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Explaining IT governance disclosure through the constructs of IT governance maturity and IT strategic role

Anant Joshi[a,*], Laury Bollen[a], Harold Hassink[a], Steven De Haes[b], Wim Van Grembergen[b]

[a] Department of Accounting and Information Management, School of Business and Economics, Maastricht University, The Netherlands
[b] Department of Management Information Systems, Faculty of Applied Economics, University of Antwerp, Belgium

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ABSTRACT

This study investigates the relation between the maturity of IT governance processes and the IT governance disclosure of firms. Furthermore, it examines whether the strategic role of IT in an industry induces systematic variation in IT governance disclosure. Based on a content analysis of annual reports and a field survey on the maturity of the implementation of COBIT processes, the results demonstrate a role of IT governance frameworks in stimulating accountability and transparency via enhanced external reporting of relevant IT information to external stakeholders, in particular in settings where the strategic role of IT is high.

1. Introduction

Senior management is increasingly engaged in the implementation of IT governance frameworks to provide structure, processes, and relational mechanisms for efficient IT decision making and the monitoring of IT assets [1,2]. In fact, the last published IT governance global status report of the IT Governance institute [3] found a considerable increase in the adoption and maturity of best practice-based IT governance frameworks to improve IT performance at the firm level. Consistent with this, some recent academic studies have shown that the level of IT governance maturity has a significant positive impact on IT performance as well as firm performance [4,1,5,6].[1]

Although these studies have contributed to our understanding of the complex association between maturity of IT governance practices and firm performance, what remains unclear is how IT governance maturity in firms influences firms' overall IT information environment, and more importantly external reporting on IT governance. Given that IT capabilities are dominant in achieving strategic business goals [7], IT-related information becomes crucial for external stakeholders (e.g., customers and investors) to assess firms' IT-related capabilities [8]. In this regard, only few prior studies have explored the impact of corporate governance [9] and industry characteristics [10,8] on IT governance transparency and the IT signaling behavior of firms. However, by and large, the association between maturity of IT governance practices and IT governance disclosure remains unexplored in the extant literature.[2]

On a theoretical level, the relationship between IT governance maturity and IT governance disclosure partly is mechanistic. Firms that are more engaged in the adoption and implementation of IT governance frameworks, by design will have more IT-related information available internally, which may also lead to more disclosure to relevant external stakeholders as predicted by voluntary disclosure theory. To empirically address these issues, the first *main research objective of this study is to examine how the level of IT governance maturity influences firms' external reporting on IT governance practices.*

However, the disclosure of IT-related information is also to a large extent a managerial issue, in particular for firms where IT is an important strategic resource. Drawing on signaling literature, Dehning et al. [10] observed that investors react positively to IT investment disclosures in IT-intensive industries and Zmud et al. [8] have noted systematic differences in IT information signaling across industries depending on the strategic role of IT within that industry. Prior empirical research on the strategic role of IT at the industry level has focused on the impact IT signaling (for example, disclosure on IT investment) has on firm performance (e.g., [11,12,10,8]. This research stream has clearly noted that, depending on the strategic role of IT at industry level, systematic variation exists regarding firms' specific IT information disclosure. Given that IT disclosure is widely used to understand firms' IT-related behavior [8], it is surprising that there is a

* Corresponding author.
E-mail addresses: a.joshi@maastrichtuniversity.nl (A. Joshi), l.bollen@maastrichtuniversity.nl (L. Bollen), h.hassink@maastrichtuniversity.nl (H. Hassink), steven.dehaes@uantwerpen.be (S. De Haes), wim.vangrembergen@uantwerpen.be (W. Van Grembergen).

[1] According to Simonsson et al., the term IT governance maturity implies how well an efficient organization is aligned with best practice-based IT governance frameworks.

[2] In this study, we use the term IT governance transparency interchangeably with IT governance disclosure and define it as "the extent to which firms provide adequate and relevant IT governance information timely and effectively to their stakeholders such as investors, policy makers, and regulatory bodies, so that they can assess management's behavior in using IT."

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lack of research examining how the strategic role of IT at the industry level impacts firms' overall IT governance disclosure. To fill this research gap, *the second research objective of this study is to examine whether the strategic role of IT in an industry induces systematic variation in IT governance disclosure.*

Given the fact that firms for which the strategic importance of IT is high, are more likely to adopt IT governance frameworks as a result of which the maturity of IT governance frameworks within these firms is also likely to be high, it remains unclear that to what extent increased levels of IT governance disclosure can be contributed to the adoption of these IT governance frameworks, or to the incentives that managers in these firms have to engage in IT signaling. Consequently, the impact of the adoption and implementation of IT governance frameworks on the level of IT governance disclosures is not only mechanical but also the result of opportunistic managerial behavior. Therefore, the main theoretical contribution of this paper is to disentangle the mechanistic and opportunistic relationship between IT governance maturity and IT governance disclosure.

This study uses cross-sectional data from 124 firms to examine how IT governance maturity and the strategic role of IT at the industry level relate to the level of IT governance disclosure. We measure firms' IT governance disclosure by using a framework developed by Joshi et al. [9]. We use annual reports as the primary source of data, because previous literature has indicated it to be the most reliable source of information in examining voluntary information disclosure behavior of firms [8]. Following the IT governance literature [2,25], we assess firms' IT governance maturity by employing the Control Objectives for Information and Related Technologies (COBIT) framework.[3] Specifically, the findings of an international field survey conducted across different industry sectors to assess the level of maturity on COBIT processes are used to proxy IT governance maturity in this study setting. Following literature on the strategic role of IT [11,13,10,8,14], we classify a firm's IT strategic role at the industry level in to three categories: automate, informate, and transform. In automate industries, IT replaces human labor. Informate industries are classified by the use of IT for creating efficient and effective information flows for decision making across upper and lower levels of the firm. In transform industries, IT is deployed to "fundamentally redefine business and industry processes and relationships" . Our analysis suggests that the level of IT governance maturity is positively associated with the level of IT governance disclosure. This study also finds that transform and informate IT strategic roles at industry level are associated with a higher level of IT governance disclosure when compared with automate industries. These findings corroborate the findings of previous literature on IT signaling behavior of firms (e.g., [8]. We also hypothesize and analyze the moderating effect of the industry-level strategic role of IT on the association between IT governance maturity and IT governance disclosure. The analysis does not provide evidence for moderating effect. However, the level of IT governance maturity is the most influential explanatory variable to explain the level of disclosure when analyzed together with the strategic role of IT across industries.

2. Background and hypotheses

2.1. COBIT as an IT governance framework

IT governance provides firms with effective mechanisms, such as the allocation of IT decision rights and management of IT risks, to achieve firms' business goals [2]. It also ensures that the role and responsibility of IT within organizations is not only limited to acquiring internal IT efficiency through establishing better IT processes or by addressing regulatory compliance issues. The ultimate objective of IT governance is to create synergy between business and IT to obtain business value through IT investments [15]. To uphold this view, Van Grembergen and De Haes describe the enterprise governance of IT (EGIT) as "an integral part of corporate governance and addresses the definition and implementation of processes, structures, and relational mechanisms in the organization that enable both business and IT people to execute their responsibility in support of business/IT alignment and the creation of business value from IT-enabled business investments." Several IT governance frameworks exist that incorporate all elements of the aforementioned definition and assist organizations in deploying effective IT governance. The basic premise of these frameworks is to offer firms a set of best practices to effectively design structures, processes, and relational mechanisms to govern their IT assets.

COBIT is a well-known industry IT governance framework to implement a set of best practices for management, control, and assurance of IT. COBIT is widely accepted as a unifying framework that incorporates other IT standards, including ISO 17799, ISO/IEC 38500, Information Technology Infrastructure Library (ITIL), and Capability Maturity Model Integration (CMMi).[4] COBIT is developed and distributed freely by Information Systems Audit and Control Association (ISACA).[5] Initially developed as a framework to conduct IT audit assignments, COBIT has now emerged as one of the major *de facto* frameworks to implement and assess the maturity of IT governance practices in organizations. In its fourth revised version, COBIT 4.1 [16] represents a comprehensive IT control and management framework with inclusion of metrics and maturity models for IT processes.[6] The framework consists of 34 generic IT processes organized in four domains (See Appendix C). For each of the 34 processes, the framework describes control objectives, management guidelines, and a maturity model. Each process of the framework has one high-level control objective followed by several detailed objectives. More specifically, COBIT 4.1 describes 34 high-level control objectives and 210 detailed control objectives across four domains: Plan and Organize (PO), Acquire and Implement (AI), Deliver and Support (DS), and Monitor and Evaluate (ME).

PO domain includes ten IT processes that deal with recognizing a suitable way to contribute to the achievement of business objectives. In this view, the PO domain processes involve strategy and tactics for the information and technology architecture, strategic IT planning, assessment and management of IT risks, a well-structured IT organization, IT human resource management, communication of management's aims and direction, and management of IT investments and projects. The AI domain is mainly concerned with the identification of suitable IT solutions to realize the IT strategy of the organization, the acquisition and maintenance of application software and technical infrastructure, creating documentation and user training for users of information systems. Additionally, this domain also manages application changes and maintenance requirements to continue and fulfil business

[3] Control Objectives for Information and Related Technologies (COBIT) is a well-known IT governance framework for implementing a set of best practices for management, control, and assurance of IT. Section 2.1 will discuss the framework in more detail.

[4] The focus of this study is on COBIT as an IT governance framework. For brevity, a discussion of other IT standards/guidance is not provided. A detailed comparison of COBIT to most of the above-mentioned IT standards can be found in Van Grembergen and De Haes [2].

[5] Founded in 1967, ISACA is engaged in providing guidance, tools, and benchmarking practices to firms that employ information systems. According to ISACA's website, the organization has more than 100,000 members and 180 branches across 75 countries. ISACA has developed several IT governance frameworks including COBIT, VALIT, and Risk IT governance frameworks. Further research and publication on these frameworks is conducted at the IT governance institute (ITGI), which works under the flagship of the ISACA. Next to these activities, ISACA also provides several information systems related certification programs. More details on its activities and initiatives can be found at: www.isaca.org.

[6] The focus of this study is on COBIT version 4.1. While completing this research study, ISACA has launched its new version, COBIT 5.0, which therefore is out of the scope of this study. Nonethless, it is important to note that all the COBIT 4.1 proccesses are well integrated into COBIT 5 [65].Thus, the use of COBIT 4.1 does not manifest any potential impediment to our study.