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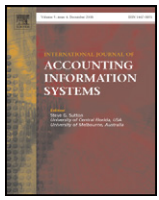

The role of strategic enterprise risk management and organizational flexibility in easing new regulatory compliance ☆

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ABSTRACT

The impact of new regulatory requirements for internal control reporting on an organization's ability to maintain strategic flexibility has been debated in the popular press extensively. This paper tests theory from strategic management to examine the relationship between an organizations' pre-regulatory strength of strategic enterprise risk management (ERM) processes and their ability to react to new regulatory mandates. In the context of companies' adoption of SOX Section 404 internal control reporting requirements, we examine organizations' pre-SOX ERM processes, ERM supporting technologies, and organizational flexibility in order to better understand the antecedents to the difficulty encountered in meeting SOX 404 requirements. Using responses from 113 Chief Audit Executives (CAEs), we find that organizations with stronger strategic ERM processes and flexible organizational structures already in place incurred little difficulty in implementing SOX 404 mandates. On the other hand, organizations using weaker ERM processes, which focused on control compliance, experienced more difficulty. These findings provide key insights into the importance of strategic ERM in effectively complying with new regulatory controls in volatile environments.

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1. Introduction

Many countries have recently implemented internal control reporting mandates for public companies.[1] Arguably, the most pervasive of these new mandates was the Sarbanes–Oxley Act of 2002 (SOX), enacted by the U.S. Congress, with global implications for public companies registered on the U.S. stock exchanges. Since that time, there has been a substantial backlash including allegations that the SOX Act is 'quack legislation' (Romano, 2005) and a myriad of questions as to whether the corporate governance provisions have a justifiable cost-benefit (e.g., DeFond and Francis, 2005). There have also been questions of whether the burden of SOX regulatory requirements would irreversibly weaken the U.S. stock exchanges' financial market leadership position (Bloomberg-Schumer-McKinsey Report, 2007).

One of the more controversial components of the law is Section 404 with its mandates for broad reaching internal controls over financial reporting that must be attested to by management and opined upon by an auditor. As a result, the U.S. SEC held numerous hearings about this provision and the implementation of 404 requirements was repeatedly delayed—particularly for small and medium sized enterprises and foreign registrants.[2] Among the major concerns of the SEC were complaints by smaller enterprises that these internal control and risk management processes would impede the enterprise's ability to react to market changes due to resulting restrictions in organizational flexibility (Katz, 2006). Preliminary evidence from several case studies of smaller firms required to file as accelerated filers suggests this may be the case for some firms depending on their existing organizational structures and processes (Arnold et al., 2007).

We explore these concerns through an empirical evaluation of companies that have completed the SOX 404 reporting process to evaluate how organizational structures and processes impact the difficulty of adhering to newly mandated compliance requirements. Specifically, we examine the relationship between strategic ERM practices and organizational flexibility, as well as the subsequent impact of organizational flexibility on the effectiveness of SOX 404 implementation processes and difficulty in achieving compliance. In examining these relationships, we consider the mediating roles of ERM supporting information technology (IT) systems and the organization's control environment. The conceptual model presented is a generalized model that explains how these organizational structures and processes facilitate compliance with new regulatory mandates.

In developing our conceptual model, we specifically address concerns voiced regarding the relationship between control structures and organizational flexibility from a strategic management perspective. We adopt the conceptual foundations from theory on capability-building for entrepreneurial alertness (e.g., ERM) which views strategic organizational flexibility as the key to organizations' success in volatile business environments (Sambamurthy et al., 2003). We build upon Sambamurthy et al.'s model by incorporating research on management control systems (see Langfield-Smith, 1997; Chenhall, 2003 for reviews). This integration helps explain the relationship between organizational flexibility and management control, and the ability of ERM and organizational flexibility to facilitate the development of effective processes for responding to new regulatory mandates—in this case, new internal control reporting mandates. While early studies seem to indicate that control systems did not facilitate strategic decisions in organizations, recent studies consistently find the opposite. If broader-based measures rather than just financial measures are used, management control systems actually serve as vital informers for strategic decision making with more control information being desired in more flexible environments (Simons, 1990; Davila, 2000; Ahrens and Chapman, 2004; Ditillo, 2004; Chenhall and Euske, 2007).

The results of our study provide several contributions to the literature and have implications for the discourse on the benefits of mandates for internal control reporting. First, we establish a strong link

[1] Global internal control reporting regulations include Canada's National Instrument 52–109 (NI 52–109), the U.S. Sarbanes–Oxley Act of 2002 (SOX 404), the Australian Corporate Law Economic Reform Program Act (CLERP 9), the EU 8th Directive, the French Lois sur la Securite Financiere (LSF), the Italian Legislative Decree 231 and Decree 262, and Japan's Financial Instruments and Exchange Law ("J-SOX") (Ernst and Young, 2008a).

[2] These so called non-accelerated filers were phased into 404 reporting requirements over time with management's report on controls required for fiscal year-ends on or after July 15, 2007, and the auditor's opinion on management's report first being required for fiscal year-ends on or after July 15, 2010, then amended to negate the need for an auditor opinion for companies with less than $75 million in capitalization effective September 21, 2010 in order to adhere with the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act.

between the strength of ERM processes[3] and organizational flexibility while identifying the critical mediating effect of ERM supporting IT systems. Second, we establish a strong link between organizational flexibility and organizational reactiveness to new regulatory mandates—in this case mandates related to effective internal control systems. Importantly, we also identify the mediating effect of the control environment on the ability of flexible organizations to implement effective compliance processes. Third, the overall results provide evidence of a direct relationship between the strength of ERM processes and the organization's control environment. Additionally the impact of ERM on IT systems and organizational flexibility has a substantial indirect effect on the overall control environment. Finally, while prior research has focused primarily on the organizational factors that facilitate the development of ERM (e.g., Kleffner et al., 2003; Liebenberg and Hoyt, 2003; Beasley et al., 2005), we focus on how the strength of ERM processes impact organizational structure and the organization's ability to respond to changes in the business environment. Specifically, we examine how stronger ERM increases organizational flexibility and IT integration in order to facilitate an organization's ability to react to new regulatory mandates.

The remainder of this paper is presented in four parts. Section 2 expands upon the underlying theory and prior related literature that provides the conceptual development of the hypotheses and overall research model. The third and fourth sections provide the research methods and results of the model and hypotheses testing. The fifth and final section provides an overview of the results and the implications for future research.

2. Background and hypotheses

Arnold et al. (2007), using four case studies of companies that had recently completed SOX 404 compliance, provide preliminary insight into the effect of regulatory compliance efforts on organizational processes and performance. Their findings indicate that all four firms adopted some level of ERM processes in addressing SOX 404 compliance efforts. However, two of the four firms had substantial difficulty in meeting compliance requirements; and, both of these firms felt that newly implemented risk management processes and internal control procedures hindered their customer cycle times putting them at a competitive disadvantage. They primarily viewed the control structures as limiting their flexibility to react strategically. On the other hand, the other two firms endured far less stress during their compliance efforts. Each had a strong system of internal controls; and, each established procedures very early on for addressing the required changes under the new regulatory mandates.

These results raise questions regarding whether structural differences between the four firms contributed to different experiences in implementation difficulty and different perceptions on the impact in terms of organizational flexibility. Based on prior case research showing the perceived influence of ERM practices and organizational structure on an organization's ability to address the new mandates (Arnold et al., 2007), we develop a research model derived from theory on capability building and entrepreneurial action (Sambamurthy et al., 2003). This theory provides a lens for viewing the integration of strategic ERM (Lam, 2003; Olsson, 2007; Collier, 2009) with organizational theory perspectives on an organization's ability to maintain flexibility and react to regulatory change (e.g., Volberda, 1996; Palanisamy, 2005).

2.1. ERM as a basis for entrepreneurial alertness

Theory on capability building and entrepreneurial action is premised on the resource based view of the firm where information technology (IT) is viewed as not having strategic value by itself, but rather as a resource that can be shaped and refined to become an enabler of organizational agility that in turn facilitates competitive action (Sambamurthy et al., 2003). The key to the theory, however, is *entrepreneurial alertness,* which is the capability to explore the marketplace and identify opportunities for action. Entrepreneurial alertness drives the evolution of digital options (i.e. the strategic leveraging of IT systems) to facilitate the organization's agility, thus creating an indirect as well as a direct effect of entrepreneurial alertness on the development of organizational agility. Similarly, entrepreneurial alertness, by enabling organizational agility, also supports the organization's flexibility to respond to

[3] The strength of ERM processes relates to how well an organization's ERM processes achieve the goals of ERM in terms of providing an alertness to the opportunities and threats that the organization faces.

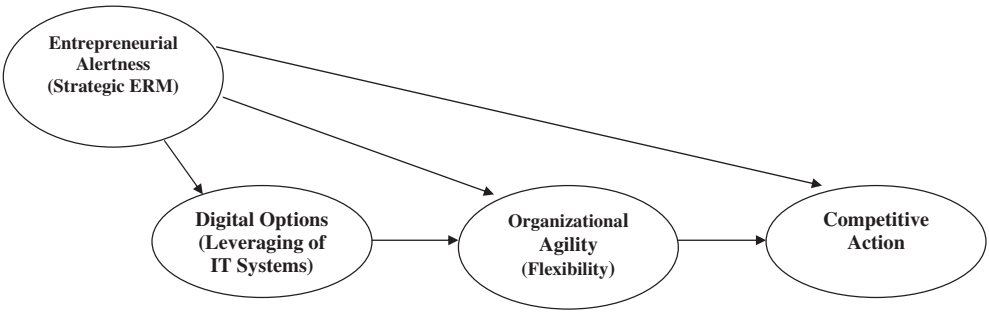

Fig. 1. Theory on capability building and competitive action.

changes in the environment through execution of competitive actions. Thus, as shown in Fig. 1, competitive actions are not only supported directly by entrepreneurial alertness but also indirectly through organizational agility (Sambamurthy et al., 2003).

Entrepreneurial alertness includes both *strategic foresight* (i.e., the ability to foresee risks and opportunities) and *systemic insight* (i.e., the ability to use foresight to shape competitive actions that provide advantage) (Sambamurthy et al., 2003). ERM represents perhaps the strongest form of entrepreneurial alertness with its focus on integrating risk management processes at an enterprise-wide level in order to provide a uniform capability for responding to risks and seizing opportunities. While internal control is an integral part of ERM from a COSO (2004, 25) point of view, ERM is broader than internal control as it focuses more fully on risk and risk management. Still, in the face of SOX 404 requirements, many organizations focused on procedural aspects of control and did not implement strategically-oriented ERM processes or implemented only minimal processes (Beasley et al., 2005; Ernst and Young, 2008a). Such a focus would be viewed as low-level ERM with its defensive focus on downside risks and risk avoidance, while strategic-level ERM incorporates a focus that goes beyond addressing downside risks to a strong focus on upside risks—an offensive strategy of identifying and seizing opportunities (Clark and Varma, 1999; Lam, 2003, 235–38; Olsson, 2007; Collier, 2009, 46).

Entrepreneurial alertness is more in line with strategic-level ERM processes. For our purposes, strategic ERM is defined as a framework for risk management that entails the following: (1) identifying events and circumstances relevant to an organization's achievement of its goals and objectives; (2) assessing these events and circumstances in terms of likelihood and magnitude of impact; (3) determining a strategy for responding to the identified threat or opportunity; and (4) monitoring the subsequent evolution and impact of the events (Collier, 2009, 48). While everyone in the organization has some responsibility for ERM, an organization's Board of Directors has overall responsibility for ensuring risks are managed[4]; but in practice, the management team is generally delegated with that responsibility (Institute of Internal Auditors, 2004). As such, ERM integrates risk management activities while elevating its status as a key component of the firm's overall strategy, thus enabling the organization to respond strategically to both risks and opportunities (Liebenberg and Hoyt, 2003).

In building an organization's risk profile, information and knowledge must be aggregated across the strategic and operational levels to assist managers in understanding the range of risks (internally and externally) and the related opportunities (Treasury Board, 2001, p. 15). To facilitate the aggregation of information and knowledge across the organization, strategic ERM necessitates consideration of potential technological solutions to support on-going activities that facilitate risk awareness and position an organization to respond to threats and opportunities in a timely manner (Treasury Board, 2001, p. 31). Theory on capability building for entrepreneurial action views this interaction of entrepreneurial alertness

[4] Surveys reveal ERM is the major issue currently being addressed by board's audit committees (Ernst and Young, 2008a; KPMG, 2008). A recent joint meeting of the European and North American Audit Committee Leadership Networks highlights both the urgency to develop effective ERM processes and the on-going struggle many organizations face when implementing ERM practices. ERM continues to be hampered by a narrow, business-unit view of risk that persists among top management (EACLN and NAACLN, 2008).

(i.e. strategic ERM) with the development of digital options (i.e. leveraging of IT integration) as the building blocks for the organizational agility (i.e. flexibility) required to respond to identified threats and opportunities (Sambamurthy et al., 2003). The culmination of all of the pieces working together under a strategic management focus on entrepreneurial alertness is an increased ability to quickly and successfully implement competitive actions that allow an organization to maximize performance in volatile business environments.

2.2. Research hypotheses

As noted, theory on capability building and entrepreneurial action (Sambamurthy et al., 2003) views the strategic use of technology as a necessary outcome of effective entrepreneurial alertness (see Fig. 1). As an organization enhances its entrepreneurial alertness, the theory highlights the importance of evaluating the organization's existing IT infrastructure and leveraging that infrastructure to create new digital options that work with the organizations entrepreneurial alertness strategies to improve organizational flexibility and in turn to facilitate effective competitive actions. Hence, of particular interest in the current study is how an organization's use of strategic ERM as a means of achieving entrepreneurial alertness leads to the creation of digital options that enhance ERM capability and jointly lead to increased organizational flexibility.

The digital option of critical concern to strategic ERM processes is the development of high IT compatibility across the organization's IT systems. Byrd and Turner (2000) define IT compatibility as the ability to share any type of information across any type of technology component. IT compatibility represents a transparency of information that allows access to critical data from anywhere within the organization through linked and integrated information systems. This is consistent with the various writings on enhancing strategic ERM processes. Ernst and Young (2008b, 6) highlights the importance of designing and developing desired ERM processes and, once these processes are in place, assessing the degree of alignment and coordination across the organization in assessing, improving, and monitoring risks and controls. COSO (2004, 25) notes relevant information must be "identified, captured and communicated in a form and timeframe that enables people to carry out their responsibilities". Levine (2004) notes the need to support ERM with IT systems that provide a true, unified picture of risk across the organization. Information and knowledge must be aggregated across strategic and operational levels of the organization to assist managers in understanding and assessing internal and external risks (Treasury Board, 2001; 15). This leads to the first hypothesis:

H1. As the strength of ERM processes increases, IT compatibility will increase.

As specified through theory on capability building and entrepreneurial action, the objective of developing IT compatibility is to build the joint capability between strategic ERM (i.e., entrepreneurial alertness) and IT compatibility (i.e., digital options) in a fashion that allows for the entity to improve its organizational flexibility.[5] Organizational flexibility is reflective of an ability to respond appropriately and timely to a wide variety of changes in the competitive environment, and is a function of managerial capabilities and the responsiveness of the organization (Volberda, 1996). Strategic ERM provides the alertness to identify associated risks and opportunities that must be responded to in a timely manner. This is consistent with prior research in managerial control systems where Chenhall and Euske (2007) specifically note the role of risk management processes in the successful adaptation of strategic direction and Bouwens and Abernethy (2000) show that strategically oriented firms demand broader scope information. This broad scoped information is viewed as highly important to organizational flexibility (Abernethy and Lillis, 1995). Consistent with the theory, strategic ERM is viewed as critical to organizational flexibility, but this impact on flexibility flows at least in part through the information provided through the development of IT compatibility.

Palanisamy (2005) notes the importance of IT compatibility in facilitating such responsiveness by an organization's management. Without easy accessibility of organization-wide data on performance and

[5] Sambamurthy et al., 2003 speak in terms of agility which is generally defined as flexibility at high speed. Our interest is in the flexibility aspect.

capabilities, an organization has difficulty in understanding and responding to new market, product, or service opportunities and understanding shifts in customer preferences and needs—opportunities that require increased organizational flexibility to respond effectively and efficiently. This is consistent with Chapman and Kihn's (2009) findings that centralized data that is accessible organization-wide increased organizational flexibility. This leads to the second and third hypotheses:

H2. As IT compatibility increases, organizational flexibility will increase.

H3. Stronger ERM processes will enhance organizational flexibility, but this relationship will be mediated by the level of IT compatibility.

Theory on capability building and entrepreneurial action suggests that the joint effects of strategic ERM and the resulting organizational effectiveness will provide the organization with the ability to take appropriate competitive actions for reacting to identified risks and/or seizing opportunities. The competitive actions of interest in this study are the organization's reaction to and ability to address SOX internal control mandates. Thus, at this point we shift from competitive actions as a singular action to the interrelated actions required to be executed—specifically, development of a strong control environment and the subsequent development of a set of processes for effectively addressing compliance requirements.

As noted earlier, Ernst and Young (2008b) highlight the importance of establishing the proper tone at the top of the organization to assure that the control culture of the organization is in alignment with a risk management perspective. The control environment of the firm must evolve to a form compatible with strategic ERM goals and objectives. The control environment is the foundation for all other components of internal control, providing discipline and structure. The managerial control literature similarly points to the importance of developing an effective control environment that supports continued levels of high organizational flexibility (Simons, 1990; Davila, 2000; Chenhall, 2003; Ditillo, 2004; Naranjo-Gil and Hartmann, 2006, 2007). Thus, an organization will only be able to maintain a consistent state of strong organizational flexibility if the organization develops an effective control environment that promotes discipline and structure consistent with the existing level of organizational flexibility. The resulting control environment is a product of both strategic ERM mandates and the sustainability needs for the organization's achieved level of flexibility. This leads to the fourth and fifth hypotheses:

H4. As the strength of ERM processes increases, the strength of the control environment will also increase.

H5. As organizational flexibility increases, the strength of the control environment will also increase.

The other competitive action required to address the changing environment in light of SOX mandates is that of implementing processes that enable fulfillment of the overall internal control compliance requirements. Faced with new regulatory compliance requirements, an organization must react quickly in order to put the processes in place to achieve compliance effectively and efficiently. By definition, organizational flexibility is the ability to respond appropriately and timely to changes in the competitive environment (Volberda, 1996). The introduction of new regulation is reflective of such a change in the competitive environment. Thus, organizations that are more flexible would be expected to react to regulatory changes by implementing appropriate and timely processes to achieve compliance.

Amburgey and Miner (1992) view this ability to react to change by implementing appropriate and timely processes as strategic momentum. In terms of organizational change, strategic momentum is the tendency to maintain or expand the emphasis and direction of prior strategic actions in reacting to current strategic challenges (Amburgey and Miner, 1992). The experience with change that comes with organizations having high levels of organizational flexibility provides the ability to incorporate core routines for facilitating change into the structural inertia (i.e., culture) of the firm (Amburgey et al., 1993). High levels of organizational flexibility coupled with a culture prepared to address change are perceived to be even more critical when the forces driving the change are intensified (Grewal and Tansuhaj, 2001). Arnold et al. (2007) observe this facilitating link between a change culture and the ability to adapt to control requirements under SOX 404 mandates in two of the four firms they studied.

The inertia that allows firms to adapt and repetitively apply change routines (Amburgey et al., 1993) is consistent with the organizational culture required within regulatory environments that mandate ongoing processes that facilitate compliance. This compliance culture, which must become engrained in the organizational culture, accordingly influences the control consciousness of the organization's people—i.e., the control environment (COSO, 1992). This creation of a strong control environment should have a direct effect on the viability of SOX 404 implementation processes. Arnold et al. (2007) note the importance of a strong "tone at the top" for facilitating the change in culture required for implementing SOX 404 compliance mandates. Hence, while organizational flexibility should facilitate the development of effective implementation processes, the impact is likely increased (decreased) in the presence (absence) of a strong control environment. The control environment is a critical catalyst for successfully implementing strategic compliance processes. This leads to the sixth and seventh hypotheses:

H6. A stronger control environment will lead to more effective SOX 404 implementation processes.

H7. Higher levels of organizational flexibility will promote stronger SOX 404 implementation processes, but this relationship will be mediated by the strength of the control environment.

If competitive actions taken by an organization are appropriate, they should achieve the desired response. Accordingly, we introduce a control hypothesis that simply captures the positive relationship between more effective SOX 404 implementation processes and reduction in the difficulty of achieving compliance as a means of demonstrating the effectiveness of the identified competitive actions. This control represents the eighth and final hypothesis:

H8. As the strength of SOX 404 implementation processes increases, the difficulty in achieving compliance will decrease.

This final hypothesis serves to assure that higher perceived levels of activity actually result in tangible benefits.

Fig. 2 graphically presents the hypothesized relationships and visually captures the interrelationships among the various constructs. In terms of theory on capability building and entrepreneurial alertness, the research model expands upon the competitive actions portion of the conceptual model to consider in greater detail the activities necessary for an effective response to the given regulatory change.

3. Research method

A field survey method was adopted for this study in order to identify and understand the relationships as they exist within a set of organizations. Partial least square (PLS) analysis (SmartPLS 2.0 Beta, 2005) was used to validate the study constructs and to test the relationships hypothesized in the conceptual model

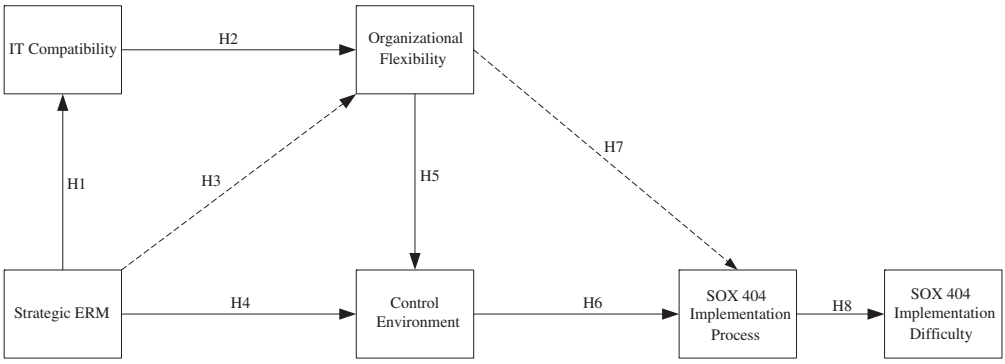

Fig. 2. Drivers of SOX 404 implementation difficulty.

Table 1
Sample demographics.

Category	Frequency N = 113	Percentage
Gender		
Male	78	69.03%
Female	33	29.20%
Not answered	2	1.77%
Age		
25 to 40 years	28	24.78%
40+ years	84	74.34%
Not answered	1	0.88%
Experience		
3 to 10 years	21	18.58%
10+ years	92	81.42%
Industry		
Manufacturing	26	23.01%
Financial services/real estate	19	16.81%
Technology	12	10.62%
Insurance carriers/agents	11	9.73%
Utilities	10	8.85%
Wholesale/retail	6	5.31%
Transportation	6	5.31%
Communication	4	3.54%
Health	3	2.64%
All other	16	14.16%
Organizational structure		
Publicly traded	106	93.81%
Not publicly traded	6	5.31%
Not answered	1	0.88%

presented in Fig. 2. The following sub-sections elaborate on the sample, instrument development and validation, and the method of analysis.

3.1. Sample

The Institute of Internal Auditors Research Foundation (IIARF) hosted the survey employed in this study. An invitation to participate was sent by the IIARF to 1383 members identified as "Chief Audit Executives" or the equivalent. A total of 251 members completed the survey for a total response rate of 18.10%; 139 (55.38%) were employed at organizations that have completed the SOX 404 compliance process, 111 (44.22%) were employed at organizations that either are not subject to SOX 404 compliance or have not completed the compliance process, and one respondent did not answer this question. While all invitees were identified by the IIA as the chief audit executives in their organizations, responses were screened based on the demographics in order to identify anyone that did not appear to fit the sample profile. Of the 139 respondents at organizations that had completed the SOX 404 compliance process, two indicated they were staff auditors with less than five years experience and one individual with less than five years experience did not respond to the question related to position. The data from these three respondents were excluded from further analyses.

Data from the remaining 136 respondents were examined for completeness. In one case, the respondent answered less than 30% of the survey; and, in another case, the respondent omitted all items related to one variable of interest. These cases were also dropped from further analyses. A test of overall randomness found that remaining missing data was missing completely at random (MCAR, chi-square = 314.933 df = 386 p-value = 0.997) and the expectation maximization algorithm (EM) (SPSS 15.0 2006) was used to calculate replacement values as necessary (Hair et al., 2006). Of the total 2712 data points used in the final analysis, EM replacement values were calculated for 19 missing values.

Respondents were afforded the option of selecting "N/A Don't Know" for each of the survey measures. The "N/A Don't Know" responses were examined to assess the magnitude and pattern (if any) to these data. Twenty-one of the respondents selected "N/A Don't Know" for more than 10% of the survey items, and

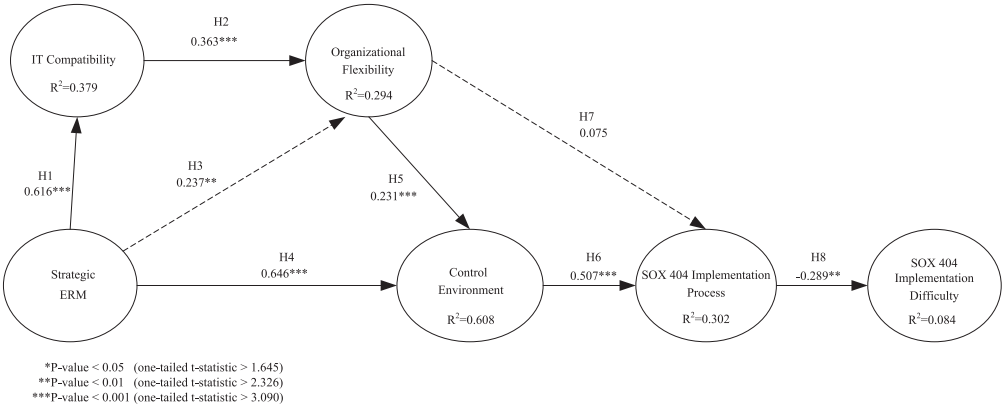

Fig. 3. Structural model.

these respondents' data were all excluded from further analyses.[6] The remaining "not applicable" responses were evaluated and found to be completely at random (MCAR, chi-square = 336.007 df = 312 p-value = 0.168) and EM (SPSS 15.0 2006) was used to calculate replacement values for 31 of 2712 items (Hair et al., 2006). All remaining analyses for the current study are based on the remaining 113 respondents employed at organizations that reported having completed at least one filing consistent with the requirements of SOX 404.

Demographic data respondents are shown in Table 1. Of the 113 respondents used in this study, 106 (93.81%) were employed at publicly traded companies and 92 (81.42%) had over ten years internal audit, accounting, finance and/or IT experience. Twenty-six (23.01%) were employed in manufacturing, 19 (16.81%) in financial services/real estate, 12 (10.62%) in technology, 11 (9.73%) in insurance, and 10 (8.85%) in utilities. Seventy-eight (69.03%) of the survey respondents were male, 33 (29.20%) were female, and two did not respond to this item.

3.2. Survey instrument

The online survey was divided into two sections; the first section captured measures of the latent variables employed in this study. The second section of the survey instrument collected respondents' demographic information. The structural model, which is shown in Fig. 3, includes five latent variables with reflective item measures (i.e., strategic ERM, IT compatibility, organizational flexibility, control environment, and SOX 404 implementation difficulty) and one latent variable with formative item measures (i.e., the SOX 404 implementation process). The individual items used to measure the constructs are presented in Table 2.

Strategic ERM is an organizational process that enables firms to holistically identify, assess, and measure the potential impact of risks that can affect firm value. The five ERM item measures used in the current study reflect respondents' assessment of the strength of their firm's ERM processes at a strategic level. Specifically, these measures were developed to reflect top management's role in risk management, as top management must develop consistent operational objectives and goals throughout the organization by implementing risk management processes that provide consistent and reliable information about both strategic risks and opportunities. ERM should ensure that control processes identify both risks and opportunities that may affect the achievement of objectives, and that the identified risks and opportunities are complimented with appropriate responses. The measures are not designed to measure the stage of ERM that a firm has achieved, but rather as a set of measures that reflect the overall strategic ERM development.

[6] The demographic data for these twenty-one respondents were examined to see if there was a concentration in a particular industry or some other participant demographic characteristic; however, these frequencies were similar to that of participants retained in the sample.

Table 2
Construct measures.

Strategic Enterprise Risk Management (ERM)
1. Our organization performs a thorough enterprise-wide risk assessment at least once a year.
2. The strength of our internal control system enhances our organization's ability to identity events that may affect the achievement of our objectives.
3. Our organization regularly evaluates the effectiveness of internal controls to mitigate identified risks.
4. Management has effective processes to respond to identified risks.
5. Our risk management procedures provide the necessary information top management needs to monitor changes that could impact our organization's well-being.

IT Compatibility
1. Remote, branch, and mobile offices have easy access to data from the home or central office.
2. Our organization's ability to make rapid IT change is high.
3. Information is shared seamlessly across our organization, regardless of the location.
4. Our user interfaces provide transparent access to all applications.
5. Our organization offers a wide variety of types of information to end users (e.g. multimedia) (D).
6. Data received by our organization from electronic links with supply-chain partners are reliable (D).

Organizational Flexibility
1. Our organization has difficulty maximizing new market opportunities (RC).
2. Our organization is able to introduce new products/services.
3. Our organization has difficulty accommodating major changes in basic product designs or service offerings (RC).
4. Our organization is able to manage the impact of serving new classes of customers.

Control Environment
1. Top management exhibits shared attitudes regarding acceptable levels of enterprise risk.
2. The board of directors actively interacts with internal auditors.
3. Our organization has an enforceable formal code of conduct.
4. Our organization has an effective mechanism for employees to anonymously report dishonest, illegal or unethical behavior.
5. The actions of management support a strong internal control environment.

SOX Implementation Process
1. Top management provided committed leadership in the implementation of SOX requirements.
2. Our organization developed a formal approach to implementing SOX requirements.
3. Our organization assembled an effective team to lead the SOX implementation process.
4. Our organization experienced a change in organizational culture as a result of implementing SOX requirements.
5. Our organization had a "champion" leading the SOX implementation process.
6. The IT function in our organization effectively supported the necessary changes for SOX compliance.

SOX Implementation Difficulty
1. The change that was required for our organization to comply with SOX was difficult to implement.

RC: Reverse coded.
D: Items dropped due to volume of "not applicable/don't know" responses; items not included in data analyses.

However, as firms attain higher stages of strategic ERM this should be reflected in higher values for all item measures. The item measures for the strategic ERM construct, shown in Table 2, reflect a clear picture of an organization's internal strategic environment with a focus on achieving the strategic benefits that should be derived from effective ERM strategies and processes (Treasury Board, 2001; COSO, 2004; Ernst and Young, 2008b).

IT compatibility is a sub-component of Byrd and Turner's (2000) technical IT infrastructure flexibility construct and measures the organizations' ability to share information across various technology components. Many organizations use multiple information systems along with various other tools (e.g., decision aids) to generate financial and managerial information. IT compatibility reflects the ability for these various systems and tools to communicate with each other. The item measures for IT compatibility were adapted from Byrd and Turner (2000). However, over 10% of the respondents indicated that two of the item measures shown in Table 2 were not applicable for their organization. As a result, these items were dropped from further analysis.

Organizational flexibility reflects the organization's ability to respond to the opportunities and challenges of a competitive environment (Sanchez, 1995). Four item measures of organizational flexibility

are employed in the current study. These measures are adapted from those validated by Cannon and St. John (2004) and focus on organizations' strategic accommodation of market/product changes. Firms that are able to scan the environment and respond to product market changes are expected to display this core competency with respect to other environmental changes (e.g., regulatory changes).

The control environment construct reflects the organization's corporate environment as it relates to internal controls. The five item measures in the current study for the control environment were derived from COSO's original "Internal Control—Integrated Framework" (1992). COSO (1992) specifically mentions integrity and ethical values in the form of tone at the top and an enforceable code of conduct, commitment to competence, active board of directors, and appropriate organizational structure. Overall, a strong control environment consists of a strong tone at the top, supported by an organizational structure that encourages ethical behavior. This organizational structure includes active communication between internal audit and the board of directors/audit committee, enforceability of the code of conduct, and anonymous reporting mechanisms. The item measures for control environment, shown in Table 2, are reflective of a strong control environment.

The facets of organizational process change that are combined to form the construct for SOX 404 implementation process include leadership, teamwork, change in organizational culture, and technology support functions. These attributes indicate a formal approach to initiating an organization wide change. This usually includes the formation of a committee to plan activities, oversee the execution across the enterprise, and evaluate all change efforts (Kettinger and Grover, 1995). These item measures, also shown in Table 2, are derived from organizational and business process change 'best practices' and case study results (Kettinger and Grover, 1995; Ungan, 2005; Arnold et al., 2007). While the SOX 404 implementation process construct is a measure of how SOX 404 compliance was effected, the SOX 404 difficulty construct, reflects the difficulty the firms experienced with implementing the SOX 404 mandated changes. Summary construct descriptive statistics are presented in Table 3.

3.3. Data analysis

As shown in Fig. 3, four of the constructs in the structural model are both exogenous and endogenous. In addition, the SOX 404 implementation process construct is formative rather than reflective, thus partial least squares (SmartPLS 2.0 beta, 2005) is used to analyze the data and assess construct convergent and discriminant validity.

3.3.1. Convergent validity

The measures used to assess the convergent validity of the reflective constructs employed in this study are average variance extracted, construct composite reliability, and factor loadings. As shown in Table 3, the average variance extracted for each reflective construct exceeds 0.50 and the construct composite reliability exceeds 0.70 (Fornell and Larcker, 1981; Hair et al., 2006). The factor loadings and cross loadings for the reflective indicators, are presented in Table 4; the factor loadings for all item measures exceed 0.70

Table 3
Construct descriptive statistics and correlations.

Construct	Mean	Std. dev.	CR	AVE	CE	ERM	ITC	OF	SOX-IP	SOX-D
Control Environment (CE)	2.447	1.255	0.887	0.612	**0.782**					
Strategic Enterprise Risk Management (ERM)	3.172	1.212	0.939	0.756	0.738	**0.869**				
IT Compatibility (ITC)	2.958	1.204	0.913	0.724	0.598	0.601	**0.851**			
Organizational Flexibility (OF)	2.346	1.030	0.842	0.572	0.515	0.446	0.485	**0.756**		
SOX 404 Implementation Process (SOX-IP)	1.702	0.949	n/a	n/a	0.543	0.405	0.356	0.344	n/a	
SOX 404 Implementation Difficulty (SOX-D)	2.965	1.118	n/a	n/a	−0.409	−0.325	−0.333	−0.204	−0.307	n/a

CR: Composite reliability.
AVE: Average variance extracted.
Numbers on the diagonal (in bold) are the square root of the average variance extracted (AVE) estimate for each reflective construct.
Numbers off the diagonal are the correlations between the various constructs.

Table 4
Item loadings and cross loadings for reflective indicators.

Construct	Indicator	Control Environment	Strategic Enterprise Risk Management	IT Compatibility	Organizational Flexibility	SOX Implementation Difficulty
Control Environment	CE1	**0.800**	0.587	0.520	0.444	−0.304
	CE2	**0.817**	0.645	0.431	0.419	−0.359
	CE3	**0.780**	0.527	0.491	0.385	−0.362
	CE4	**0.742**	0.487	0.375	0.299	−0.204
	CE5	**0.771**	0.618	0.504	0.444	−0.346
Strategic Enterprise Risk Management	ERM1	0.480	**0.735**	0.376	0.227	−0.050
	ERM2	0.682	**0.872**	0.539	0.433	−0.374
	ERM3	0.685	**0.888**	0.560	0.362	−0.313
	ERM4	0.672	**0.939**	0.575	0.495	−0.310
	ERM5	0.659	**0.897**	0.532	0.372	−0.295
IT Compatibility	ITC1	0.483	0.512	0.836	0.414	−0.270
	ITC2	0.518	0.499	**0.817**	0.460	−0.275
	ITC3	0.510	0.545	**0.868**	0.424	−0.283
	ITC4	0.522	0.484	**0.882**	0.342	−0.308
Organizational Flexibility	OF1 (RC)	0.378	0.242	0.386	**0.733**	−0.228
	OF2	0.384	0.286	0.337	**0.789**	−0.128
	OF3 (RC)	0.314	0.342	0.331	**0.773**	−0.035
	OF4	0.452	0.448	0.398	**0.729**	−0.198
SOX 404 Implementation Difficulty	SOX-D	−0.408	−0.325	−0.333	−0.204	**1.000**

RC—reverse coded.
Factor loadings are shown in bold on the diagonal and cross loadings are shown without bold on the off the diagonal.

and are higher than related cross-loadings (Chin, 1998; Hair et al., 2006). Together these results support the convergent validity of the reflective constructs in the structural model (Fornell and Larcker, 1981; Chin, 1998; Hair et al., 2006). Measures of internal consistency are not appropriate for validating formative constructs (Hair et al., 2006).

3.3.2. Formative construct validity

Formative measures form a composite index, and ensuring that any single indicator does not overweight any particular aspect of the construct is important (Chin, 1998; Diamantopoulos et al., 2008). Variance inflation factors (VIF) and outer weights for the formative constructs were calculated and examined to determine whether any indicator should be dropped. VIF were calculated for each of the six indicators of the formative construct and for SOX 404 implementation process (using the measure of SOX 404 implementation difficulty) and are shown in Table 5. The VIF for one of the measures of SOX 404 implementation process, "Our organization developed a formal approach to implementing SOX" (SOX-IP2), was 4.4 (not shown) and exceeded the recommended conservative threshold of 3.3 (Diamantopoulos and Siguaw, 2006; Petter et al., 2007). All of the item measures for this construct were reviewed and removing this item did not affect the construct content validity (Hair et al., 2006; Petter et al., 2007). As shown in Table 5, the VIF for the remaining measures of this construct were all less than 2.0, and were retained in the model (Hair et al., 2006).

The outer weights for the formative measures of the SOX 404 implementation process construct are also presented in Table 5. While three of the item measures are significant, two of the measures are not. Although some researchers suggest dropping any item measures that have insignificant weights (Diamantopoulos and Winklhofer, 2001), we have adopted the approach recommended by Bollen and Lennox (1991) and Petter et al. (2007), which is to retain all measures to preserve content validity.

3.3.3. Discriminant validity

The square-root of the average variance extracted for each latent variable was compared with the related inter-construct correlations to assess discriminant validity (Hair et al., 2006). As shown in Table 3, the estimates for the square-root of average variance extracted were greater than the associated inter-construct correlations, supporting discriminate validity for the reflective constructs in the model.

Table 5
Formative construct validity for SOX 404 implementation process.

Indicator	Variance inflation factor	Outer weights
SOX-IP1	1.528	0.529**
SOX-IP3	1.701	0.373**
SOX-IP4	1.030	−0.696***
SOX-IP5	1.465	−0.175
SOX-IP6	1.361	0.259

** P-value<0.01 (two-tailed t-statistic>2.326).
*** P-value<0.001 (two-tailed t-statistic>3.291).

Additionally, each inter-construct correlation is also less than 0.85, providing further evidence of discriminant validity (Kline, 2005).

3.3.4. Common method bias

Inherent in the use of survey data is the possibility of common method bias, which represents variance attributable to the research method rather than the construct (Bagozzi and Yi., 1990; Podsakoff et al., 2003). To assess whether common method bias is a serious concern in the current study, a common method factor was included in the research model (not shown). The common method factor included all of the construct indicators. Second-order constructs were then created in order to apportion the indicator variances into trait (research model) and common method variance, shown in Table 6 (Podsakoff et al., 2003; Liang et al., 2007). For two construct indicators (not tabulated), the second-order standardized path coefficients were greater than 1.0, which is theoretically impossible and suggests highly correlated indicators; these indicators were dropped from further analyses[7] (Hair et al., 2006). As shown in Table 6, none of the standardized coefficients for the common method factor is significant and the variance explained by the common method factor is 1.37% while the variance explained by the research constructs is 66.41%. These results indicate that common method bias is not a serious concern in the current study (Williams et al., 2003; Liang et al., 2007).

4. Results

The purpose of this study was to examine the influence of strategic ERM on the effective leveraging of IT systems, development of organizational flexibility, and the resulting reactiveness to new regulatory mandates over internal control reporting. The research model theorized in the current study posits that factors impacting the effectiveness of implementation processes include strategic ERM effectiveness, the level of IT compatibility, the organization's flexibility, and the strength of the organization's control environment. Because this model includes a formative construct, parametric testing is not appropriate; bootstrapping (1000 samples with replacement) was used to calculate model t-statistics and standard errors (Diamantopoulos and Winklhofer, 2001). The construct R^2, standardized path coefficients, and p-values are presented in Fig. 3 (SmartPLS 2.0 beta, 2005).

H1 posits that ERM is an antecedent of IT compatibility. The results indicate that the standardized path coefficient (+0.616) is significant (p-value<0.001) and in the hypothesized direction, providing support for H_1. R^2 for IT compatibility is 0.379, suggesting that ERM explains 37.9% of the variation in IT compatibility. Consistent with prescribed ERM strategies, these results support the view that the ability to share information across the organization is a critical and necessary outcome of implementing strategic ERM processes.

[7] The indicators dropped from further analysis are as follows: "Our organization has an effective mechanism for employees to anonymously report dishonest, illegal or unethical behavior" (CE-4); and "Our user interfaces provide transparent access to all applications" (ITC-4). Construct convergent and discriminant validity was reexamined after dropping these indicators, and the results (not shown) are consistent with those reported.

Table 6
Common method bias.

Construct	Construct indicator	Research model 2nd order standardized path coefficients	Research model indicator variance	Common method factor standardized path coefficients	Common method indicator variance
Strategic Enterprise Risk Management (ERM) [a]	ERM1	0.930***	0.865	−0.224	0.050
	ERM2	0.740**	0.548	0.144	0.021
	ERM3	0.857***	0.734	0.040	0.002
	ERM4	0.958***	0.917	0.000	0.000
	ERM5	0.644***	0.414	0.224	0.050
IT Compatibility (ITC) [a]	ITC1	0.872***	0.761	−0.032	0.001
	ITC2	0.796***	0.634	0.040	0.002
	ITC4	0.885***	0.783	−0.008	0.000
Organizational Flexibility (OF)	OF1	0.792***	0.627	−0.058	0.003
	OF2	0.881***	0.725	−0.067	0.004
	OF3	0.858***	0.736	−0.083	0.007
	OF4	0.530***	0.281	0.228	0.052
Control Environment (CE) [a]	CE1	0.808***	0.654	0.008	0.000
	CE2	0.901***	0.812	−0.067	0.004
	CE3	0.828***	0.685	−0.072	0.005
	CE5	0.670***	0.448	0.130	0.017
Average variance explained		80.94%	66.41%	1.27%	1.37%

[a] The construct factor loadings for ITC3 and CE4 exceeded 1.0 and these indicators were dropped from the Common Method Bias analysis.
** P-value<0.01 (one-tailed t-statistic>2.326).
*** P-value<0.001 (one-tailed t-statistic>3.090).

H_2 posits that IT compatibility facilitates organizational flexibility. The standardized path coefficient of H_2 (+0.363) is also significant (p-value<0.001) in the hypothesized direction. As shown in Fig. 3, R^2 for organizational flexibility is 0.294. This finding supports both the underlying theory on the relationship between strategic ERM and organizational flexibility as well as being consistent with prior managerial control research that suggests that maintenance of flexible organizational structures requires easy access to organizational wide information that facilitates monitoring (Abernethy and Lillis, 1995; Abernethy and Brownell, 1999; Bouwens and Abernethy, 2000).

H_3 posits that IT compatibility mediates the impact of ERM on organizational flexibility. Consistent with Baron and Kenny (1986), the three conditions that must be met to support a mediation effect are evaluated. The first condition requires a significant relationship between ERM and IT compatibility; tests of H_1 provide support for this condition. The next condition requires a significant relationship between IT compatibility and organizational flexibility; tests of H_2 provide support for this condition. The third condition requires that a significant relationship between ERM and organizational flexibility become less significant when a relationship between ERM and IT compatibility is included in the model. In other words, for IT compatibility to mediate the impact of ERM on organizational flexibility, H_1 and H_2 should have significant path coefficients while the coefficient for H_3 diminishes. A significant relationship ($\beta = +0.474$, p-value<0.001) (not shown) between ERM and organizational flexibility is present when the unmediated relationship between those two variables is tested. As shown in Table 7, when IT compatibility is included in the model, the relationship between ERM and organizational flexibility is still significant ($\beta = +0.240$, p-value<0.01), but diminishes by almost 50% indicating that IT compatibility partially mediates the effect of ERM on organizational flexibility. Results of the Goodman I version of the Sobel test (z-value = 3.776, p-value<0.001) confirm the partial mediation effect. The identification and support of this mediating effect is a major finding as it explains the interrelationship between three disparate literatures: (1) conceptualizations on ERM (Treasury Board, 2001; COSO, 2004; Ernst and Young, 2008b), (2) findings in the managerial control literature on the importance of broad based information to support flexible organizations, and (3) findings in the strategic management literature on the critical role of managerial control and IT capability on organizational flexibility.

Table 7
Mediation tests.

Tests of H_3: IT Compatibility mediates the impact of Strategic ERM on Organizational Flexibility	
H_1: ERM ← IT compatibility	$\beta = +0.615^{***}$
H_2: IT Compatibility ← Organizational Flexibility	$\beta = +0.359^{***}$
H_3: ERM ← Organizational Flexibility (Direct)	$\beta = +0.240^{***}$
H_3: ERM ← Organizational Flexibility (Indirect)	$\beta = +0.220^{**}$
Sobel Test (Goodman 1)—partial mediation	z-value = 3.776***
Tests of H_7: Control Environment mediates the impact of Organizational Flexibility on SOX Implementation Process	
H_5: Organizational Flexibility ← Control Environment	$\beta = +0.531^{***}$
H_6: Control Environment ← SOX 404 Implementation Process	$\beta = +0.511^{***}$
H_7: Organizational Flexibility ← SOX 404 Implementation Process (Direct)	$\beta = +0.085$
H_7: Organizational Flexibility ← SOX 404 Implementation Process (Indirect)	$\beta = +0.272^{***}$
Sobel Test (Goodman 1)—full mediation	z-value = 3.939***

** P-value < 0.01.
*** P-value < 0.001.

H_4 posits that improvements in ERM will lead to control environment improvements. The standardized path coefficient (+0.646) is significant (p-value < 0.001), providing support for H_4. ERM also impacts control environment through organizational flexibility, thus the total effect of ERM on control environment is 0.752 (i.e., 0.646 + (0.237 0.231) + (0.616 0.363 0.231)). By including the organizational components impacted by ERM in the research model (i.e., IT compatibility and organizational flexibility), our model reveals that the total effect of ERM on control environment is substantially higher than the simple direct effect of 0.646.

H_5 posits that improved organizational flexibility is associated with an improved control environment. Fig. 3 indicates that the standardized path coefficient between organizational flexibility and control environment (+0.231) is significant (p-value < 0.001) in the hypothesized direction, providing support for H_5. This finding is consistent with theorizations from a strategy perspective (Volberda, 1996), findings in prior managerial control studies (Simons, 1990; Davila, 2000; Chenhall, 2003; Ditillo, 2004; Naranjo-Gil and Hartmann, 2006), and the underlying theory on ERM facilitation of competitive actions. All have postulated that flexible organizations are only sustainable if they develop strong controls, and our research results show that a strong control environment represents one such control mechanism for facilitating and supporting organizations' ability to respond in an effective and timely manner.

H_6 posits that the quality of the control environment influences the SOX 404 implementation process. The standardized path coefficient between control environment and SOX 404 implementation process (+0.507) is significant (p-value < 0.001) and in the hypothesized direction, providing support for H_6. This finding provides additional support for the finding that a strong "tone at the top" that facilitates a change in culture has a substantial influence over the organization's proficiency in implementing SOX 404 compliance processes (Arnold et al., 2007).

H_7 posits that control environment mediates the impact of organizational flexibility on the SOX 404 implementation process. As noted previously, three conditions must be met to support a mediation effect (Baron and Kenny, 1986). The first condition requires a significant relationship between organizational flexibility and control environment; tests of H_5 provide support for this condition. The next condition requires a significant relationship between control environment and SOX 404 implementation process; tests of H_6 provide support for this condition. The third condition, which requires that a significant relationship between organizational flexibility and SOX 404 implementation process must become less significant when a relationship between organizational flexibility and control environment is included in the model, also exists. The coefficient between organizational flexibility and SOX 404 implementation process is significant ($\beta = +0.420$, p-value < 0.001) (not shown), however, the direct relationship is no longer significant ($\beta = +0.085$, p-value > 0.10) when mediated by the control environment (shown in Table 7). The results of the Goodman I version of the Sobel test (z-value = 3.939 p-value < 0.001) confirm the full mediation effect. Thus, control environment fully mediates the effect of organizational flexibility on SOX 404 implementation process. Consistent with Volberda (1996) this additional major finding demonstrates that the usefulness of organizations' flexibility in facilitating responsiveness to new regulatory mandates is heavily dependent on the strength of the control environment.

The last hypothesis, H_8, posits an inverse relationship between the SOX 404 implementation process and the amount of difficulty experienced by the organization during the implementation process. To obtain a measure of SOX 404 implementation difficulty, respondents were asked to indicate their level of agreement with the following statement, "The change that was required for our organization to comply with SOX was difficult to implement".

A formative construct is by definition unidentified (Hair et al., 2006), thus the SOX 404 difficulty construct provides model identification and supports the nomological validity of the formative SOX 404 implementation process construct. The results indicate that the standardized path coefficient (−0.289) is significant (p-value<0.01) and in the hypothesized direction, providing support for H_8.

5. Discussion

This research study was motivated in part by the discourse over the potential negative impacts of new global internal control reporting mandates and, in part, by the need for a better understanding of the relationship between strategic ERM, IT compatibility, and organizational flexibility on both the development of a strong control environment and compliance difficulty. Critics of SOX 404 requirements in particular have often pointed to a loss in organizational flexibility as a cost of regulatory compliance and advocated rescinding this key aspect of the corporate governance initiatives put in place by the Act. While our model specifically focuses on SOX 404 compliance requirements, the conceptual foundations of the model are more generalized and the models applicability theoretically should also extend to organizational responses to other new regulatory compliance requirements.

In formulating the conceptual model, consideration was given to the findings of Arnold et al. (2007) in their case analysis of four small and medium-sized organizations' experiences in implementing SOX 404 compliance processes. Two of the four organizations had difficult implementation experiences and two exhibited relatively minor difficulty in implementation. On the surface, these case studies would seem to highlight conflicting evidence regarding the actual existence of the concerns that have been raised—i.e., reduced organizational flexibility and hindered competitiveness. A deeper examination of the documented cases, however, provides evidence that the differences in experiences among the companies could be driven by organizational culture and/or existing ERM strategies.

In this study, we develop a conceptual model that investigates the effects of organizational culture and ERM processes on compliance. The model relies heavily on the theory of capability building and entrepreneurial alertness while integrating that theory with the managerial control systems literature in order to better understand the facilitation of competitive actions required to respond to the new regulatory mandates. The theoretical relationships between the four main constructs are better understood as a result of identifying the mediating constructs that influence the nature of the relationships among the constructs. Testing of the model, based on the reported organizational structures and experiences provided by 113 chief audit executives from organizations having completed and reported upon SOX 404 compliance requirements for internal controls, yields strong explanatory power and significant relationships that are in line with the hypothesized relationships. Thus, the conceptual model appears to provide a sound basis for understanding how various organizational structures and processes affect the level of compliance difficulty experienced across a range of organizations.

First, we find that the strength of strategic ERM processes is very predictive of organizations' flexibility, but that this relationship is partially mediated by IT compatibility—the ability to access and utilize enterprise-wide data from across all organizational systems. Second, we find that an organizations' flexibility is positively related to their ability to implement effective processes for addressing compliance with new regulations, but that this relationship is fully mediated—in this case by the strength of the control environment. Third, our findings significantly enhance the theoretical understanding of the relationship between strategic ERM and the strength of the control environment by identifying not only a strong direct effect, but also finding a strong indirect effect via the organizational structures and processes supported by ERM. This indirect effect increases the explanatory power of ERM by 16% in terms of explaining the variance in the strength of organizations' control environment. In summary, the results provide evidence that organizations with strong strategic ERM processes prior to SOX 404 mandates faced fewer obstacles in implementing the processes necessary to meet internal control requirements. On the other hand, the organizations that did not have strong ERM processes in place incurred the greatest difficulty in

implementing effective compliance processes—the very organizations for which the Act was deemed so important.

There are limitations of the current study that should be considered when reflecting upon the results. Many of these limitations are related to scope and also provide guidance on future research needs. First, our responses were taken entirely from chief audit executives. Their views on the SOX 404 compliance experience may not be reflective of other chief executives in the organization. Future studies may wish to consider multiple respondents for each organization in order to get a more diverse perspective on the experiences. Second, our study considers a limited set of organizational structures and processes, and additional organizational characteristics may likely aid in further explaining the attributes and relationships that were observed in this study. Organizations are complex entities and substantial research is required to uncover the myriad of complex interrelationships that drive organizational behavior and performance. As the strategic ERM movement continues to evolve, organizations' strategy is increasingly intertwined with IT systems and future research should consider other aspects of IT that facilitate strategic ERM efforts. Third, our study relies on the responses of chief audit executives, which necessarily narrows our representation to organizations that have at least one in-house internal auditor. Given the large market for consulting services to assist with compliance efforts, a relatively small subset of organizations still do not have an internal audit function in-house. While this has become much rarer in the post-SOX era, future research should consider expanding the scope to these organizations as well.

Overall, the research reported here provides an initial view into the effect of organizational structures and processes on the ability to meet regulatory compliance mandates. The relationships are strong and significant, the interrelationships complex, and the findings highly insightful in terms of understanding the importance of strategic ERM in effectively dealing with volatile environments.

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