Abstract

The financial crisis of 2007-2009 has precipitated large scale regulatory change. Tight deadlines for implementation require organizations to start working on remediation projects before final drafts of regulations are crystalized. Firms are faced with engaging in complex and costly change management programs at a time when profits are diminished. As a consequence of these factors, pre-crisis logics for organizing compliance practices are being questioned and new approaches introduced. Our study explores the use of Investment Management Systems (IMS) in facilitating compliance arrangements. Our motivation is to understand the new logics and the part played by IMS in supporting these approaches. The study adopts an institutional logics perspective to explore the use of such systems at eight financial organizations. The study found new logics for organizing compliance include consolidation, centralization, harmonization and consistency and that the IMS plays an important role in supporting and enabling related activities.

Keywords: Institutional Logics, Compliance, Investment Management Systems
Introduction

Within Investment Banking, the post-crisis environment is distinguished by reduced margins, higher operating costs, reduced bonus payments and crucially radical changes to the regulatory environment as new obligations are introduced (The Economist, 2012; OECD, 2008). These factors are causing changes in financial organizations’ operational practices, as new logics for arranging compliance emerge. Consequently, organizations are reviewing and altering the practices and systems employed to deliver compliance and ensure new regulatory requirements are met within designated timeframes and managed on an on-going basis. The financial crisis of 2007-2009 and the resultant Great Recession has highlighted how the failure of financial organizations may have dire economic and social consequences at a national and global level. The ‘Breakthrough Ideas in IS’ track calls for papers which ‘explore novel topics of scientific or societal interest’ and so this paper seeks to explore the use of a cutting edge technology in meeting new regulatory requirements aimed at safeguarding our economic systems. A key area that currently distinguishes the financial sector from other industries is the depth and breadth of regulatory changes being enacted globally that is causing large scale institutional changes to the way financial systems function. This scale of financial reform has not been enacted since the Great Depression (The Economist, 2010). However, the new regulations are highly dependent on technologies which were not available at the time of the Great Depression, to aggregate, calculate monitor and report transaction related data. Our study takes an Investment Management System (IMS) which performs such tasks as its case. Our paper seeks to answer the following research question: What is the role of the IMS in supporting new logics for managing compliance in the post-crisis environment? Specifically, our study aims to make a contribution by exploring the ways in which the IMS is facilitating compliance with new but uncertain regulatory environments.

In 2009, the G20 met in Pittsburgh and defined new measures aimed at preventing another financial crisis. Through legislation, both the US and EU regulators aim to meet the G20 commitment to strengthen regulatory systems. The European Union’s response to the 2007 crisis and G20 agreements has been fragmented into several European Directives\(^1\). In contrast, the US has opted to develop a single sweeping piece of legislation known as the Dodd-Frank Wall Street Reform and Consumer Protection Act, passed in 2010. The EU and US regulatory responses to the crisis are not yet fully crystallized as the legislation is currently being redrafted and interpreted into rules enforced by Regulators. However, tight deadlines for meeting these new requirements require financial organizations to begin working on updating their operational practices before regulatory rules have been fully determined. We argue that the scale of regulatory changes in the financial services industry, which has only previously occurred in the 1920s when very different technologies were available, provides a unique opportunity to investigate how technologies support wide spread regulatory change.

The motivation of our study is twofold. Firstly, we seek to investigate compliance technologies within a historically contingent period of time where the final outcomes of the new regulatory environment are uncertain. Our second motivation is to encourage further research into the use of IS to meet regulatory requirements. We believe the use of technology to comply with regulations is an important but neglected area of IS research (Currie, 2008). In recent times, the responses to high profile failures have resulted in calls from the public for government to increase scrutiny and regulation of various industries and organizations. Examples include the failures of Enron and WorldCom resulting in the Sarbanes-Oxley Act, the global financial crisis, the UK press phone hacking scandal and the BP oil spill. However, the IS community has provided little insight into the management of the technologies which support new policies and regulations at either the industry or organizational level. Relevant previous studies have focused on IT governance and internal controls (Ross and Weill 2005; Trites 2004), specific regulatory acts such as Sarbanes Oxley (Braganza and Hackney 2008; Panko 2006; Spears and Barki 2010; Wagner and Dittmar 2006) and risk management (Ciborra et al. 2000; Scott and Perry 2012) but the systematic

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\(^1\) Including the Alternative Investment Fund Managers Directive (AIFMD), Capital Adequacy Directive IV (CAD IV), European Market Infrastructure Regulation (EMIR), Markets Abuse Directive II (MAD II), Markets in Financial Instruments Directive II (MiFID II), Undertakings for Collective Investment in Transferable Securities Directive IV & V (UCITS III, IV & V), Packaged Retail Investment Products Regulation (PRIPS) and Regulation on Short Selling and Credit Default Swaps.
investigation of practices for regulatory compliance and the associated role of IS is largely absent from quality Management or IS journals.

This research makes an additional contribution by applying the institutional logics perspective to the under researched area of IS and regulatory compliance. The institutional logics perspective, derived from neo-institutionalism, provides the theoretical underpinnings for this research study. Neo-institutionalism focuses on how organizations affirm themselves and achieve approbation as a consequence of their alignment and compliance with the institutional contexts of their environment. Through coercive, normative and mimetic mechanisms which create isomorphic organizational structures (DiMaggio and Powell. 1983; Greenwood et al. 2008; Meyer and Rowan 1977). Thus, early neo-institutionalists focused on legitimacy over efficiency and a rejection of rationality. However, later conceptions of institutions examined the interdependence of non-rational and rational elements which collectively encompass social practices and associated logics (Scott 2008).

Research which addresses how logics become embedded in IS is not new. Previous scholars have highlighted how rules, norms and logics in the forms of intertwined material and symbolic elements may become encapsulated within IT artifacts (Currie 2009; Orlikowski and Iacono 2001). Thus, institutional orders may become embedded within IT systems (Scott 2003). Furthermore, financial markets may also be shaped not only by coercive regulations but also by normative and cultural elements including networks of social relationships and social structures of power, dominance and status both across and within organizations (Granovetter 1985).

Previous institutional studies into changes within capital markets have broadly considered two types of theoretical perspectives for understanding organizational changes in behavior. Structural or systemic explanations have focused on investigating changes driven by, “inversible 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 amongst institutionalists regarding views on the primacy of structure and agency (Heugens and Lander 2009; Hirsch and Lounsbury 1997; 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. Such pressures often arise as a result of a crisis creating social, political and functional pressures and that through choice organizations and individuals may selectively adopt, modify and eliminate institutions as a result of these pressures (Oliver 1992). Scholars who adopt this perspective espouse the view that actors have an impact on the social world and may alter rules and the distribution of resources (Scott 2008). Consequently, the values, assumptions and interests of organizations and individuals are embedded within institutions (Thornton et al. 2012). Thus, actors are nested at different higher order levels the societal, field, organization and individuals (Friedland and Alford 1991). Furthermore, such interests and values may be historically contingent on a particular period of time. In capital markets historically-variant sets of assumptions, beliefs, values, and rules may influence how individuals organize resources and practices and thereby regulate behavior (Zajac and Westphal 2004).

The use of institutional theory to guide information systems research is relatively new and has taken broadly two approaches: those studies that conceptualize the effects of institutionalization on an entity and those that treat institutionalization as a process (Mignerat and Rivard 2009). IS studies which have explored institutional effects have investigated large scale IT implementations, how institutionalized technologies may be under exploited, organizational change, e-government, e-health and organizational integration (Avgerou 2002; Cordella and Barca 2006; Huigang et al. 2007; Mangan and Kelly 2009; Mekonnen and Sahay 2008). Studies which have concentrated on the process of institutionalization are more scarce (Barley and Tolbert 1997; Currie 2009; Mignerat and Rivard 2009) and have focused on application service providers, security standards, professional services automation and customer relationship management (Backhouse et al. 2006; Currie 2004; Wang and Swanson 2008). Overall, the literature is missing studies utilizing institutional theory to investigate technology and the process by
which logics for compliance evolve and become embedded. Two studies conducting a review of the use of institutional theory within the IS field found no research focused on IS and regulatory compliance (Mignerat and Rivard 2009; Weerakkody et al. 2009). Furthermore, the application of institutional theory to explore the effects and processes of the 2008 financial crisis has also been surprisingly scarce (Munir 2011).

Firstly, we apply the institutional logics perspective to the research context. We then outline our research method before describing the IMS cases. Key findings are analyzed. Lastly, some conclusions are formulated, limitations discussed and areas for future research identified.

**Theoretical Underpinnings**

The institutional logics perspective approaches the challenge of institutional analytics by exploring the demarcating content and meanings of institutions. A key assumption is that behaviors are located within specific institutional contexts, which act to regularize actions while providing opportunities for agency and change. Institutional logics are defined as, “the socially constructed, historical patterns of material practices, assumptions, values, beliefs and rules by which individuals produce and reproduce their material subsistence, organize time and space and provide meaning to their social reality” (Thornton and Ocasio 1999 p.804).

Such perspectives build on the work of Friedland and Alford (1991) who view institutions as being supra-organizational arrangements which are embedded in both material practices and symbolic systems. Through such practices and systems organizations and constituent individuals produce and reproduce material practices and construe meaning to their experiences (Thornton and Ocasio 2008). Thornton and Ocasio (2008; 20012) delineate four meta-theoretical principles which underpin the institutional logics perspective. We now discuss each of these in order to explore the relevance of this perspective to our research context and to explore key constructs to support our data collection and analysis.

**Social Structure and Action**

The first of these principles is termed Social Structure and Action. This refers to the premise that, “identities, values and assumptions of individuals and organizations are embedded within prevailing institutional logics.” and so distinguishes this perspective from macro-structuralist approaches (Thornton, et al 2012 p.6). The institutional logics perspective does not ignore the role of structure but is not limited by it. Instead it focuses on how practice is shaped by how organizations and individuals are influenced by different institutional spheres of order each espousing a differing view of rationality. Within the context of this study, established institutional orders for conducting transactions and meeting regulatory obligations are being challenged by changes in the regulatory environment as new practices compete for dominance over historically embedded practices.

Financial organizations have agency over regulatory effects by being selective over the types of products and services they offer and the transactions in which they engage and thereby may avoid regulatory obligations which are perceived as overly onerous and expensive. By doing so, they are allowing new institutional logics, in the form of new regulation, to shape their business models and the practices which underpin these models. As Ocasio (1998 p.196) notes, institutional logics, “provide the formal and informal rules of action, interaction, and interpretation that guide and constrain decision makers in accomplishing the organization’s tasks and in obtaining social status, credits, penalties and rewards in the process.” For example, new regulations are requiring financial organizations to hold more collateral, termed regulatory capital, to offset risky trading activities and ensure liquidity, which is reducing returns and requiring firms to reduce their balance sheets and cut back on trading. UBS recently announced it would wind down its fixed income trading business and streamline other investment banking activities in part due to the new demands of Swiss regulators to hold increased levels of regulatory capital to offset the risks of operating in these areas (Keoun and Logutenkova 2012). Thus, new regulatory requirements for UBS to hold higher levels of capital are causing existing institutional logics for operating in certain markets to be questioned and consequently business models to be adapted.
Symbols and Material Elements

The second key meta-theoretical principle focuses on how each institutional order comprise both symbols and material elements which may be intertwined and mutually constitutive (Thornton et al., 2012). Material aspects refer to structures and practices, while symbolic elements relate to ideation and meanings drawn from culture. The institutional logics perspective acknowledges that institutions change and develop as a result of interplay between material and cultural elements and that such elements, while analytically separate, are intertwined and mutually constitutive. Cultural symbols may be embodied in structures and practices. Conversely, structures and practices may express and affect the ideation and meaning of cultural symbols (Zilber 2008). Within, neo-institutionalism the use of the hyphenated label, cultural-cognitive signifies the relationship between internal interpretive processes shaped by external cultural frameworks (Scott 2008). In this case, symbolic representations of appropriate practices, in the form of new regulatory rules, are themselves being shaped by broader cultural changes. The debate over what levels of risk are appropriate within our financial systems has been precipitated as a result of the 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 IMS.

Historical Contingency

The third meta-theoretical principle suggests that organizations are historically contingent. Thornton and Ocasio (2012) highlight changing regulatory frameworks as an exemplary case. As regulations change and develop over time they alter organizational arrangements and logics for selecting such arrangements. Studies of organization and economic phenomena may be contingently valid only for that time period (Freidland and Alford 1991). This is an important distinction. At the time of writing many of the EU’s regulatory responses to the financial crisis are still being crystallized and implemented. Furthermore, institutional orders may vary in importance over time and that the increasing influence of one institutional order may not necessarily act to replace another. While new institutional arrangements may prescribe a dominate logic these may cohabit with other arrangements which may have been created at different points in time under different historical contingencies (Streeck and Thelen 2005). As the previous example of UBS illustrates, we are observing a strengthening of regulatory institutions, not least through enhanced requirements for holding regulatory capital, which are competing with historically dominate logics for conducting business and structuring operations. We argue that previous to the crisis such logics were primarily influenced by market forces with regulatory logics being secondary. Within the context of this study, we observe in the post-crisis environment, an increase in the influence of regulatory driven logics which compete with market influenced logics embedded prior to the crisis. While, market forces may still be primary, the influence of regulatory focused logics has increased.

Multiple Levels of Analysis

The last meta-theoretical principle adopts the view that, “institutions operate at multiple levels of analysis and that actors are nested in higher order levels – individual, organizational, field and societal.” (Thornton et al. 2012 p.13). Correspondingly, institutional logics may evolve at different levels such as markets, industries or geographic communities. Thus, it is necessary to specify the level of analysis being considered in order to effectively explore theoretical mechanisms, operating at different levels from the main phenomenon being considered (Freidland and Alford 1991). By exploring mechanisms operating across different levels of analysis, theory generation increases in generalizability and precision (Stinchcombe 1991). This study investigates changes in regulatory institutions occurring at the organizational field level of capital markets, which impacts internal working practices for maintaining compliance and conducting transactions enacted at the organizational levels. Thus, the levels of analysis considered by our study are at the field or macro level and at the intra-organizational or meso level. Previous studies which investigate institutional logics emanating from the field level have emphasized the existence of competing logics (Thornton and Ocasio, 2008). As noted previously, we observe competition between pre and post crisis institutional logics. Institutions may conflict with one another while also providing constraints and opportunities for actors. However, the variance of levels considered and the associated breadth of analysis may encourage imprecision as it might be inferred that interpretive
schemas or logics, cultivated at any level may be considered institutional logics. Institutional logics are demarcated as being beyond mere strategies or logics but in addition provide legitimacy and a sense of order and so typically function at numerous levels. Thus, we conceptualize financial regulation as a form of institutional logic. Furthermore, the change in the macro regulatory landscape, following the financial crisis, has clearly created new logics at the meso-level, which focus on legitimatizing organizations through compliance with the newly created regulatory order.

**Conceptual Model**

The previous sections have built on Thornton and Ocasio’s (2008; 2012) meta-theoretical principles of institutional logics and contextualized them against the research setting, the post-financial crisis regulatory landscape. These principles are now distilled into a conceptual model, see Figure 1.

![Conceptual Model Diagram](image)

**Figure 1 Pre and Post Crisis Institutional Logics**

Prior to the financial crisis, the UK Regulator adopted a ‘principles’ based or ‘light-touch’ approach to regulation. This approach was contrary to a prescriptive focus to regulation and allowed firms to, ‘...have increased flexibility in how they deliver the outcomes [the Regulator] require’ and focused on, ‘...moving away from dictating through detailed, prescriptive rules and supervisory actions how firms should operate their business (FSA 2007 p. 4 & 6). This approach was termed ‘light-touch’ and was predominantly market driven. However, in the post-crisis environment the regulator has moved away from a light-touch approach to supervision towards intense supervision. Thus, at the organizational field level we observe the
primacy of pre-crisis institutionalized logics, predominately based on markets, being challenged by new logics espousing the need to further safeguard investors, employees, and crucially the larger economy. Coercive mechanisms for control are enhanced as further restrictions are applied, sanctions increased and supervisions intensified. These logics also influences practices for arranging compliance at the organization level. Thus, we observe pre and post-crisis institutional logics operating at multiple levels, at the organization field (macro level) and within organizations (meso level). Furthermore, pre and post-crisis institutional logics create different but competing spheres of order which influence how compliance practices are organized within organizations. This competition has forced financial organizations to consciously act and reconsider their regulatory exposure as well as their strategies for delivering compliance and so to reevaluate the material symbols, structures and practices they employ at the meso level through rules and tools, such as the IMS.

Research Design
To gain deep insights into the institutional effects and processes within the post-crisis financial sector we carried out field-work across nine organizations. Using a semi-structured interviewing technique, in-depth interviews were carried out at the systems vendor site, in addition to eight client sites, all of which had introduced the IMS. Our objective was to elicit views and comments from interviewees engaged in the adoption and implementation of the IMS at client and vendor sites at both the technical and industry levels. Interviewees provided rich and insightful responses to questions about the post-crisis environment in financial services and also about the use of IMS.

Sampling Strategy
Our adoption of a ‘typical case’ sampling strategy required a search for information-rich cases which were illustrative of IMS usage in financial organizations (Patton 1990). The IMS Vendor, hence forth referred to as the Vendor, was selected under the criterion of being one of the market leading providers of electronic order management/compliance systems, whose customer base included large global financial organizations. Sampling criteria for selecting the Vendor’s clients also focused on identifying replicable cases of IMS use. Those considered included organizations which were using the IMS to manage comparable financial products and services and thus had a similar level of regulatory exposure. Specifically, the financial organizations participating used the IMS for trading equities, derivatives, fixed income and currency securities. Participating organizations were also long term adopters of the system, utilizing it for a minimum of ten years. Long term adoption of the system was a necessary sampling criterion to ensure that IMS related practices were embedded within each organization.

Data Collection
Primary data collection was achieved through semi-structured interviews at both Vendor and Client sites. Pilot interviews were held with the Vendor to aide understanding of how the system functioned and to formulate pertinent questions. The Vendor provided rich material about the origins of the IMS and how it was changing as a result of the regulatory environment. The eight client sites gave detailed examples of how the IMS was implemented in relation to complying with regulatory changes and compliance policy. Error! Reference source not found. summarizes the approach to data collection. Semi-structured interviews have previously proved successful in providing the necessary depth to explore complex and dynamic regulatory phenomena (Tsatsou et al. 2009). The semi-structured approach allowed the flexibility to pursue new topics as the discussion evolved and also as responses to the crisis emerged and became better defined (Kvale and Brinkmann 2009; Punch 2005).
Table 2. Primary and Secondary Data Collection

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<tr>
<th>Primary Data Collection</th>
<th>1 IMS Vendor (6 Interviews)</th>
<th>8 Financial Organizations (26 Interviews)</th>
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<td>IMS Senior Relationship Manager (1)</td>
<td>3 Interviews</td>
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<td>IMS Consultants (2)</td>
<td>3 Interviews</td>
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<td>Trading Professionals (3)</td>
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<td>4 Interviews</td>
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<td>Compliance Professionals (8)</td>
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<td>13 Interviews</td>
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<td>IT Professionals (8)</td>
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<th>Secondary Data Sources</th>
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<td>IMS Manuals</td>
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<td>IMS Website and Marketing Literature</td>
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Across the participant organizations, the strategy for data collection involved interviewing a diverse range of stakeholders (Miles and Huberman 1994; Silverman 2001). At the Vendor site senior systems consultants and the client relationship manager were interviewed. This was especially insightful as collectively they had much experience of implementing IMS and dealing with clients, post and pre crisis. Within the financial organizations, compliance and systems experts were interviewed all of whom has responsibilities around the IMS. Trading professionals who used the system were also interviewed. In total, thirty-two interviews were conducted. Six interviews were conducted with individuals from the system vendor. Twenty-six were conducted at the eight financial organizations. These interviews were conducted over three phases from 2009-2012. The initial phase focused on understanding the IMS and how the system was used to organize compliance practices prior to the financial crisis. The second and third phases built on the first phases’ findings to develop understanding on how compliance practices were being changed to meet post-crisis regulatory requirements and to incorporate changing environmental factors such as increased regulatory supervision. The identification of such environmental factors were derived through analysis of secondary data such as regulations, press releases and white papers from regulatory bodies as well as industry commentary by the business press, accounting and legal professions.

An interview schedule was designed for each phase of data collection. 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 on 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. Although the interview questions were developed from the theoretical constructs and analysis of the post crisis regulatory landscape, it was imperative that interviewees were not confused by jargon. Examples of the types of question presented in plain English include: “What measures, if any, has your organization taken to coordinate implementing new compliance practices globally?” This question evoked responses which provided insight into how organizations, responding to common regulatory themes derived from the G20 agreements, are centralizing approaches and thereby creating isomorphic compliance practices across the enterprise.

Questions which were not initially included were also posed as the interviewer responded to the answers being supplied. Consequently, the approach to data collection allowed the flexibility to explore new issues whilst ensuring important topics were covered (Kvale and Brinkmann, 2009). Emphasis remained on the interviewer to frame what was important in understanding the behaviors, events and patterns related to the research topic (Bryman 2008). 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. An important source of secondary data was 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.

**Data Analysis**

During the process of data analysis, primary and secondary data were 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). The analysis adopted a two cycle approach to coding. The first cycle adopted a ‘Descriptive Coding’ approach for summarizing segments of data. This method is appropriate for exploratory studies utilizing semi-structured protocols (Saldana 2009). This approach requires the application of a content phrase to a segment of data representing a topic of inquiry, for example, ‘Use of Spreadsheets’, ‘Use of Templates’ and ‘Increased Compliance Costs’. The second cycle adopted ‘Pattern Coding’ approach to identify major themes by searching for causes and explanations from the data. Such an approach builds on the first cycle of analysis and are, “explanatory or inferential codes, ones that identify an emergent theme, configuration or explanation. They pull together a lot of material into more meaningful and parsimonious unit of analysis” (Miles & Huberman, 1994 p.69). Examples of such codes include, ‘Standardization’, ‘Consolidation’ and ‘Harmonization’.

Secondary data analyzed included the websites of regulatory bodies and industry reports on regulatory practices. Understanding of complex regulatory changes was enhanced through reviewing commentary on post-crisis regulation provided by law and accounting firms. 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 and secondary data sources (Flick 1998; Seale 1999). For example, interviewee references to particular areas of regulatory change were triangulated with the original regulations and industry commentary to ensure key points was fully understood and consistent across sources.

**The Investment Management Systems Case**

The vendor of the IMS we studied is a well-established compliance systems solutions provider, in business since the early 1980’s. The IMS was initially developed and marketed within the US as a system for compliance with US 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.

**IMS Clients**

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.

**IMS Functionality**

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 breeched. Compliance executives monitor rule breeches and sign off trades to ensure on-going compliance. The system also provides auditable records of transactions and how associated compliance breeches 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.

Figure 2 highlights the relationship between post-crisis legislation, regulatory rules and automated rules within the IMS.

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**Figure 2. Relationship between Post-Crisis Legislation, Regulatory Rules and Automated Rules**

Once the EU Directives or Acts of US Congress have been passed, they are interpreted by the home country’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 breeches 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 breeches 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 breeches 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 breeches.

Findings and Analysis

This section draws from the conceptual model outlined in Figure 1 to present the findings of our study. The first section considers how compliance practices are being restructured through logics of amalgamation and aggregation which streamline practice. The second section focuses on logics for creating consistency and harmonizing compliance practices, which are derived from common regulatory themes emanating from G20 requirements. The last section deals with how practices for organizing compliance are being centralized.

Logics of Consolidation and Aggregation

The profitability of trading in capital markets has recently declined sharply for two reasons. Firstly, as income from trading has fallen due to the economic slowdown and the financial crisis acting to discourage investors. The second reason is that new regulations require organizations hold more regulatory capital, which is reducing returns and requiring them to reduce their balance sheets and cut back on trading. UBS is not the only firm shrinking its trading activities, Nomura, Deutsche Bank and Barclays have all made their intentions to do so public (The Economist 2012). As a consequence, financial organizations are faced with reduced resources coupled with an increased need to engage in costly change management programs to adhere to the new regulatory requirements. As one compliance manager noted, “Resources are a massive issue. There’s always an opportunity cost with everything we do.” Another manager concurred, “So there’s costs being slashed across the board, headcount being cut and a greater percentage of the
As a result of these developments we perceive a change in the institutional logics for conducting and organizing trading and compliance activities, at the macro level. At the meso level, the old logics formulated at a time of higher margins and less onerous regulation are being questioned. Our study revealed that financial organizations are looking for ways to streamline their compliance operations and make them less resource intensive. Furthermore, in the pre-crisis environment all our respondents felt that the Regulator was less focused on the systems used to achieve compliance but that as a result of the new ‘intense supervisory’ approach regulators are taking more of an interest in how systems are utilized. A senior compliance manager noted, “So now firms are being pushed into a corner where they’re being forced to use the electronic order management systems” such as the IMS. Another compliance manager observed, “The [Regulator] isn’t keen on having lots of different applications. They’d rather see a core, system and they’re not keen on lots of spread sheets either. Um, so it is an issue.”

As a consequence of these phenomena our study revealed that several organizations are engaged in programs to consolidate and leverage existing resources, not least IMS. The drive to adopt core systems comes out of the need for organizations to aggregate positions and exposures across trading desks and also geographies, in order to provide a holistic picture of their holdings. A key component of the IMS is functionality, which enables the execution of trades and maintains a record of the assets held. The IMS vendor’s senior relationship manager observed, “You’ve got big companies who have multiple [IMS] systems and therefore, do not have a clear view of their entire book of records.” Often this occurred as the result of different IMS being inherited through mergers and acquisitions. Post-crisis regulations oblige organizations to establish a more holistic view of their positions. For example, Title VII of the Dodd-Frank Act, requires regulators to establish aggregate position limits for Swaps (a type of derivative contract where cash flows from one party’s asset is exchanged with cash flows from the other party’s asset, perhaps to convert fixed and floating cash flows). Once the regulator has set these limits, financial organizations will require systems in place, such as the IMS, to ensure that the Swaps they hold do not exceed the limits set by the regulator. These limits are applied across the organization and so the systems must aggregate the Swap positions held by the organization across different trading desks and geographies. Thus, previous logics which allowed the use of siloed systems are being challenged by post-crisis regulatory change. A financial organization’s compliance manager’s comments illustrate this change “[Firms] now want to have a complete view of a portfolio and therefore, every transaction has to be on one system and what they will do is use the [IMS] as the means and mechanism for recording all the positions”.

In summary, the study found that the IMS has the potential to make an important contribution to ensuring organizations have a holistic view of their holdings. This requirement and the associated change in related operational practices is being driven by shifts towards institutional logics espousing a need for greater monitoring and transparency within capital markets trading.

**Logics of Harmonization and Consistency**

The G20 agreements have resulted in common regulatory requirements being implemented globally. This phenomenon has provided opportunities for organizations to organize compliance activities around common themes, with the current goal of harmonizing approaches across the regulatory jurisdictions in which they operate. Previously, compliance activities were typically siloed with individual regional offices focusing on meeting obligations set by their local regulator. A senior compliance manager advised, “After the G20 came out, it was such a game-changer really. And we’re a global organization with impact in over I think [75+] countries, something like that? So we operate on a regulatory theme basis. When things come out from [US regulator], you have to consider that actually they’re trying to meet the G20 rules and as a business, we’re trying to upgrade on a global basis and think, we’re going to build a successful global business here, how do we do that? And the way that we do it is we have to do it by themes.” This finding is illustrative of how at the macro level shifting institutional logics for regulation have precipitated, new logics for achieving and maintaining compliance. However, not all organizations are adopting such approaches. Of the eight financial organizations considered within this research several are organizing around regulatory themes. Therefore we observe, new thematic structures competing with pre-crisis, geographically siloed, structures for organizing compliance activities.

A global compliance manager’s advised how his organization used the IMS, instrumentally, to adopt a
global approach to managing common areas of policy. This was achieved by structuring templates of automated rules, which inscribe common regulatory rules. He advised, ‘I’m in the global [IMS Vendor] compliance team. Our job is to essentially own the coding, insure best practice for coding and essentially ensure that rules globally are coded correctly’. His team creates templates of automated rules which incorporate best practice, ‘The Master Tests, they’re the internal templates and we use the Master Tests to promote consistency and best practice globally. We’ve got several offices, using [IMS] globally. And we’re all on the same accounting system; we all use the same data, so that means there’s an opportunity to actually apply a consistent approach. The way we do that is through these Master Tests which are generic in nature. The idea is that each office has broadly the same suite of Master Tests. They can find the appropriate Master Test; make any minor adjustments to it for their local needs.”

Another compliance manager advised, “Yeah, I mean quite often there could be a regulation which affects several offices. So people have their own way of dealing with it and part of what we try and do actually as we are the global [IMS] compliance team. So we try and harmonize processes. What we’ll usually try and do is kind of pre-empt that and so we’ll set up a new Master Test and say use this.”

While high level objectives or themes of regulations may be similar globally, the way the theme is interpreted and implemented by regional regulators may differ. Consequently, the global compliance team works closely with regional offices. A compliance manager noted, “The Master Templates are tailored to the jurisdiction and we work very closely with the local compliance teams in understanding what their rules are. We spend a lot of time on conference calls with each of our country offices, understanding the local flavor of the regulations, the nuances, and the market conventions.”

In summary, while regional offices must still apply their own interpretation to global common regulatory rules, the IMS enables a process whereby such common themes may be harmonized through construction of consistent automated rules templates.

**Logics of Centralization**

The organization of compliance practices around thematic structures is intertwined with the adoption of a centralized approach to managing compliance. As the previous findings show, centralized global compliance teams are instrumental in translating regulatory themes into templates of automated rules which may then be disseminated across regional operations. Thus, new strategies, for meeting new regulatory requirements, are becoming established and embedded. This process is contingent on centralized teams stipulating best practice. The structure of these new approaches, are supported by underlying logics, derived from a shift in institutional logics towards a heightened state of regulation. A senior compliance manager noted how this new centralized approach was being used to cope with tight deadlines for implementing new regulations and that this strategy was viewed with interest by colleagues within other organizations, “And the whole concept of taking a selection of the compliance department and moving them away from being, what we call the advisory compliance people, the ones who deal with the front office and do the day-to-day grind work, and moving something out into what we call the central compliance group, which is where I am, was to relieve the day-to-day pressure on us and allow us to take a more big-picture view. And my interaction so far with opposite numbers in different firms, in the City, has been that they’ve taken great interest in that approach because of the pressure that they are under just to meet day-to-day requirements, not allowing them to look at the bigger picture.”

Our findings show that there is a contradiction between the regulators desires to see core systems adopted and the tight deadlines set, also by the regulator, for final adherence. Several compliance managers in the financial organizations felt that the breadth and depth of changes and the tight time frames for implementation, required by the regulator, were resulting in the development of poor ‘compliance architectures’ as there was no time to adopt strategic solutions. One senior consultant observed that as a result of tight deadlines, “We are seeing non-strategic solutions built on non-strategic solutions.” He elaborated, “The Dodd Frank dates for adhering to various things are fairly tight, they’re very tight. And the requirements are still being clarified and the approach being taken by the US regulator is one of, well we’re gonna evolve the regulations. You better start building against draft sets of regulations and we’re gonna keep on evolving and evolving them and then go live. And their point is, from where the draft regulations appear to when the go live is maybe a fair amount of time. However, the time from when the final regulations appear to go live will be a very short time. So you’re forced to just do things on an evolutionary basis, not taking the long-term strategic view of how you’re gonna
meet this need, just to meet these aggressive timelines and be flexible enough to cope with the factors as these regulations evolve.”

One firm has tried to improve the flexibility and efficiency of its remediation efforts through the creation of forums termed ‘watch towers’. A senior consultant outlined this approach within his firm, “it’s trying to add a control function that operates across the various departments, to give visibility of all the different issues in the different departments to advertise the regulatory dependences. It’s sponsored and run by the COO [Chief Operating Officer], with heads of departments attending and forces that multi-departmental view of regulatory change, and when one of those head of departments presents their story or presents their issues, you immediately have across the bank visibility.” The ‘watch tower’ approach is illustrative of how, in the post-crisis environment senior management is becoming increasingly engaged in compliance activities. A senior consultant described how this centralized approach facilitated further harmonization of compliance practices by providing a high level perspective of regulatory issues faced by different departments, “The other half of the story is the value add. By looking across departments, you can then find gaps, overlaps, challenges that are gonna occur. You can identify that these teams are clashing, let’s pull these teams together or there’s a new regulation coming along and it’s going to impact you, you and you. So I think that the process of more reporting and tracking is delivering the deeper value add of looking across the patch and getting that holistic view.”

The potential of systems, such as the IMS, to support high level compliance forums are threefold. Firstly, such meetings require analysis to feed discussion. The IMS provides organization wide monitoring of trading activities through dashboard functionality, which allows the identification of compliance breeches and issues with the underlying data. Such analysis may feed head of departments’ and COO discussions on common issues. In addition, many new regulatory requirements require the design and implementation of new automated rules, as regulatory rules are interpreted and transcribed into automated rules. Thus, in order to meet regulatory deadlines the progress of such projects are of key interest to senior managers responsible for ensuring compliance within their departments and COO responsible for meeting compliance deadlines organization wide. Finally, such forums are perceived as adding value through the identification of areas where regulatory overlap occurs and so there exists potential for leveraging resources. Previously discussed findings illustrate how IMS provide opportunities to create and leverage compliance practices through the distribution of ‘Master Test’ rule templates.

In summary, the post-crisis regulations place considerable strain on organizations to achieve adherence within tight deadlines and to begin remediation activities when the final form of the regulation is uncertain. As a consequence of shifts in higher order institutional logics for regulation we observe new logics emerging which facilitate a centralized approach to compliance management, which allows for the development and dissemination of standardized approaches as well as the reporting of remediation progress and the identification of common issues across the firm. IMS may enable such strategies by providing firm wide perspectives on compliance issues and by facilitating standardized approaches.

**Discussion and Conclusions**

The study addressed the research question by providing analysis of how the IMS supports new regulatory focused institutional logics, by exploring how such systems are supporting the restructuring of compliance practices as a result of post-crisis regulatory change. The study shows that the new emerging regulatory landscape is having a considerable effect on financial organizations’ operational practices for achieving and maintaining compliance. The study conceptualizes newly institutionalized regulations as creating logics for structuring capital markets and associated transactions. These new institutional logics compete with logics rooted in the pre-crisis environment. As a consequence of this we observe new practices for organizing compliance developing and competing with pre-crisis logics for organizing such activities. Thus, our analysis highlights how institutional logics may function at multiple levels. Table 2 highlights the pre and post crisis institutional logics identified.

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<th>Market Driven Pre Crisis Institutional Logics</th>
<th>Regulation Driven Post Crisis Institutional Logics</th>
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**Table 2. Pre and Post Crisis Logics for Regulatory Compliance**

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As Table 2 shows, changes in macro regulatory institutions are creating coercive pressures, to alter compliance practices underpinned by IMS. Thus, the findings support the macro-structuralist perspective, which emphasizes the role of social structures. However, the study also highlights how practitioners are responding to changes in regulatory structures by purposively adapting and altering compliance practices previously embedded within the organization. As Thornton and Ocasio (2008 p. 100) note, “By providing a link between institutions and action, the institutional logics approach provides a bridge between the macro, structural perspectives of Meyer and Rowan (1977) and DiMaggio and Powell (1983) and Zucker’s (1977) more micro, process approaches.” Thus, the study makes a contribution by providing empirical evidence of this ‘bridge’ within the context of post-crisis financial services. We find that while increased coercive pressure, derived from new regulatory obligations, may constrain organizations, firms still have considerable choice in how they organize compliance practices and may even respond by choosing to abandon products and services which expose themselves to new regulatory orders deemed too onerous. Thus, future research may focus on investigating the variation between compliance practices adopted, post-crisis, and the extent to which approaches and practices are isomorphic across financial organizations.

The study provides a useful insight for practitioners into the interaction between technology, changes in the regulatory environment and changes within an organization’s compliance capabilities. The analysis highlights how an industry wide crisis which draws a strong regulatory response may cause localized organizational practices and structures to become redundant and thereby cause a refinement of organizational practices away from siloed approaches in favor of centralized, harmonized and standardized practices which enhance organizations ability to implement and monitor compliance across the firm. Also, driving such efficiencies is the need to meet enhanced and costly regulatory obligations, at a time when the crisis may have reduced the resources available to the organization. Technology may play a key role in this process by underpinning the streamlining of practices across the organization.

The study makes a further contribution by highlighting antecedent factors which precipitate the construction of new institutional logics for organizing compliance. These include enhanced levels of supervision by regulators and a move away from only considering if an organization is currently meeting compliance obligations at a snapshot in time to also assessing if the firm’s processes and systems are robust and able to meet regulatory requirements on an ongoing basis. In addition, regulatory responses to a crisis may include requirements to hold increased collateral to offset newly identified risks, thus further reducing the resources available to the organization. This result may further focus the firm on making efficiencies through streamlining of practices and systems. Furthermore, where the regulator’s response is consistent across different regions there is the possibility for organizations to organize compliance efforts around common themes and develop and apply best practice across the enterprise. Thus, enhanced supervision, new collateral requirements and reduced profitability as well as the introduction of common regulatory goals across jurisdictions are identified as elements which contribute to the construction of new institutional logics for compliance.

At the time of writing these post-crisis logics and associated practices are newly designed and not universally adopted and so future research may want to revisit such practices and investigate how they have matured and the extent to which they may have become institutionalized. The EU and US regulatory responses to the crisis are not yet fully crystallized and so a limitation of this study is that its findings are
historically contingent on a period of time where the final outcomes of the new regulatory environment are uncertain. However, this is also a contribution of this study as it provides a glimpse of this transient environment. In conclusion, the study reveals that a time where financial organizations know that regulatory obligations will be enhanced but the exact details are still not finalized they are seeking to streamline and increase the agility of their compliance capabilities through consolidating, harmonizing and centralizing technology enabled practices.

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