

Institutional pressures on financial services firms: the role of information systems in regulatory compliance

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INSTITUTIONAL PRESSURES ON FINANCIAL SERVICES FIRMS: THE ROLE OF INFORMATION SYSTEMS IN REGULATORY COMPLIANCE

Complete Research

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Abstract

The financial crisis of 2008 led to new international regulatory controls for the governance, risk and compliance of financial services firms. Information systems play a critical role here as political, functional and social pressures may lead to the deinstitutionalization of existing structures, processes and practices. This research examines how an investment management system is introduced by a leading IT vendor across eight client sites in the post-crisis era. Using institutional theory, it examines changes in working practices occurring at the environmental and organizational levels and the ways in which technological interventions are used to apply disciplinary effects in order to prevent inappropriate behaviors. The results extend the constructs of deinstitutionalization and identify empirical predictors for the deinstitutionalization of compliance and trading practices within financial organizations.

Keywords: Financial Services Industry, Investment Management Systems, Institutional Forces, Regulatory Compliance

1 Introduction

The financial crisis of 2007 has precipitated large scale changes in working practices across the financial services industry. The crisis has highlighted how the failure of organizations engaged in trading securities, such as Lehman Brothers, may have dire economic and social consequences at a national and global level. As a result, there has been increasing public pressure on governments to develop more laws and regulations designed to prevent inappropriate trading behaviours and so protect a firm's employees, customers and shareholders and not least, the economic wellbeing of the state. The study utilizes institutional theory to examine institutional political, functional and social pressures (Oliver, 1992) on financial organizations, channelled and applied through technology. We are interested to observe how these pressures may cause working practices to become discontinued or eroded over time. The study has two distinct objectives. Firstly, by utilising institutionalist concepts in exploring the role of technology in implementing regulatory change, we aim to identify the institutional pressures which may either stabilize or change existing governance, regulation and compliance practices. This is achieved by investigating the role of technology in applying not only functional pressures relating to technical specification but also, pressures rooted in social and political dimensions. Secondly, the research aims to highlight to practitioners and policy makers the empirical predictors of the abandonment or erosion of established compliance practices within financial services.

The paper is divided into five sections. First, we present an overview of our theoretical concepts which are taken from the literature on institutional theory. Next, we present our conceptual model which incorporates an environmental and organizational level of analysis. We then present our methods. The following section discusses our key findings from our empirical investigation. We then provide some analysis linked to our conceptual model. Finally, we draw some conclusions and recommendations for further work.

2 Institutional Theory

Pressures exacted on states through public demands and expectations typically displace previously institutionalised practices that were formerly considered appropriate or legitimate (Oliver 1992). Literature outlining the process by which social structures become institutionalised (Currie, 2004 (Currie 2004; Devereaux and Greenwood 2003; Greenwood et al. 2008; Hasselbladh and Kallinikos 2000; Tolbert and Zucker 1983) is more plentiful than those defining the process by which institutions become eroded or discontinued (Oliver 1992). Haunschild and Chandler (2008 p.360) observe that, 'the process of institutionalisation is a cycle – institutions emerge, diffuse, change, die, and are replaced by new institutions'. Studies which have empirically investigated the deinstitutionalisation process are rare as various scholars have noted (Ahmadjian and Robinson 2001; Dacin and Dacin 2008; Maguire and Hardy 2009; Scott 2008). Within IS research, the use of institutional theory is relatively recent and so the existing literature also lacks investigation of the role of technology in the deinstitutionalisation process (Currie 2004; Mignerat and Rivard 2009; Nicholson and Sahay 2009).

Empirical studies using institutional concepts have concentrated on a variety of settings and phenomena. Fligstein (1990) showed how federal antitrust regulation ruled out horizontal mergers and Davis, Diekmann and Tinsley Davis et al. (1994) investigated how changing regulatory environments and shifts in power and resources, contributed to the breakup of U.S business conglomerates. Kraatz and Zajac (1996) highlighted how technical and economic pressures may cause organizations to adopt practices which are contrary to embedded organizational values. Greve (1995) emphasized how the abandonment of strategies, in this study a radio format, is driven jointly by behavioural contagion and competition from other organizations. Ahmadjian and Robinson (2001) examined the role of downsizing in the deinstitutionalisation of permanent employment among publicly listed companies in Japan and found that economic pressures caused downsizing, with social and institutional pressures shaping the pace and process by which downsizing spread. David and Bitektine (2009) suggest that the

expansion of institutional theory has peaked and that the use of the theory itself is becoming deinstitutionalised. Hiatt, Sine and Tolbert (2009) examined the deinstitutionalisation of breweries and the corresponding creation of entrepreneurial opportunities. Maquire and Hardy (2009) concentrated on the abandonment of wide-spread but taken for granted practices regarding the use of DDT and focused on 'outsider-driven' deinstitutionalisation driven from actors outside the organizational field.

While these studies draw on concepts relating to institutional erosion or abandonment; the linkages between political, functional and social pressures (Oliver, 1992) are not always made explicit. Nor are the pressures for deinstitutionalisation which change existing field and organizational structures. Dacin and Dacin (2008) extended Oliver's (1992) framework by highlighting the roles played by custodians, collective memory and ritual in the lighting of traditional bonfires on university campus. Within IS, one study looks at software export policy making in Costa Rica and the effects of subcultures in the generation of dissensus contributing to the deinstitutionalisation process (Nicholson and Sahay, 2009). Yet studies which empirically investigate the role of technology in the deinstitutionalization process are scarce. Within organization theory, the use of institutional concepts is well developed, but less so within the IS field. More specifically, we did not find any studies which link institutional theory, information systems and the financial crisis. As Munir (2011) notes, the application of institutional theory to investigate the effects and processes of the 2008 financial crisis has been surprisingly scarce. The only previous study identified in the IS literature which considered investment management systems (IMS) in the pre-crisis financial environment. This study considered the role of the compliance function across four client sites (Currie 2008). Our study builds on the body of work using institutional concepts relating to political, functional and social pressures on existing structures and practices within the compliance function. Our interest is to understand the role of an IMS in an environment where regulatory change within capital markets is likely to increase both the profile and practice of compliance officers as they interpret and implement new rules and methods..

3 Conceptual Model

The financial services industry is a complex environment where the creation, maintenance and stability of existing structures and practices is faced with political, functional and social pressures for change. Prior work within institutional theory provides a guiding framework for these pressures using the organization and industry as two important levels of analysis (Oliver (1992 p. 564). Following the financial crisis of 2008, pressures for deinstitutionalisation of some established or institutionalized organizational practices in the financial industry intensified as their legitimacy became tarnished as a result of poor practice and financial irregularity. Table 1 gives an overview of some of these political, functional and social pressures in the financial services industry. Following the collapse of Lehman Brothers bank, and various other financial 'trading' scandals, politicians in the U.S and Europe were keen to impose new financial Directives and laws to tighten up the governance, risk and compliance (GRC) of the financial industry. However, conflicting institutional logics of market behaviour, where traders compete to secure huge profits for their organizations (and large bonuses for themselves) were apparently in direct conflict with ethical concerns about the negative consequences of 'casino' banking (Economist, 2012). A consequence of this seemingly insurmountable dilemma was to develop government policies to seek a compromise between a 'rules-based' approach to GRC and a 'principles-based' approach. The former suggests the tightening of the rules to force financial services firms to demonstrate or prove they are complying with new regulations, whereas the latter focuses on developing a more effective code of practice (or conduct) for the industry (KPMG, 2012).

Table 1. Political, Functional and Social Pressures on the Financial Services Environment and Organizations

Level of Analysis	Political Pressure	Functional Pressure	Social Pressure
Organization	Failing Financial Organizations	Expanding role of compliance function	Skills and Competencies Shortages
	IT vendor endorsement of GRC systems	Increasing need for customization of technical solution	Interpretation of new compliance rules
Environment	Rule-based or Principles-based regulation	Financial Industry competition and outsourcing	Reputation and legitimacy of the financial industry
	Conflicting industry logics of markets and business ethics	Integration of external and internal GRC	De-regulation and disaggregation of financial services

Figure 1 develops a conceptual model from our observations of the financial services industry outlined in Table 1. It is used to guide our research. The debate over what levels of risk are appropriate within our financial systems has been precipitated as a result of the financial crisis. An outcome of this dialogue is the reduction of society's appetite for risk in its economic systems, leading to enhanced regulatory frameworks which are interpreted collectively and individually and transcribed into material structures and practices, such as IMSs. Post-crisis regulatory obligations seek to deinstitutionalize existing processes, systems and rules in order to ultimately prevent inappropriate trading behaviours and transactions.

In 2009, the G20 met in Pittsburgh and defined new measures aimed at preventing another financial crisis. As a response to the financial crisis, we have seen a new regulatory landscape being formed with many post-crisis mandates and pieces of legislation being drafted and passed. From a systems perspective, the ability to accurately access, monitor and structure transaction related information is essential to meeting regulatory requirements. New regulatory obligations will require organizations to set limits on specific types of transactions, calculate exposures to certain securities, calculate risk values, and perform pre and post-trade analysis on compliance positions and leveraging limits. The role of information systems is critical in this new regulatory environment. This is not to suggest a technological determinist perspective, but to recognize that investment management systems, developed by IT vendors and implemented in financial services firms play an essential role in meeting new regulatory rules. Our conceptual model captures the environmental and organizational space in which the IMS is introduced. The IMS provides functionality by applying disciplinary effects to enable or constrain decisions or actions to improve compliance practices. This is achieved by inscribing regulatory rules into automated rules, embedded within the system, which are applied to control the trading process.

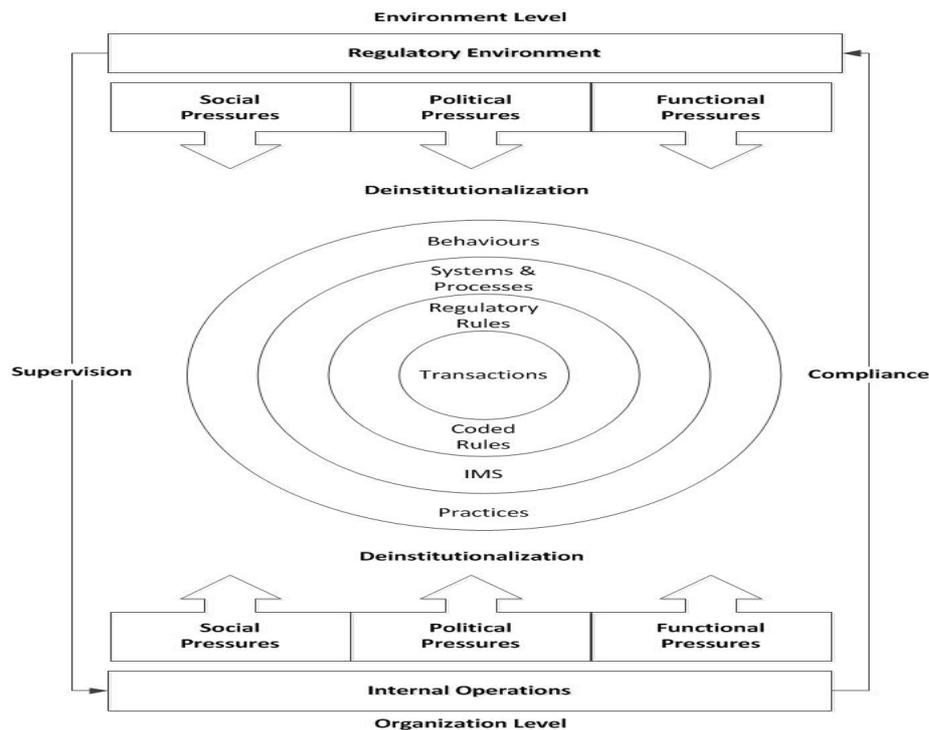


Figure 1. Institutional Pressures on Financial Services and the role of investment management systems

Previous institutional studies into changes within capital markets have broadly considered two types of theoretical perspectives for understanding organizational changes in behaviour. Structural or systemic explanations have focused on changes driven by, ‘inevitable and irreversible market forces or the structure of the international state system’, while proponents of agency emphasize, “the interaction between actors’ pursuit of self-interest (and shifts in those interests) and pre-existing institutions in shaping both domestic and international financial market structures and regulation” (Deeg 2010 p.321 & p.323). These perspectives correspond with a contemporary debate within institutional theory regarding views on the primacy of structure and agency (Heugens and Lander 2009; Seo and Creed 2002). By espousing the view that populations of organizations will become increasingly isomorphic as they collectively adopt institutions over time, structuralists emphasize the role of macro social forces. However, those who place primacy on agency find this approach too deterministic and highlight the perspective that individuals within organizations have varying degrees of discretion in responding to institutional pressures.

Within the research context, we observe institutional change at two levels at the environmental level where legislative mandates are changing the rules enforced by regulatory bodies and at the organizational level where these changes are deinstitutionalizing established working practices. We contend that such an approach is necessary as political, functional and social pressures within financial services cannot be understood by examining only one level of analysis. Political pressures to change financial services practices may result from shifts in interests or power distributions which support existing institutions. Governments are keen to exercise their regulatory powers to safeguard economic interests and also to demonstrate to citizens that proper controls are in place to prevent further financial scandals. Functional pressures to deinstitutionalise practices may arise from changes to the perceived utility or the technical instrumentality of existing institutions. Our focus on investment management systems is important, not least because this technology is required by regulators, but also because financial services clients demand ‘best of breed’ IT systems. Social pressures relate to ‘normative fragmentation’ or a loss of cultural consensus or agreement as to meanings and

interpretations attached to organizational tasks and activities. The concept of regulatory compliance, while previously seen as a 'back office function' is now becoming critical within the financial services domain. The reputation and legitimacy of the financial services industry is embedded in the public consciousness and the loss of trust in banking by citizens is of major concern to the political elite and also the financial organizations they seek to regulate.

4 Research Method

The study uses a semi-structured interviewing technique. In-depth interviews were carried out at an IMS vendor site, in addition to eight client sites, all of which had previously adopted the system. In addition, three consultants working in the area of regulation and compliance were interviewed to provide further clarification of post crisis change in the industry. Our objective was to elicit views and comments from interviewees engaged in utilising the IMS and structuring compliance practices. Interviewees provided rich and insightful responses to questions about the post-crisis environment in financial services and also about the use of information technology for governance and compliance. Organizations engaged in asset management and investment banking activities were selected as the research focus, as these business areas require the on-going trading of financial securities and so are heavily impacted by various areas of post-crisis regulation for capital markets. The study aims to provide insights into typical cases of IMS usage at top tier financial institutions. Our adoption of a 'typical case' sampling strategy required a search for information-rich cases which were illustrative of IMS adoption in such organizations (Patton 1990). The IMS Vendor was selected under the criterion of being one of the market leading providers of IMS, whose customer base included global financial organizations engaged in asset management and investment banking activities trading in high volumes and high values.

Sampling criteria for selecting the IMS vendor's clients focused on identifying typical cases and so considered organizations which were using the IMS to manage comparable financial products and services and thus had a similar level of regulatory exposure, and were also long term adopters of the system utilising it for a minimum of ten years. The financial organizations participating used the IMS for trading equities, derivatives, fixed income and currency securities. Long term adoption of the system was a necessary sampling criterion to ensure that IMS related practices were embedded within each organization prior to the crisis. Consequently, participant individuals had a perspective of how the system has facilitated changes in the ways in which compliance practices are constituted, post-crisis. Semi-structured interviews allowed the flexibility to pursue new topics as the discussion evolved (Punch 2005). Such an approach has previously proved successful in providing the necessary depth to explore complex and dynamic regulatory phenomena. This method entails the researcher equipping themselves with an interview agenda containing questions. Examples of the types of question used in our interview agenda include, "*What is the role of the IMS in delivering the new pre-trade transparency requirements in both the US and EU jurisdictions?*" This question provided perspectives of how the IMS facilitates common areas of regulatory change. Within the participant organizations considered, the strategy for data collection involved interviewing a diverse range of stakeholders (Silverman 2001).

Errore. L'origine riferimento non è stata trovata. Table 2. summarizes the approach to data collection. At the vendor site, senior systems consultants and client relationship managers were interviewed. This was especially insightful as collectively they had much experience of implementing IMS and dealing with clients, post and pre crisis. Further clarification of complex areas of regulation and post crisis change was facilitated by interviews with external consultants engaged in regulatory change projects. Within the financial organizations, compliance and systems experts were interviewed. In total, thirty-eight interviews were conducted with individuals from the system vendor, independent consultancies as well as the eight financial organizations. These interviews were conducted over four phases from 2009-2013. At the end of each data collection phase, time was allocated to reflect on the answers and update the question guide. These updates were based not only on interview responses but

also developments relating to emerging regulatory responses to the crisis. Over this time period responses to the financial crisis became more developed and demarcated. As the regulations became more defined, the reactions of the system vendor and financial organizations to these changes also became more granular.

Primary Data Collection			
		1 IMS Vendor (9 Interviews)	8 Financial Organizations (29 Interviews)
IMS Senior Relationship Manager (1)		3 Interviews	
IMS Consultants (2)		6 Interviews	
Trading Professionals (3)			5 Interviews
Compliance Professionals (8)			13 Interviews
IT Professionals (8)			11 Interviews
Secondary Data Sources			
IMS Manuals	IMS Website and Marketing Literature	Financial Organizations' Website and Marketing Literature	EU and US Post-crisis Regulation and Commentary from Legal and Accounting Firms

Table 3. Summary of Primary and Secondary Data Collection

Secondary data was collected from systems manuals, firm’s annual reports, websites, emails and sales and marketing literature aimed at the vendor’s clients or the system adopters’ clients. External data analysed included the websites of regulatory bodies and industry reports on regulatory practices. Typically, interviewees were re-contacted during transcription and analysis in order to provide clarification on key issues. Scope, depth and consistency were achieved by discussing key concepts, constructs and terminology with each of the informants and triangulating the findings across primary secondary and external data sources (Flick 1998). During the process of data analysis primary and secondary data was closely reviewed to determine points of importance and interest. Common themes were identified and categories assigned. Thus, long interviews were simplified through the adoption of simple categories (Punch 2005). These categories of meaning were derived through the construction of a research key. Initially, the research key outlined categories which related to key themes, such as ‘Technical Pressures’. The key was expanded as more transcripts were considered. Subcategories were later derived from themes which emerged from the data, such as ‘Use of Rule Templates Systems’. In this way, key issues and experiences were highlighted, isolated and related to the study’s theoretical underpinnings.

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5 An Investment Management System: Examples from Eight Financial Services Clients

The IMS vendor is a well-established compliance systems solutions provider, in business since the early 1980’s. The IMS was initially developed and marketed within the U.S as a system for compliance with U.S mandates but is now used to manage compliance in numerous countries. The Vendor employs around 175+ developers and spends millions of dollars annually on research and development activities. Much of this expenditure is focused on ensuring the system keeps pace with the rate of regulatory change. The Vendor provides over 1600 predefined automated compliance rules for 35 regulatory bodies in 20 countries. In addition, the firm provides various services around the IMS including: implementation and consulting services, data management, connectivity to broker/dealers and other trading venues, application management and hosting, technical support and educational courses around the IMS. The Vendor’s clients are predominately medium to large financial organizations. The Vendor has over three hundred clients across the globe, with a significant

presence in America, Europe and Asia. The IMS scope is confined to the buying and selling of securities for investment purposes, termed 'buy-side'. The term is used to distinguish between a another completely distinct sub-set of investment banking activities which are focused around bringing new products to market, termed 'sell side'.

The IMS focuses exclusively on facilitating practices around the 'buy-side' of the investment banking industry. However, many of the Vendor's clients, the larger financial organizations, may engage in both buy and sell side activities. The Vendor's clients operate in the institutional asset and fund management, hedge funds, wealth management, insurance, banking and pension markets. Organizations operating in these markets are focused on purchasing securities for investment purposes and accruing revenues through making shrewd investments, often on behalf of clients. For example, Asset Management Houses may attract clients looking to invest capital from a charity or pension fund in order to meet specific returns required by that organization. The system's key functionality allows individuals in various roles to collaborate on the purchase or selling of securities. Senior Traders/ Fund Managers define orders for the selling or purchase of assets. These orders are then fulfilled by Traders in line with the parameters and tolerances stipulated within the order. Each transaction is checked against automated compliance rules. The IMS generates warnings and alerts where these rules are breached. Compliance executives monitor rule breaches and sign off trades to ensure on-going compliance. The system also provides auditable records of transactions and how associated compliance breaches were managed. The IMS imports and collates market information from various data vendors, such as Thompson Reuters or Bloomberg, to evaluate compliance positions against shifting market values. The system enables Senior Traders/Fund Managers to perform pre-trade analysis and define and create orders through functionality, termed the 'Workbench'. This aspect of the system allows the evaluation of compliance implications for an order before sending it to the trader for execution. Once orders have been created, the system allows traders to execute orders through the Vendor's network which connects to various broker/dealers and trading venues. Depending on the type of asset being traded this process may be automated through predefined algorithms. These algorithms are written by broker/dealers and then 'linked' into the IMS. Orders may also be executed manually by Traders over the network or via telephone and then entered into the system. After orders have been executed, the asset holdings are held within the system and monitored against changes in the markets. At the heart of the IMS is the 'rules library' which consists of automated compliance rules. Regulations and legal mandates defined by organizations such as the FSA or SEC are interpreted, translated and codified by compliance executives and systems experts into 'automated compliance rules', which are then inscribed into the IMS and applied on a transaction-by-transaction basis. That is, each transaction must be compliant with the relevant regulatory requirements. Consequently, the corresponding automated rules are run against each transaction.

Once the EU Directives or Acts of U.S Congress have been passed, they are interpreted by the home county's regulatory body. Based on legislation, these regulatory bodies define and publish specific rules and principles which organization's operating under the jurisdiction of that regulatory body must adhere to. Within the UK, these regulatory rules are collated within the Regulator's Handbook, which outlines all the requirements for firms over which it has jurisdiction. A senior compliance professional at one of the Vendor's clients described the process of creating automated rules as coding quantitative restrictions for investment compliance. Typically these 'quantitative restrictions' or compliance rules put limits on the numbers of assets traders may buy or sell. The quantity of rules may be vast. One financial organization had upwards of twenty-five thousand rules. The automated rules are stored in a database known as the 'rules library'. The IMS provides an interface for designing and building rules, in-house. Orders are automatically checked against the compliance rules when the orders are created in the 'Workbench' and also during an overnight batch process once they have been processed. In addition, Traders may check their orders against the compliance rules at any point but they must instigate this calculation. These checks are performed in real-time as they consider the financial holdings against live market data. The key assumption is that all relevant holdings and positions are recorded within the systems in order to provide a holistic aggregated view of the firm's compliance. Checks against the compliance rules generate alerts' and warnings which are forwarded to the Trader

and if necessary the compliance team. Traders can then acknowledge the alert or warning, notify others upon correction of the problem, request higher-level approval, or override the alert or warning as appropriate.

The exact structure of this process is configurable through the system's 'Workflow' which allows organizations to ensure that key individuals are appropriately informed when warnings and alerts are generated and that they have access to the functionality required to make the necessary corrections or overrides. Furthermore, the separation in the 'Workflow' of Senior Traders/Fund Managers who create orders with those Traders fulfilling and executing orders reduces the possibility of rogue traders making unauthorized market calls, as in theory one individual cannot create and execute an order. Often breaches are dealt with by selling securities to ensure limits and concentrations return to acceptable levels. The IMS also creates alerts if orders are not executed or corrected in a reasonable time frame. To enable and assist the analysis of warnings, alerts and breaches the IMS provides a compliance dashboard which allows compliance executives and Traders to drill down to view the compliance rules, trade information, security details, positions, and trades contributing to the transaction under consideration. The system also provides reporting functionality to generate historical and trend reports in order to measure and compare different compliance violations over time. Other available reports address compliance concentrations, alerts, overrides and data administration issues.

To summarize, the system allows financial organization to analyze, design and execute orders by importing market data and conducting transactions through trading venues. The system provides an aggregated record of all the assets currently being held. The IMS facilitates the inscription of regulatory rules into automated compliance rules and tests which are run against the orders and holdings recorded in the system to ensure compliance breaches are identified and managed. The system provides a configurable process to allow the monitoring and management of these compliance rules and resultant warnings, alerts and breaches.

6 Institutional Pressures on Compliance Practices

The data raised interesting questions regarding the relationship between the process of institutionalisation and deinstitutionalisation. Often, there exists a dissonance between theoretical constructs of institutionalism and empirical research (Hasselbladh and Kallinikos, 2000). Our findings show that the process of deinstitutionalisation often takes place around the institutionalisation of a new practice. This raises the question of whether deinstitutionalisation is merely a by-product of the institutionalisation process and where the boundaries and interfaces between the two processes exist. This obfuscation of concepts may explain why studies of deinstitutionalisation are rarer than studies of institutionalisation. A further confusion is the focus on institutional change which often assumes a process of deinstitutionalization. While we note prior criticisms levelled at the 'vagueness' of institutional theory, our study attempts to provide further clarity of institutional concepts by empirically testing them in the context of how investment management systems are introduced into financial services as part of the regulatory agenda set out by international governments.

The findings from our study suggest that increasing innovation; changing institutional rules and values; emerging events and data; mounting performance crisis and changing economic utility are all likely to deinstitutionalise existing practices within financial services organizations. The study also suggests that social fragmentation (Oliver, 1992) may lead to deinstitutionalisation. However, the study builds on this concept and highlights how social fusion, the building of consensus and agreement regarding practices and norms, may displace embedded practices which fall outside this consensus. The results show that normative fragmentation may occur as discordant views emerge between the organization's members, regarding the meanings and interpretations attached to working practices. The first phase of the study revealed that the IMS vendor collaborates with key clients to define generic templates of pre-written automated rules. These templates inscribe specific regulatory rules, thereby providing standardized responses to new regulations which are then disseminated to the Vendor's wider client base. In this way, collective meanings and interpretations were attached to

technical responses to new regulations. We found no evidence of structural disaggregation. Instead, our analysis builds on this useful construct in that structural aggregation, the increased interactivity of dispersed geographical entities, may also cause working practices to be discontinued. Evidence of both structural aggregation and normative fusion was found at both intra-organizational and field levels. This is perhaps unsurprising, as conceptually they are related. While normative fusion refers to the building of consensus, structural aggregation refers to a reduction in geographical and parochial differentiation, which assists consensus building.

The use of technology to centralize governance practices and achieve efficiencies is well established (Ross and Weill 2005). Given these findings, scenarios where organizations move towards an aggregated, as opposed to fragmented strategy, seems likely to occur often. Furthermore, it is interesting to note that the creation, dissemination and application of standardised rule templates through the Vendor to various firms was unsuccessful due to nuances in each organizations data and asset classification. However, at the intra-organizational level this approach of developing standardised templates of automated rules is being applied within organizations across global divisions. As data and asset classification are already harmonised across different geographical operations within the same firm. The findings shows that increasing technical specificity may cause deinstitutionalisation and shows how this pressure may be applied at the field level, by entities on which the organization is dependant becoming increasingly prescriptive in the results the practices by which they are achieved.

The study revealed that financial organizations have a degree of discretion when choosing how to respond to regulatory requirements at the field or intra-organisational level, although this is being diminished through the adoption of prescriptive regulatory rules. Organizations may control their exposure to regulatory responsibilities by being selective over the types of transaction in which they engage and the products they offer. They also have some degree of choice over the types of systems and processes they adopt to meet regulatory obligations.

We define the empirical predictors of deinstitutionalization which extends prior work within institutional theory (Oliver, 1992). Table summarizes these predictors and highlights the factors contributing to the abandonment or erosion of established practices within financial services.

Intra-organizational Factors

Political Dissensus

Declining organizational performance or crisis
Dissensus between the Regulator and proponents of embedded organizational practices

Changes in functional necessity

Removal of manual processes and adoption of automated systems
Loss of discretion in in how compliance practices are implemented
Need to efficiently reallocate resources and share best practice

Changes in Social Consensus

Agreement regarding standardisation/best practice
Greater cohesion in compliance and trading practices across geographical operations

Organizational Field Relations

Social environment pressures

Changing regulations
Changing societal expectations regarding regulatory governance and supervision
International consensus regarding regulatory change and reform

Random external occurrences

Unforeseen financial events and data

Political Conflict

Conflict between internally derived and embedded working practices and newly formed regulatory expectations

Changes in functional requirements

Greater technical specificity and prescription in regulatory rules

Table 3. Empirical predictors of deinstitutionalization within financial services

7 Conclusions

This research has examined institutional pressures on financial services firms following the financial crisis of 2008. An environmental and organizational level of analysis shows a complex institutional field where regulators, financial services firms, IT vendors and clients of investment banking all attempt to develop effective governance, risk and compliance processes and practices. While political pressures exercised through mandatory regulatory compliance force financial services firms to introduce new methods and techniques to meet these new laws and rules, functional pressures where firms must demonstrate to regulators and clients they have appropriate systems and applications in place are less stringent. The IMS vendor needs to demonstrate the value of the IMS to potential clients, as the competition in this market is large. In turn, the clients also had to convince their own investors that effective business processes and technologies were in place to prevent financial fraud. Technology is crucial as it facilitates the erosion, displacement or abandonment of practices which occur as the result of pressures emanating from the environment or within the organization or both. The research underlines how technologies may act as institutional carriers by embedding working practices within organizations. Consequently, technologies may facilitate deinstitutionalisation by removing individuals' access to these practices. Digital work has a key role to play in facilitating change by applying disciplinary effects to enable or constrain practices and thereby produce new patterns of action for meeting enhanced regulatory obligations (Labatut et al. 2012). We identify the relationships between regulatory institutions and the technological and human ensembles they create as future avenues of research in other industries, such as healthcare. We advocate the need for further study within this area to understand how digital practices for compliance are derived, managed and disseminated in contemporary settings. Furthermore, future studies may wish explore the demarcation between processes of deinstitutionalization and institutionalization to understand how they are interrelated within the context of regulatory change. In conclusion, the financial crisis and associated enhancements in regulatory obligations has created new technical, political and social pressures leading to technological alterations and intrusions into compliance related digital work.

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