private Property* (MacMillan 1932).
488. Brunnermeier MK, *Asset Pricing under Asymmetric Information: Bubbles, Crashes, Technical Analysis, and Herding* (Oxford University Press 2001).
489. Butler HN, and Ribstein L, *The Sarbanes-Oxley Debacle: What We've Learned and How to Fix it* (AEI Press 2006).
490. Carpenter MT, *The Risk-Wise Investor: How to Better Understand and Manage Risk* (Wiley 2009).
491. Charkham JP, *Keeping Better Company* (Oxford University Press 2005).
492. Cheffins BR, *Company Law: Theory, Structure and Operation* (Clarendon Press 1996).
493. Coffee Jnr JC, *Gatekeepers: The Professions and Corporate Governance* (Oxford University Press 2006).
494. Cootner PH, *The Random Character of Stock Market Prices* (MIT Press 1964).
495. Copeland T, and Weston J, *Financial Theory and Corporate Policy* (4<sup>th</sup> edn, Pearson 2003).
496. Donaldson G, *Corporate Restructuring* (Harvard Business School Press 1994).
497. Donaldson G, and Lorsch JW, *Decision-Making at the Top* (Basic Books 1983).
498. Dore MHI, *The Macrodynamics of Business Cycles: A Comparative Evaluation* (Blackwell 1993).
499. Easterbrook FH and Fischel DR, *The Economic Structure of Corporate Law* (Harvard University Press 1991).
500. Ellig BR, *The Complete Guide to Executive Compensation* (McGraw-Hill 2007).
501. Foster G, *Financial Statement Analysis* (2<sup>nd</sup> edn, Prentice Hall 1986).
502. Fox L, *Enron: The Rise and Fall* (Wiley 2003).
503. Freeman RE, *Strategic Management: A Stakeholder Approach* (Pitman 1984).
504. Friedman J and Kraus W, *Engineering the Financial Crisis: Systemic Risk and the Failure of Regulation* (University of Pennsylvania Press 2011).
505. Friedman M, *Capitalism and Freedom* (University of Chicago Press, 40<sup>th</sup> Anniversary Edition 2002).
506. Frydman R and Goldberg MD, *Beyond Mechanical Markets: Asset Price Swings, Risk and the Role of the State* (Princeton University Press 2011).
507. Fudenberg D, and Tirole J, *Game Theory* (MIT Press 1991).
508. Geanakoplos J, *Liquidity, Default, and Crashes: Endogenous Contracts in General Equilibrium* (Econometric Society Monographs 2003).
509. Gray J, *The Moral Foundations of Market Institutions* (Institute of Economic Affairs 1992).
510. Green CJ, Pentecost EJ, and Weyman-Jones T, (eds) *The Financial Crisis and the Regulation of Finance* (Elgar 2011).
511. Greenspan A, *The Age of Turbulence: Adventures in a New World* (Penguin 2007).
512. Guttentag JM, and Herring RJ, *Disaster Myopia in International Banking* (Princeton University Essays in International Finance 1986).

513. Hart OD, *Firms, Contracts, and Financial Structure* (Oxford University Press 1995).
514. Harvey D, *A Brief History of Neoliberalism* (2<sup>nd</sup> edn, Oxford University Press 2007).
515. Hirschmann AO, *Exit, Voice and Loyalty: Responses to Decline in Firms, Organisations and States* (Harvard University Press 1970).
516. Hirshleifer J, and Riley JG, *The Analytics of Uncertainty and Information* (Cambridge University Press 1992).
517. Jordana J and Levi-Faur D, (eds) *The Politics of Regulation: Institutions and Regulatory Reforms for the Age of Governance* (Edward Elgar 2004).
518. Jorion P, *Value at Risk: The New Benchmark for Managing Financial Risk* (3<sup>rd</sup> edn, McGraw-Hill 2006).
519. Karatzas I and Shreve SE, *Methods of Mathematical Finance* (Springer 1998).
520. Keynes JM, *The General Theory of Employment, Interest and Money* (Palgrave MacMillan 1936)
521. – – *The Collected Writings of John Maynard Keynes, Volume 29: The General Theory and After: A Supplement* (Palgrave Macmillan 1979).
522. Kindleberger CP, and Aliber RZ, *Manias, Panics and Crashes: A History of Financial Crises* (5<sup>th</sup> edn, Palgrave MacMillan 2005).
523. Knight FH, *Risk, Uncertainty and Profit* (Houghton Mifflin 1921).
524. Kraakman R, Armour J, Davies P, and Enriques L, *The Anatomy of Corporate Law* (2<sup>nd</sup> edn, Oxford University Press 2009).
525. Lewis M, *The Big Short: Inside the Doomsday Machine* (Allen Lane 2010).
526. Lo AW, and McKinlay AC, *A Non-Random Walk Down Wall Street* (Princeton University Press 1999).
527. Lorsch JW and MacIver E, *Pawns or Potentates: Reality of America's Corporate Boards* (Harvard Business School Press 1990).
528. Lowenstein R, *When Genius Failed: The Rise and Fall of Long Term Capital Management* (Fourth Estate 2002).
529. Mandelbrot B, *The (mis)Behaviour of Markets: A Fractal View of Risk, Ruin and Reward* (3<sup>rd</sup> edn, Profile Books 2008).
530. Marazzi C, *The Violence of Financial Capitalism* (MIT Press 2011).
531. Markham JW, *A Financial History of Modern US Corporate Scandals: From Enron to Reform* (Sharpe 2006).
532. Mason P, *Meltdown: The End of the Age of Greed* (Verso 2009).
533. Minsky HP, *John Maynard Keynes* (2<sup>nd</sup> edn, McGraw-Hill 2008)
534. – – *Stabilizing an Unstable Economy* (2<sup>nd</sup> edn, McGraw-Hill 2008).
535. Niskanen WH (ed), *After Enron: Lessons for Public Policy* (Rowman & Littlefield 2007).
536. Outhwaite W, (ed) *The Blackwell Dictionary of Modern Social Thought* (Blackwell 2002).
537. Parker C, *The Open Corporation: Effective Self-regulation and Democracy* (Cambridge University Press 2002).
538. Partnoy F, *Infectious Greed: How Deceit and Risk Corrupted the Financial Markets* (Profile 2003).
539. Posner RA, *Economic Analysis of Law* (7<sup>th</sup> edn, Aspen Publishers 2007).
540. Pozen R, *Too Big To Save? How to Fix the U.S. Financial System* (John Wiley & Sons 2010).

541. Redleaf A, Vigilante R, *Panic: The Betrayal of Capitalism by Wall Street and Washington* (Richard Vigilante Books 2010).
542. Reinhart CM, and Rogoff KS, *This Time Is Different: Eight Centuries of Financial Folly* (Princeton University Press 2009).
543. Ross SA, Westerfield RW, and Jordan BD, *Fundamentals of Corporate Finance* (5<sup>th</sup> edn, McGraw-Hill 2000).
544. Roubini N, and Mihm S, *Crisis Economics: A Crash Course in the Future of Finance* (Allen Lane 2010).
545. Schoutens W, *Levy Processes in Finance: Pricing Financial Derivatives* (Wiley 2003).
546. Shefrin H, *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing* (Harvard Business School Press 2000).
547. Shiller, RJ, *Irrational Exuberance* (2<sup>nd</sup> edn, Princeton University Press 2005).
548. Shleifer A, *Inefficient Markets: An Introduction to Behavioral Finance* (Oxford University Press 2000).
549. Soros G, *The Alchemy of Finance* (2<sup>nd</sup> edn, John Wiley & Sons 1994).
550. – – *The Crisis of Global Capitalism: Open Society Endangered* (Public Affairs 1998).
551. Skidelsky R, *Keynes: The Return of the Master* (Penguin 2009).
552. Smithers A, *Wall Street Revalued: Imperfect Markets and Inept Central Bankers* (John Wiley & Sons 2009).
553. Taleb NN, *The Black Swan: The Impact of the Highly Improbable* (Penguin 2007).
554. Teall J, *Governance and the Market for Corporate Control* (Routledge 2007).
555. Tett G, *Fool's Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets and Unleashed a Catastrophe* (Little, Brown 2009).
556. Tirole J, *The Theory of Corporate Finance* (Princeton University Press 2006).
557. Valdez S, and Molyneux P, *An Introduction to Global Financial Markets* (6<sup>th</sup> edn, Palgrave MacMillan 2010).
558. Weston JF, Mitchell ML, and Mulherin JH, *Takeovers, Restructuring, and Corporate Governance* (4<sup>th</sup> edn, Prentice Hall, 2008).
559. Williamson OE, *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm* (Prentice Hall 1964).

#### **CONTRIBUTIONS TO EDITED WORKS:**

560. Avgouleas E, 'Reforming Investor Protection Regulation: The Impact of Cognitive Biases' in Faure M, and Stephen F, (eds), *Essays in the Law and Economics of Regulation, in Honour of Anthony Ogus* (Intersentia 2008).
561. Barberis N, and Thaler RH, 'A Survey of Behavioral Finance' in Constantinides GM, Harris M, and Stulz R, (eds), *Handbook of the Economics of Finance* (Elsevier 2003).

562. Blair MM, 'The Neglected Benefits of the Corporate Form: Entity Status and the Separation of Asset Ownership from Control' in Grandori A, (ed), *Corporate Governance and Firm Organization: Microfoundations and Structural Forms* (Oxford University Press 2005).
563. Boone P, and Johnson S, 'Will the politics of global moral hazard sink us again?' in Turner A, and others, *The Future of Finance: The LSE Report* (London School of Economics and Political Science 2010).
564. Cornford A, 'Enron and Internationally Agreed Principles for Corporate Governance and the Financial Sector' in Dembinski PH, Lager C, Cornford A, and Bonvin JM, (eds), *Enron and World Finance: A Case Study in Ethics* (Palgrave MacMillan 2006).
565. Crotty J, 'Are Keynesian Uncertainty and Macrotheory Compatible? Conventional Decision-Making, Institutional Structures, and Conditional Stability in Keynesian Macromodels' in Pollin R, and Dymski G, (eds) *New Perspectives in Monetary Macroeconomics* (University of Michigan Press 1994).
566. De Bondt WFM, and Thaler RH, 'Financial decision making in markets and firms: a behavioral perspective' in Jarrow RA, Maksimovic V, and Ziemba WT, (eds), *Handbooks in Operations Research and Management Science: Finance* (North-Holland 1995).
567. Dharan BG, and Bufkins WR, 'Red Flags in Enron's Reporting of Revenues and Key Financial Measures' in Rapoport N, and Dharan BG, (eds), *Enron: Corporate Fiascos and Legal Implications* (Foundation Press 2004).
568. Dobinson I, and Johns F, 'Qualitative Legal Research' in McConville M, and Hui WC, (eds), *Research Methods for Law* (Edinburgh University Press 2007).
569. Dobson J, 'Enron: The Collapse of Corporate Culture' in Dembinski PH, Lager C, Cornford A, and Bonvin JM, (eds), *Enron and World Finance: A Case Study in Ethics* (Palgrave MacMillan 2006).
570. Dow S, 'The Psychology of Financial Markets: Keynes, Minsky and Emotional Finance' in Papadimitriou DB, and Wray LR, (eds), *The Elgar Companion to Hyman Minsky* (Elgar 2009).
571. Esposito A, Dallas G, and Badial GK, 'United States' in Dallas G, (ed), *Governance and Risk*, (McGraw-Hill 2004).
572. Ferrarini G, 'Bankers' Compensation and Prudential Supervision: The International Principles' in Hill J, and Thomas R, (eds), *Research Handbook on Executive Compensation* (Edward Elgar 2012).
573. Fischhoff B, 'For those condemned to study the past: Heuristics and biases in hindsight' in Kahneman D, Slovic P, and Tversky A, (eds), *Judgment under Uncertainty: Heuristics and biases* (Cambridge University Press 1982).
574. Grossman SJ, and Hart OD, 'Corporate Financial Structure and Managerial Incentives' in McCall J, (ed), *The Economics of Information and Uncertainty* (University of Chicago Press 1982).
575. Haldane AG, Brennan S, and Madouras V, 'The contribution of the financial sector: Miracle or Mirage?' in Turner A, and others, *The Future of Finance: The LSE Report* (London School of Economics, 2010).



576. Hall BJ, 'A Better Way to Pay CEOs?' in Carpenter J, and Yermack DL, (eds), *Executive Compensation and Shareholder Value* (Kluwer Academic Publishers 1999).
577. Hallock KF, 'Dual Agency: Corporate Boards with Reciprocally Interlocking Relationships' in Carpenter J and Yermack DL, (eds), *Executive Compensation and Shareholder Value: Theory and Evidence* (Kluwer Academic Publishers 1999).
578. Harris AB, and Kramer AS, 'Corporate Governance: Pre-Enron, Post-Enron' in Niskanen WH, (ed), *After Enron: Lessons for Public Policy* (Rowman & Littlefield 2007).
579. Heaton J, and Lucas D, 'Stock Prices and Fundamentals' in Bernanke BS, and Rotemberg JJ, (eds), *NBER Macroeconomics Annual 1999* (MIT Press 2000).
580. Higgins ET, 'Knowledge Activation: Accessibility, Applicability and Salience' in Higgins ET, and Kruglanski AW, (eds), *Social Psychology: Handbook of basic principles* (Guildford Press 1996).
581. Kaplan RS, 'The Information Content of Financial Accounting Numbers: A Survey of Empirical Impact' in Abdel-Khalik AR, and Keller TF, (eds), *The Impact of Accounting Research on Practice and Disclosure* (Duke University Press 1978).
582. Kay J, 'Should we have "narrow banking"?' in Turner A, and others, *The Future of Finance: The LSE Report* (London School of Economics, 2010).
583. Kirkpatrick G, 'The Corporate Governance Lessons from the Financial Crisis' in OECD, *Financial Market Trends* (OECD 2009).
584. Lucas RE, 'Econometric Policy Evaluation: A Critique' in Brunner K, and Meltzer AH, (eds), *The Phillips Curve and Labor Markets* (Elsevier 1976).
585. Matthews RCO, 'Public Policy and Monetary Expenditure' in Wilson T, and Skinner AS, (eds), *The Market and the State: Essays in Honour of Adam Smith* (Oxford University Press 1976).
586. Mayer C, 'Financial Systems, Corporate Finance and Economic Development' in Hubbard RG, (ed), *Asymmetric Information, Corporate Finance and Investment* (University of Chicago Press 1990).
587. McCulley P, 'The Shadow Banking System and Hyman Minsky's Economic Journey' in Siegel L, (ed), *Insights into the Global Financial Crisis* (Research Foundation of CFA Institute Publications 2009).
588. Minsky HP, 'The financial instability hypothesis', in Kindelberger CP, and Laffargue, JP, (eds), *Financial crises: Theory, history, and policy* (Cambridge University Press 1982).
589. Mitch D, 'Chicago and the development of twentieth century labor economics' in Emmett RB, (ed), *The Elgar Companion to the Chicago School of Economics* (Edward Elgar 2010).
590. Murphy KJ, 'Executive Compensation' in Ashenfelter O, and Card D, (eds), *Handbook of Labor Economics* (Elsevier 1999).
591. – – 'Executive Compensation: Where We Are, and How We Got There' in Constantinides G, Harris M, and Stulz R, (eds), *Handbook of the Economics of Finance* (Elsevier Science North Holland, Forthcoming).
592. Picciotto S, 'Regulatory Networks and Multi-Level Global Governance' in Dilling O, Herberg M, and Winter G, (eds), *Responsible Business:*

- Self-governance and the law in transnational economic transactions* (Hart 2008).
593. Radner R, and Stiglitz JE, 'A Nonconcavity in the Value of Information' in Boyer M, and Khilstrom R, (eds), *Bayesian Models in Economic Theory* (Elsevier Science Publications 1984).
594. Sheehan K, 'Say on pay and the outrage constraint' in Hill J, and Thomas R, (eds), *Research Handbook on Executive Compensation* (Edward Elgar 2012).
595. Simon HA, 'Rational Choice and the Structure of the Environment' in Simon HA, *Models of Man: Social and Rational* (John Wiley 1957).
596. Von Mises L, 'Economic Calculation in the Socialist Commonwealth' in Hayek FA, (ed), *Collectivist Economic Planning* (first published 1920; Augustus M Kelley 1975).
597. Winter J, 'Corporate Governance Going Astray: Executive Remuneration Built to Fail' in Hill J and Thomas R, (eds), *Research Handbook on Executive Compensation* (Edward Elgar 2012).
598. Woolley P, 'Why are financial markets so inefficient and exploitative – and a suggested remedy' in Turner A, and others, *The Future of Finance: The LSE Report* (London School of Economics, 2010).

#### CONFERENCE PAPERS/SPEECHES:

599. Bebchuk LA, Remarks at 'Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium' Columbia Business School, 27-28 March 2010.
600. Bellofiore R, 'The Financial Instability Hypothesis and the 'New' Capitalism', Paper presented to the workshop, 'The complexity of financial crisis in a long-period perspective: facts, theory and models' University of Siena, 23-24 March 2009.
601. Carney M, Governor of the Bank of Canada, 'Addressing Financial Market Turbulence', Remarks to the Toronto Board of Trade, 13 March 2008.
602. Coffee Jnr JC, Remarks at 'Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium', Columbia Business School, 28 March 2010.
603. Dugan JC, Comptroller of Currency, Remarks at the Annual Convention of The American Bankers Association, San Diego, 8 October 2007.
604. Flannery MJ, 'What to do about TBTF?' Paper presented at the Federal Reserve Bank of Atlanta 2010 Financial Markets Conference: 'Up from the Ashes: The Financial System after the Crisis' Atlanta, Georgia, 12 May 2010.
605. Geithner T, US Treasury Secretary, 'Statement on Compensation', U.S. Dept. of Treasury, TG-163, 10 June 2009.
606. Greenspan A, 'The Challenge of Central Banking in a Democratic Society' speech before the American Enterprise Institute for Public Policy Washington DC, 5 December 1996.
607. Haldane AG, 'Why Banks Failed the Stress Test' The basis for a speech given at the Marcus-Evans Conference on Stress-Testing, 9-10 February 2009.

608. – – ‘Rethinking the Financial Network’, Speech delivered at the Financial Student Association, Amsterdam, April 2009.
609. – – ‘Patience and Finance’ Speech given at Oxford China Business Forum, Beijing, China, September 2010.
610. Haldane AG, and Davies R, ‘The Short Long’ Speech at the 29th Société Universitaire Européenne de Recherches Financières Colloquium: New Paradigms in Money and Finance? Brussels, May 2011.
611. Levitt A, SEC Chairman, ‘The Numbers Game’ Speech at NYU Centre for Law and Business, 28 September 1998.
612. Lipton M, ‘Corporate Governance: Major Issues for the 1990’s’, Address to the Third Annual Corporate Finance Forum at the J. Ira Harris Center for the Study of Corporate Finance, University of Michigan School of Business, 6 April 1989.
613. Mehran H, Remarks at ‘Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium’ Columbia Business School, 27-28 March 2010.
614. Picciotto S, ‘Regulatory Networks and Global Governance’ W.G Hart Legal Workshop: The Retreat of the State: Challenges to Law and Lawyers, London, 27-29 May 2006.
615. Rees B, Remarks at ‘Governance, Executive Compensation, and Excessive Risk in the Financial Services Industry: A Research Symposium’ Columbia Business School, 27-28 March 2010.
616. UN-backed Principles for Responsible Investment Conference – ‘Institutional Investors, Risk/Return and Corporate Governance Failures: Practical Lessons from the Global Financial Crisis’ San Francisco, 5-7 October 2009.
617. Yellen JL, President and CEO, Federal Reserve Bank of San Francisco, ‘Meeting the Challenges of the Financial Crisis’ Presentation to the 18<sup>th</sup> Annual Hyman P. Minsky Conference on the State of the US and World Economies, Levy Economics Institute of Bard College, 16 April 2009.

## LEGISLATIVE TESTIMONY:

### US:

618. Greenspan A, Chairman, Board of Governors of the Federal Reserve System, *Federal Reserve’s Second Monetary Policy Report for 2002 Before S. Comm. Banking, Housing, & Urban Affairs*, 107th Cong. 7–32 (2002).
619. Lo AW, Harris & Harris Group Professor, MIT Sloan School of Management), *Hedge Funds, Systemic Risk, and the Financial Crisis of 2007–2008: Hearing Before the H. Comm. on Oversight and Government Reform Hedge Funds*, 110th Cong. 26 (2008).
620. Torres F, Legislative Counsel, Consumers Union, *Hearing Before the United States Senate Committee on Governmental Affairs, on the Collapse of Enron: The Role Analysts Played and the Conflicts They Face* (27 February 2002) 6. 2002 WL2011028.

**UK:**

621. Darling A, HC Deb 6 June 2006, vol 461 col 125.  
622. Lord Goldsmith, Lords Grand Committee, *Company Law Reform Bill* (HL 2005-06, 190-I) 255.

**NEWSPAPERS AND PERIODICALS:**

623. Aldrick P, 'Bonus clawbacks should be in all director contracts, says think tank Policy Exchange' *The Daily Telegraph* (London, 5 June 2012).  
624. Andrews EL, 'Greenspan Concedes Error on Regulation' *New York Times* (New York, 23 October 2008).  
625. Barrionuevo A, 'Enron Chiefs Guilty of Fraud and Conspiracy' *New York Times* (New York, 25 May 2006).  
626. Bawden T, 'FBI targets senior bankers in far-reaching sub-prime fraud enquiry' *The Times* (London, 31 January 2008).  
627. Bebchuk LA, 'Why Shareholders Must Have More Power' *Financial Times* (London, 22 October 2003).  
628. Bebchuk LA, Cohen A, and Spamann H, 'Bankers had cashed in before the music stopped' *Financial Times* (London, 6 December 2009).  
629. Blinder AS, 'Six Errors on the Path to the Financial Crisis' *New York Times* (New York 25 January 2009).  
630. -- 'Crazy Compensation and the Crisis' *Wall Street Journal* (New York, 28 May 2009).  
631. Bolchover D, 'Business as usual on executive pay?' *Financial Times* (London, 9 June 2009).  
632. Bolton L, 'Sarbox hell' *Accountancy Magazine* (London, March 2006).  
633. Bootle R, 'House prices could fall back a long way after their excessive rises' *The Daily Telegraph* (London, 14 July 2008).  
634. Boyd R, 'The last days of Bear Stearns' *Fortune* (New York, 31 March 2008).  
635. Cassidy J, 'Rational Irrationality – An Interview with Eugene Fama' *The New Yorker* (New York, 13 January 2010).  
636. Coffee Jnr JC, 'Analyzing the Credit Crisis: Was the SEC Missing in Action?' *New York Law Journal* (New York, 5 December 2008).  
637. Economist, 'Credit Derivatives: The Great Untangling' *The Economist* (New York, 6 November 2008) 85-86.  
638. Conway E, 'IMF puts total cost of crisis at £7.1 trillion' *The Daily Telegraph* (London, 8 August 2009).  
639. Croft J, 'London to nationalise troubled mortgage lender' *Financial Times* (London, 18 February 2008).  
640. Davis J, 'How a fat tail comes home to roost' *Financial Times* (London, 30 July 2007).  
641. Drawbaugh K, 'US SEC Clears New Net-Capital Rules For Brokerages' *Reuters News Agency* (28 April 2004).  
642. Farrow P, 'How long does the average share holding last? Just 22 seconds' *The Daily Telegraph* (London, 18 January 2012).

643. Feldstein M, 'How to Stop the Mortgage Crisis' *Wall Street Journal* (New York, 7 March 2008).
644. Friedman J, 'Bank Pay and the Financial Crisis' *Wall Street Journal* (New York, 28 September 2009).
645. Fox J, 'Amazing Stock Option Sleight of Hand' *Fortune* (London, 25 June 2001).
646. Goff S, and Cohen N, 'Bank lending: The manager says no' *Financial Times* (London, 30 August 2010).
647. Gray A and Burgess K, 'Investor fury at executive pay policies' *Financial Times* (London, 12 May 2012).
648. Grice A, '£850bn: official cost of the bank bailout' *The Independent* (London, 4 December 2009).
649. Grundfest J, 'What's Needed is Uncommon Wisdom' *New York Times* (New York, 6 October 2009).
650. Hodgson P, 'The original sin of executive pay' *The Washington Post* (Washington, 17 April 2012).
651. Holmstrom B, and Kaplan RS, 'The Dangers of Too Much Governance' *MIT Sloan Management Review* (Boston, 15 October 2003).
652. Hughes J, 'Completion of SIV asset disposal near' *Financial Times* (London, 7 July 2009).
653. Jacobs R, 'Investor activism re-emerges' *Financial Times* (London, 1 June 2012).
654. Jenkins P, 'Regulators outline banking blueprint' *Financial Times* (London, 1 November 2010).
655. Jensen MC, 'Face value: How to Pay Bosses' *The Economist* (New York, 14 November 2002).
656. Kirkup J, 'World facing worst financial crisis in history, Bank of England Governor says' *The Daily Telegraph* (London, 6 October 2011).
657. Kolman J, 'LTCM Speaks' *Derivatives Strategy* (New York, April 1999).
658. Labaton S, 'Agency's '04 Rule Let Banks Pile Up New Debt' *New York Times* (New York, 2 October 2008).
659. Lambert R, 'Sir Ralph's lessons on short-termism' *Financial Times* (London, 22 May 2011).
660. Landy H, 'Behind the Big Paydays' *The Washington Post* (Washington, 15 November 2008).
661. Larsen PT, 'Goldman pays the price of being big' *Financial Times* (London, 13 August 2007).
662. Lublin JS, 'Why the Get-Rich-Quick Days May be Over' *Wall Street Journal* (New York, 14 April 2002).
663. Mandelbrot BB, 'How Fractals Can Explain What's Wrong with Wall Street' *Scientific American* (Boston, 15 September 2008).
664. Mandelbrot BB, and Taleb NN, 'A focus on the exceptions that prove the rule' *Financial Times* (23 March 2006).
665. McCrone A, 'Triumph of the grey suit brigade' *The Sunday Times* (4 December 2005).
666. Mihm S, 'Why Capitalism Fails' (2009) *The Boston Globe* (Boston, 14 September 2009).
667. Milne R, 'Watch out for a short, sharp end to the business cycle' *Financial Times* (London, 25 May 2011).

668. Mollenkamp C, and Flitter E, 'Insight - At least three banks seen central to Libor rigging' *Reuters News Agency* (New York, 28 July 2012).
669. Monks R, 'Stock Options Don't Work: If CEOs want shares, let `em buy some' *Fortune* (New York, 18 September 1995).
670. Moore J, 'Fury as Goldman Sachs unveils bankers' pay' *The Independent* (London, 15 January 2012).
671. Morgenson G, 'Market Watch: Time For Accountability At the Corporate Candy Store' *New York Times* (New York, 3 March 2002).
672. – – 'Corporate Conduct: News Analysis; Bush Failed to Stress Need to Rein in Stock Options' *New York Times* (New York, 11 July 2002).
673. Norris F, 'SEC Ends Decades-Old Price Limits on Short Selling' *New York Times* (New York, 14 June 2007).
674. – – 'It May Be Outrageous But Wall Street Pay Didn't Cause This Crisis' *New York Times* (New York, 30 July 2009).
675. Oakley D and Pickard J, 'Cable to unveil revised executive pay plans' *Financial Times* (London, 13 June 2012).
676. O' Driscoll S, and Dey I, 'Barclays in 'fake' mortgage storm' *The Sunday Times* (London, 4 September 2009).
677. Patterson S and Smith P, 'How to Make Top People's Pay Reflect Performance' *The Sunday Times* (London, 9 August 1998).
678. Pickard LA, 'Viewpoint: SEC's Old Capital Approach Was Tried – And True' *American Banker* (New York, 8 August 2008).
679. Porter A, 'Brown defends Northern Rock nationalisation' *The Daily Telegraph* (London, 18 February 2008).
680. Porter A, Kirkup J, and Rayner G, 'Financial crisis: HBOS and RBS 'to be nationalised' in £50 billion state intervention' *The Daily Telegraph* (London, 12 October 2008).
681. Salmon F, 'The Biggest Weakness of Basel III' *Reuters News Agency* (24 September 2010).
682. Scanell K, 'Citi pays \$285m to settle SEC case' *Financial Times* (London, 20 October 2011).
683. Seager A and Inman P, 'US Steps in to Rescue Failing Home Loan Giants' *The Guardian* (Manchester, 8 September 2008).
684. Smith G, 'Why I Am Leaving Goldman Sachs' *New York Times* (New York, 12 March 2012).
685. Soros G, 'America must face up to the dangers of derivatives' *Financial Times* (London, 23 April 2010).
686. Spiegel P, 'Spain seeks eurozone bailout' *Financial Times* (London, 9 June 2012).
687. Stiglitz JE, 'Capitalist Fools' *Vanity Fair* (New York, January 2009).
688. Tett G, and Drummond J, 'NY Fed president warns of risk to structured credit' *Financial Times* (London, 12 May 2005).
689. Thomas Jnr L, and Dash E, 'Seeking Fast Deal, JP Morgan Quintuples Bear Stearns Bid' *New York Times* (New York, 25 March 2008).
690. Treanor J, 'Vince Cable moves to give shareholders binding vote on executive pay' *The Guardian* (Manchester, 14 March 2012).
691. Trianan P, 'No sense in reforming Var' *Financial Times* (London, 1 March 2009).
692. Tully S, 'Raising the Bar' *Fortune* (London, 8 June 1998).

693. Webb MS, 'Trust index sinks to an all-time low' *Financial Times* (London, 29 June 2012).

## REPORTS:

694. Association of British Insurers, *Principles of Remuneration* (September 2011).
695. American Bar Association, *Report of the Task Force of the ABA Section of Business Law Corporate Governance Committee* (August 2009).
696. – – *Principles of Corporate Governance: Analysis and Recommendations* (1994).
697. Bank for International Settlements, *Basel II: International Convergence of Capital Measurement and Capital Standards – A Revised Framework* (June 2006).
698. – – *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in 2007 – Final results* (December 2007).
699. – – *Basel III: A global regulatory framework for more resilient banks and banking systems* (December 2010).
700. Batson N, Second Interim Report OF Court-Appointed Examiner, In re. Enron Corp., No. 01-16034 (Bankr. S.D.N.Y Jan. 21, 2003).
701. Basel Committee on Banking Supervision, *Range of Methodologies for Risk and Performance Alignment of Remuneration* (May 2011).
702. Bloomberg LLC, Financial Analyst Function; Bear Stearns Companies Inc., Form 10-K, for the fiscal year ended November 30, 2006, filed February 13, 2007.
703. Business Roundtable, *Executive Compensation: Principles and Commentary* (January 2007).
704. CalPERS, *Global Principles of Accountable Corporate Governance* (November 2011).
705. Council of Institutional Investors, *Corporate Governance Policies* (December 2011).
706. Deloitte, *Board Leadership: A Global Perspective* (Deloitte Global Center for Corporate Governance May 2010).
707. – – *Your Guide: Executive directors' remuneration in FTSE 250 companies* (April 2012).
708. Department for Business, Innovation and Skills, *Executive Remuneration: discussion paper* (September 2011).
709. – – *Executive Pay: Shareholder Voting Rights Consultation* (March 2012)
710. Department of Trade and Industry, *Modern Law for a Competitive Economy: The Strategic Framework, A Consultation Document from the Company Law Review Steering Group* (February 1999) DTI (URN 0 1/942).
711. Enron Annual Report, 2000.
712. European Central Bank, *Financial Stability Review* (June 2006).
713. European Commission (de Larosiere Group), *The High Level Group on Financial Supervision in the EU* (25 February 2009).
714. – – *Accompanying Document to the Proposal for a Directive of the European Parliament and of the Council Amending Capital*

- Requirements Directive on trading book, securitization issues and remuneration policies: Impact Assessment* (C(2009) 362).
715. – – *Green Paper on Corporate Governance in Financial Institutions and Remuneration Policies* (C(2010) 284).
716. Financial Reporting Council, *UK Corporate Governance Code* (June 2010).
717. Financial Services Authority, ‘Final Notice: The “Shell” trading and Transport Co., p.l.c.’ (24 August 2004).
718. – – *Letter on Remuneration Policies* (13 October 2008).
719. – – *The Turner Review: A regulatory response to the global banking crisis* (March 2009).
720. – – *Reforming remuneration practices in financial services CP 09/10* (March 2009).
721. – – *Consultation Paper: Reforming remuneration practices in financial services CP09/10* (August 2009).
722. – – *Policy Statement: Reforming remuneration practices in financial services PS09/15* (August 2009).
723. – – *Reforming remuneration practices in financial services: Feedback on CP09/10 and final rules PS 09/15* (August 2009).
724. – – *Revising the Remuneration Code CP10/19* (July 2010).
725. – – *The failure of the Royal Bank of Scotland* (December 2011).
726. – – *Final Notice: Bank of Scotland Plc*, Ref. 169628 (9 March 2012).
727. Financial Stability Board, *Principles for Sound Compensation Practices: Implementation Standards* (September 2009).
728. – – *Thematic Review on Compensation – Peer Review Report* (March 2010).
729. Group of Twenty, *The Declaration of the Summit on Financial Markets and the World Economy* (Washington, November 2008).
730. Hewitt Associates, *Total Compensation Measurement, Executive Long-Term Incentives and Regression Analysis Report, 2002* (April 2002).
731. High Pay Commission, *Cheques With Balances: why tackling high pay is in the national interest* (2010).
732. HM Treasury, *A new approach to financial regulation: the blueprint for reform* (Cm 8083, 2011).
733. House of Commons Treasury Committee, *Banking Crisis: reforming corporate governance and pay in the City* Ninth Report of Session 2008-09 HC 519 (12 May 2009).
734. House of Commons Treasury Committee, *The run on the Rock*, Fifth Report of Session 2007-08 HC 56-I (January 2008).
735. Huron Consulting Group, *2004 Annual Review of Financial Reporting Matters: Final Report* (March 2005).
736. International Institute of Finance, *Compensation in Financial Services: Industry Progress and the Agenda for Change* (March 2009).
737. – – *Principles of Conduct and Best Practice Recommendations, Financial Services Industry Response to the Market Turmoil of 2007-2008: Final Report of the IIF Committee on Market Best Practices* (July 2008).
738. International Monetary Fund, *Global Financial Stability Report: Containing Systemic Risks and Restoring Financial Soundness* (April 2008).



739. International Corporate Governance Network, *Statement on Global Corporate Governance Principles: Revised 2009* (November 2009).
740. Missal M, *Final Report of Michael Missal, Bankruptcy Court Examiner, in re: New Century Holdings, Inc. Chapter 11, case no. 07-10416 (KJC), US Bankruptcy Court of the District of Delaware* (February 2008).
741. Moore, Carter & Associates, *The RiskMinds 2009 Managers' Survey: The causes and implications of the 2008 banking crisis* Cranfield School of Management (2010).
742. National Association of Corporate Directors, *Public Company Governance Survey* (November 2001).
743. National Commission on the Causes of the Financial and Economic Crisis in the United States, *The Financial Crisis Inquiry Report*, Pursuant to Public Law 111-21 (January 2011).
744. New York Stock Exchange, *Report of the New York Stock Exchange Commission on Corporate Governance* (September 2010)
745. NYSE/NASDAQ, *Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees* (1999).
746. Organization for Economic Co-operation and Development, *Principles of Corporate Governance* (2004).
747. – – *The Corporate Governance Lessons from the Financial Crisis: Key Findings and Main Messages* (2009).
748. Options Group, *2007 Global Financial Market Overview & Compensation Report* (November 2007).
749. Powers Jnr WC, Troubh RS, and Winokur HS, *Report of Investigation by the Special Investigative Committee of the Board of Directors of Enron Corp.* (1 February 2002) 98.
750. President's Working Group on Financial Markets, *Policy Statement on Financial Market Developments* (March 2008).
751. Securities and Exchange Commission Staff Report, *Implications of the Growth of Hedge Funds* Report No.41 (September 2003).
752. U.S. Gen. Accounting Office, *Financial Statement Restatements: Trends, Market Impacts, Regulatory Responses and Remaining Challenges* Pub. No. 03-138 (October 2002).
753. U.S. Senate, *The Role of the Board of Directors in Enron's Collapse*, Report prepared by the Permanent Subcommittee on Investigations of the Committee in Governmental Affairs, 107<sup>th</sup> Congress 2d Session, Report 107-70 (8 July 2002).
754. – – *The Restoring American Financial Stability Act 2010* Report No. 111-176 (April 2010).
755. Tonello M, 'Revisiting Stock Market Short-Termism' The Conference Board Research Report No. R-1386-06-RR (April 2006)
756. Valukas AR, *Final Report, Bankruptcy Court Examiner, in re: Lehman Brothers Holdings Inc. et al, Chapter 11 Case No. 08-13555 (JMP) US Bankruptcy Court of the District of New York*, (March 2010).
757. *Walker Review on Corporate Governance in UK Banks and Other Financial Industry Entities: Final Recommendations* (November 2009)
758. White & Case LLP, *Repricing Underwater Stock Options* (October 2008).

## WEBSITES/BLOGS:

759. Buitter W, 'The unfortunate uselessness of most 'state of the art' academic monetary economics' available at <http://blogs.ft.com/maverecon/2009/03/the-unfortunate-uselessness-of-most-state-of-the-art-academic-monetary-economics/> accessed 26/06/12.
760. Bainbridge SM, 'Will the Unaccountable Power of RiskMetrics Put Teeth in the Dodd Bill's Say on Pay Provision?' (22 April 2010) available at [www.professorbainbridge.com/2010/04/will-the-unaccountable-power-of-risk-metrics-put-teeth-in-the-dodd-bills-say-on-pay-provision.html](http://www.professorbainbridge.com/2010/04/will-the-unaccountable-power-of-risk-metrics-put-teeth-in-the-dodd-bills-say-on-pay-provision.html) accessed 26/06/12
761. Casey WJ, and Leu R, 'United States: New Executive Compensation Disclosures Under Dodd-Frank' (3 August 2010) available at [www.mondaq.com/unitedstates/article.asp?articleid=106962](http://www.mondaq.com/unitedstates/article.asp?articleid=106962) accessed 25/06/12.
762. Greenspan A, 'Market crisis 'will happen again'' BBC Interview (8 September 2009) available at <http://news.bbc.co.uk/1/hi/8244600.stm> accessed 14/06/12.
763. Phillippon T, 'Are Bankers Paid Too Much?' VOX (2 February 2009) available at [www.voxeu.org/index.php?q=node/2966](http://www.voxeu.org/index.php?q=node/2966) accessed 14/06/12.
764. Williamson C, 'Institutional investors pour into hedge funds' *Pensions and Investments* (November 14 2011) [www.pionline.com](http://www.pionline.com) accessed 06/03/12.