



## Regulatory technologies, risky subjects, and financial boundaries: Governing ‘fraud’ in the financial markets <sup>☆</sup>

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### A B S T R A C T

Among the myriad changes to have impacted the regulation of financial markets in recent years, one of the most significant yet least recognized is the growing role of technology in the regulatory process where it is used to detect emerging problems in the marketplace and guide the enforcement process. Current applications range from surveillance technologies, to datamining and risk profiling tools, to data visualization and graphing programs. Using the term ‘regulatory technologies’, this paper examines in detail two such technologies and assesses not only their benefits and limitations, but also their more subtle role in shaping the very criteria through which financial transactions and market actors are represented, framed, and assessed for their regulatory merit. To the extent that this process hinges on the ability to make distinctions on the grounds of risk, typicality, and appropriateness, these technologies play a critical role in shaping the boundaries of enforcement and thus the scope and depth of the regulatory vision. This is revealed to have significant implications for our understanding of the place of technology in regulation and for the types of questions that must be addressed in discussions of financial governance.

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### Introduction

In their bid to flush out financial misconduct and protect the integrity of the markets, regulatory agencies of various stripes and colours have increasingly turned to technological solutions. Spurred by advancements in computing power, speed, and storage capacity, as well as new analytical capabilities such as searchable databases, computational intelligence, and data visualization tools, regulators are now able to probe much further into the depths of the market. The specific applications of these technologies are extensive and include monitoring the Internet for changes in market sentiment, surveying the flow of buy and sell orders for signs of insider or manipulative trading, and probing the social network of market participants for evidence of connections bearing on the

legality of trading activity. Indeed, these developments reflect very real changes in the markets themselves which have morphed from open outcry pits to primarily electronic transactions (Zaloom, 2003, 2006) executed at break-neck speeds often in the absence of human intermediation.<sup>1</sup> The result is a greater visibility of market transactions and, one would imagine, increased opportunities for regulatory oversight.

Despite these developments, very little research exists on the role of technology not only in securities and financial regulation, but also in regulation more generally. To the extent that technology is addressed, it tends to be reduced to a more narrowly conceived informational capacity and thus one of the many arrows in the regulatory

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<sup>1</sup> This is evident in the rapid growth of algorithmic or ‘black box’ trading in which buy and sell orders are placed by preprogrammed supercomputers responding to minuscule changes or trends in share price. These forms of trading, which account for approximately 70% of daily trading volume (Basen, 2010), raise fundamental questions as to the availability of information and the ability of more sophisticated investors to profit from informational asymmetries that are largely artifacts of computing speed.

quiver, rather than an aspect of regulation that is deserving of study in its own right. Informed by the results of a multi-year study of securities regulation in Canada, this paper seeks to remedy this oversight through an extended analysis of ‘regulatory technologies’ and their place within, and their influence on, the practice of regulation. Eschewing the view of technology as a mere vehicle for recording and organizing data of regulatory interest, with technology conceived here simply as an extension of its human operators, attention is instead devoted to the regulatory possibilities contained in the technologies themselves; that is, to their role as active agents proactively scanning available market data for signs of trouble and then feeding the results to their human counterparts. In recognizing this more active role of technology in the regulatory process, this paper draws from two key literatures – ‘critical accounting’<sup>2</sup> and the ‘social studies of finance’ – which acknowledge the social and institutional contexts of accounting and finance as well as the role of calculative technologies and devices not only in representing market activities or financial transactions, but also in shaping and indeed constituting these very practices. Working within these analytical veins, the focus of this paper extends well beyond the promises or failures of regulatory technologies to include their underlying logics and assumptions, their embeddedness within specific institutional contexts and legal processes, and the types of market ‘misconduct’ that they produce. Ultimately then, the question is how technology shapes the field, scope, and logics of regulatory engagement producing particular forms of disorder to the exclusion of others all the while constituting ‘finance’ and ‘the market’ itself in the process.

This analysis unfolds through three core sections. The first section offers a more fulsome account of exactly what is meant by the term ‘regulatory technologies,’ its relevance to the contemporary context of financial markets and securities regulation, and the various influences which have driven the ever greater importation of technologies into the regulatory process. It then examines in detail two specific regulatory technologies that have assumed a prominent role in the daily practice of securities enforcement<sup>3</sup>: (1) real-time market surveillance and (2) datamining and risk profiling. Having identified their assumptions, tendencies, and practical limitations, the second section turns to the unintended consequences and less obvious side-effects of these technologies including their role in signaling rather than necessarily enhancing agency competencies and, even more critically, reproducing more narrowly cast and at the same time heavily moralized conceptions of trouble,

risk, and disorder. The paper then concludes with a discussion of the implications of the analysis for future research including the need to extend the conversation around regulatory technologies to other areas of financial regulation such as auditing whose technological attributes are similarly overlooked and underappreciated.

### ‘Regulatory technologies’ and financial markets

Recently, much has been made of the proliferation of technologically mediated forms of surveillance and their role in deepening societal interventions into the lives and life chances of individuals. While the bulk of this attention has been devoted to the control of individual bodies and identities as they move through social and geographical space, and thus the use of technologies such as video surveillance and biometric scanning (e.g. Amoores & de Goede, 2008; Haggerty & Ericson, 2006; Hier, 2010; Lyon, 2001, 2007), similar developments are evident in domains such as money laundering and terrorist financing where computerized datamining programs and risk profiling tools have been enlisted to track the flow of illicit funds as part of the financial front of the ‘War on Terror’ (Amoores & de Goede, 2005; de Goede, 2008; Levi & Wall, 2004; Razavy & Haggerty, 2009). Applications also abound in the corporate world where sophisticated forensic auditing programs, data mining applications, and risk profiling tools are used by private agencies to identify risks and to weed out vulnerabilities on behalf of well-heeled corporate clients (Williams, 2005).

Largely overlooked within these accounts is the growing use of technology in the regulatory sphere, particularly in the context of financial markets whose electronic embodiments make them ideally suited to exactly this kind of technological monitoring. Specific examples of the technologies available to regulators include artificial intelligence programs designed to scan the Internet for rumours and changes in public sentiment, profiling tools used to identify risky players or products, and sophisticated computer surveillance programs monitoring the ebb and flow of trading for unexplained changes in price and volume, the potential footprints of insider and/or manipulative trading. And yet, despite these applications, the place of technology in the regulatory process has not been subject to any kind of serious inquiry with these technologies either scanted entirely or mentioned only in passing (e.g. Reichman, 1993; Shapiro, 1984). Indeed, Black (2001) is among the few to have explicitly recognized this gap, “The role of technology in regulating is not yet part of the mainstream regulatory literature... it is something that needs to be explored more systematically in the study of any regulatory system” (p. 138).

While the place of technology in the regulatory sphere has so far failed to attract sustained scholarly interest, one body of work that has paid a great deal of attention to technology’s role in the world of finance is what is generally referred to as the ‘social studies of finance.’ Informed by the seminal contributions of Latour (2005) and Callon (1998), and the larger tradition of science and technology studies, this literature focuses on the role of various mechanisms, devices, and technologies not simply in rep-

<sup>2</sup> While there is bound to be disagreement as to exactly what qualifies as ‘critical accounting,’ and perhaps even the meaningfulness of the term itself, it used in this paper to refer to a diverse body of work that acknowledges the existence of accounting as a social and institutional rather than simply technical practice, and which seeks to unpack its social, political, and institutional dimensions. It is thus distinctly sociological in nature and orientation.

<sup>3</sup> Securities enforcement, as distinguished from securities regulation, refers to the practice of detecting and taking action against alleged breaches of securities laws, a function performed by formally designated units within larger regulatory agencies. While technology permeates the entire regulatory process, including the compliance function, enforcement provides a unique window into the role of regulatory technologies in responding to more serious threats to market integrity and transparency.

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