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Internal Control Disclosure and Agency Costs - Evidence from Swiss listed non-financial Companies

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Abstract:

An internal control system (ICS) is generally considered as a management tool that serves as a means to achieve performance and profitability targets, and enhances the reliability of financial reporting. Voluntary reporting on internal control may be viewed as a monitoring function to reduce agency costs caused by divergent interests between management and shareholders. Yet, there is no empirical research on the association between voluntary disclosure on internal control and agency costs in Swiss companies. This paper explores internal control disclosures within a sample of 91 Swiss listed non-financial company annual reports by developing an internal control disclosure index. The main conclusion of the study is that four company-specific characteristics derived from agency theory do significantly explain the variability in the level of voluntary disclosure on internal control, i.e. management ownership, blockholder ownership, board size and leverage. Overall, agency cost theory seems to be a powerful theory to explain voluntary disclosure strategies of Swiss companies.

Key Words: Internal Control, Voluntary Disclosure, Agency Costs, Internal Control Disclosure, Monitoring Functions

JEL Classification: M41, M42, M48

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1. Introduction

Basically, an internal control system (ICS) is considered as a management tool that serves as a means to achieve performance and profitability targets, and prevents loss of resources. It further helps to ensure reliable financial reporting information and that a company complies with laws and regulations (COSO 2004; Rautenstrauch and Hunziker 2011). Especially due to a few spectacular balance sheet scandals of listed companies in the United States, the importance of internal control systems increased internationally. Due to legal changes of the Swiss Code of Obligation, Swiss listed companies and companies of economic significance are obliged to implement and maintain an ICS for annual periods beginning on or after 1 January 2008. According to Article 728a of the Swiss Code of Obligations, companies that are subject to an external audit are required to demonstrate the existence of an ICS. However, the Swiss legislator defined the scope of an ICS very narrowly, i.e. only the reliability of the financial reporting has to be ensured. In other words, the External Audit provides solely feedback on the existence of the ICS related to the reliability of financial reporting issues (Rautenstrauch and Hunziker 2011).

In recent years, internal controls and voluntary reporting on such controls has received a great deal of attention in the accounting literature and by accounting profession, legislators and regulators (Hossain et al. 1995; McMullen et al. 1996). Although reporting on internal control in annual reports is voluntary in Switzerland, companies may develop disclosure strategies by taking into account both internal (e.g., disclosures serving as monitoring functions) and external (e.g., signalling good corporate governance by disclosing information) conditions (Hossain et al. 1995). The disclosure decisions of a company are motivated for different reasons (Leftwich et al. 1981; Skinner 1994). A major reason is to reduce financial statement users' uncertainty as to the quality of financial reporting (Bronson et al. 2006). For this purpose, a company may voluntarily disclose on internal control to explicitly state management's responsibility for an ICS or to describe specific methods or instruments that support the ICS. Further, it may state the objectives of the company's internal control system and disclose a judgement about the effectiveness of the ICS. To sum up, it is assumed that reporting on internal control improves the quality of financial reporting and reduces governance problems (Deumes 2004).

This paper draws on agency cost theory to develop the hypotheses about the association between internal control disclosure and the extent of agency costs. Reporting on internal control may be considered as a monitoring function to reduce conflicts between debtholders, shareholders and management. This study investigates if companies facing higher conflicts between management and stakeholders, i.e. higher agency costs, report more extensively on internal control in the corporate governance sections of the annual reports. Therefore, an internal control reporting index (ICRI) is calculated for a sample of 91 Swiss listed non-financial companies. The research aims of this study are to test for relationships between the extent of internal control disclosure and (i) company size, (ii) agency costs of equity (iii) agency cost of debt using content analysis as well as Ordered Logit analysis.

The remainder of the paper is structured as follows. Section 2 broadly discusses the internal control system, disclosure requirements in annual reports and the relevant research within this context. Section 3 introduces the development of the hypotheses to be tested within this paper and section 4 describes the data and sample used and the research methods employed. Section 5 presents the results, followed by a discussion in section 6 and conclusions in the final section 7.

2. Background and prior research

2.1 Internal control

Internal control is basically a very broad concept that covers the entire range of procedures, methods and controls established by an organisation for the purpose of increasing the probability to achieve its business goals (The IAA 2009). Internal control consists of process-dependent controls and process-independent controls. The former ones take place either throughout a process, or directly before or after tasks are performed and are usually executed by process-owners or line managers (PWC 2007). The latter ones are executed mainly through the independent Internal Audit (Ruud and Jenal 2005; Bungartz 2010). According to Article 728a of the Swiss Code of Obligations, companies that are subject to an external audit are required to demonstrate the existence of an ICS, i.e. ICS objectives and scope is documented, processes and control activities are available in written form and the quality of the ICS is regularly reviewed (PWC 2007). The Swiss legislator defined the scope of an ICS very narrowly. Within the winter session of the Council of States on 1 December 2005, a former member of the federal council specified the scope of an ICS as to ensure only the reliability of the financial reporting. Other risk areas like strategic risks, effectiveness of processes or compliance risks are excluded from the external audit of the ICS.

Several concepts and frameworks with regard to the implementation of an ICS have evolved after the last two decades. In the United States, the Cohen Commission suggests that auditors should express an opinion on management's assertions with regard to internal control (Cohen Commission (Commission on auditor's responsibilities) 1978) Fourteen years later, in 1992, the by now most well-known framework was issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), providing a more comprehensive framework of internal control. Under the COSO Internal Control IC Framework, internal control is designed to provide reasonable assurance concerning the achievement of objectives in the three categories:

a) Effectiveness and efficiency of operations
b) Reliability of financial reporting; and
c) Compliance with laws and regulations (COSO 1992).

COSO explicitly states that publicly traded companies should report on internal control. Within the section *reporting to external parties* in the framework, COSO mentions examples of private sector bodies as The Cohen Commission, the Financial Executives Institute and the Treadway Commission framework that support the importance of management reporting on internal control (COSO 1992). The Treadway Commission further refers to that potential investors have a legitimate interest with regard to the extent of management responsibilities for the company's financial statements and internal control. The Commission noted that the management's opinion on the features of the internal control system is crucial because it provides the basis for the preparation of financial statements. In the framework, COSO provide detailed suggestions on what companies may report on related to internal controls (COSO 1992; Deumes 2004). However, investors should be cautious by solely relying on what is reported on internal control. Reporting on internal control is not an adequate proxy for the effectiveness of an internal control system. In this regard, COSO states "[…] in the end internal control effectiveness is determined by the adequacy of the system, not by what is said about it (COSO 1992, p. 115).

Since 2004, Securities and Exchange Commission (SEC) registrants in the United States have to adopt the Sarbanes-Oxley Act (SOX). Section 404 of SOX requires all public companies to include an

internal control report stating management's responsibility for establishing and maintaining an appropriate internal control system, and management's assessment as to the effectiveness of the entity's internal control over financial reporting. Although reporting on internal control was mandatory not until 2004 for publicly traded companies, many public companies had voluntarily included such reports prior to SOX (Bronson et al. 2006). In contrast to the United States, reporting on internal control in annual reports is voluntary in Switzerland. However, companies may develop disclosure strategies by taking into account both internal (e.g., disclosures serving as monitoring functions) and external (e.g., signalling good corporate governance by disclosing information) conditions (Hossain et al. 1995). Thus, the disclosure decisions of a company are motivated for different reasons (Leftwich et al. 1981; Skinner 1994). For example, a reason for Swiss companies to voluntarily report on internal control may be to enhance trustworthiness to the investors by reducing financial statement users' uncertainty as to the quality of financial reporting (Bronson et al. 2006).

2.2 Prior research

Studies in the area of general voluntary disclosure have received a great deal of attention in the context of globalization of the world's financial markets (e.g., Hossain et al. 1995; Botosan 1997; Lapointe et al. 2005). For example, researchers investigated the impact of foreign listing and other corporate characteristics on the level of voluntary reporting (Cooke 1991) or the association between financial disclosure levels and foreign stock exchange listing decisions (Biddle and Saudagaran 1989). Prior general disclosure studies draw on a variety of factors to explain the company's voluntary disclosure strategies, e.g., to reduce agency costs (Leftwich et al. 1981) or to lower litigation costs (Skinner 1994). For example, Eng and Mak (2003) examined whether corporate governance is associated with voluntary disclosure. Their study analyzed the association between ownership structure, board composition and voluntary disclosure. Managerial ownership and blockholder ownership are deemed to be two major governance mechanisms that support control agency problems. Based on a sample of 158 Singapore listed firms, Eng and Mak (2003) conclude that lower managerial ownership and significant government ownership are associated with increased voluntary disclosure. However, total blockholder ownership is not related to the extent of voluntary disclosure.

As yet, there is very little empirical evidence on studies dealing specifically with *disclosure on internal control* in annual reports (e.g., Deumes 2004; Yang et al. 2010). The US study conducted by Raghunandan and Rama (1994) is probably the first one addressing the investigation of management reports on internal control. The analysis of annual reports of Fortune 100 companies in 1993 showed that 80% of the companies presented a management report on internal control. However, the internal control disclosures have significant differences in quality and level of detail across the companies. McMullen et al. (1996) analysed US companies that are voluntarily reporting on internal control. The study showed that there is an association between the presence of a management report on internal control and the absence of financial reporting problems. However, the study could not reveal if the found association is due to causation or self-selection. McMullen et al. (1996) state that under the causation scenario, the presence of such a report causes lower financial reporting problems presumably because of additional steps taken before the report is issued. However, under this scenario, a plausible reason why management voluntarily choose to issue an internal control report may be the control consciousness of management.

Deumes (2004) investigated if voluntary reporting on internal control by management can be considered as a monitoring mechanism that reduces conflicts between management and other stakeholders. The sample comprises of 149 listed Dutch companies for the year 1997. Based on agency conflict hypotheses, Deumes (2004) showed that the extent of agency costs of equity is

significantly correlated with the level of voluntary disclosures on internal control. However, the author found no correlation between the variables that proxy for agency costs of debt and the level of disclosure. It was concluded that management reports more extensively on internal control if it is seeking a higher level of monitoring due to higher agency costs. However, the chosen agency variables in the model affect the decision and the extent of voluntary reporting on internal control only moderately.

Ge and McVay (2005) analysed a sample of 261 companies disclosing at least one material weakness in internal control in their SEC filings after the effective date of the Sarbanes-Oxley Act of 2002. The authors found that poor internal control is usually related to an insufficient commitment of resources for accounting controls. Ge and McVay (2005) state that disclosing a material weakness is positively related to business complexity and negatively related to firm size. Finally, it was concluded that firms disclosing a material weakness are more often audited by a large audit firm.

Bronson et al. (2006) investigated 397 mid-sized US firms in 1998. The study results provide evidence on the nature of voluntary management reports on internal control before such reports were made mandatory by SOX. The authors analysed several company characteristics and their influence on the extent of voluntary reporting. It is shown that 36% of the company sample includes a management report on internal control in their 1998 annual report. Further, the likelihood of such a report increases with firm size, the frequency of audit committee meeting and the degree of institutional ownership, among other factors. 41% of the reports included a statement that the controls were effective. Bronson et al. (2006) conclude their study by suggesting that if disclosures on internal control are voluntary, "[…] a substantial proportion of firms […] will not provide internal control disclosures, while those firms that do make disclosures will not say anything about the effectiveness of internal controls - information that can be useful to financial statement users" (p. 35).

Leng and Ding (2011) conducted a study to research the influence of corporate governance characteristics on internal control disclosure based on a sample of 1309 Chinese listed non-financial companies in 2010. They built an internal control disclosure index based on eight criteria to evaluate the quality of internal control disclosure. Leng and Ding (2011) found that the internal control quality is negatively associated with the proportion of state-owned shares and is positively related to directors' remuneration and the education level of both directors and supervisors. Further, an unhypothesized, positive effect of two part-time posts of chairman and general managers on internal control disclosure was found. They interpreted this counterintuitive finding by suggesting that "a chairman who is also the general manager is more likely to concern the firm's development and require better internal control system, which makes high quality of internal control implementation and information disclosure" (Leng and Ding 2011, p. 293).

To sum up, there is a large body of literature on general voluntary disclosure in annual reports, the influence of firm characteristics on the extent and quality of disclosure, but very little empirical evidence specifically on internal control disclosure quality and its association to variables based on extant theories. Further, no empirical evidence on the voluntary internal control disclosure exists from Swiss listed companies

3. Hypotheses development

Prior studies drew upon different theories and factors to explain the motives for voluntary disclosure in general and voluntary disclosure in particular on *internal control* in annual reports. A company's decision to voluntarily disclose information to its stakeholders is based on strategic considerations of

both internal and external conditions (Gibbins et al. 1990). Signalling theory was adopted by Elzahar and Hussainey (2012) and exemplifies that companies within the same industry sector are more likely to apply the same level of disclosure. It was stated that if a company within an industry discloses less risk information than others, it may be interpreted as a signal of hiding any relevant information (Craven and Marston 1999). An agency theory based framework was employed by Leftwich et al. (1981), Hossain et al. (1995) and Deumes (2004). Agency theory explains how information asymmetry between shareholders can be reduced by monitoring the opportunistic attitudes of managers (Jensen and Meckling 1976). According to this theory, a large company for example need to disclose more information because of increased external agency costs as the amount of potential wealth transfer increases with company size (Bronson et al. 2006; Elzahar and Hussainey 2012; Deumes 2004; Hunziker 2012). Skinner (1994) based the study on the association between the extent of disclosure and litigation costs and Hughes (1986) adopted information asymmetry theory as the rationale for disclosures. Based on disclosure related cost theory, Ali et al. (1994) analysed information disclosures about non-announcing firms' following the earnings release by another firm within the same industry sector. They provide evidence that the disclosed information about non-announcing firms is only significant if announcing companies convey bad news through their earnings releases and when non-announcing companies are large. Finally, Bronson et al. (2006) and Leng and Ding (2011) based their study on company characteristics mainly derived from corporate governance theory.

This paper draws on agency cost theory to develop the hypotheses. This theory was chosen because of the assumption that larger companies and highly levered companies need to disclose more internal control information to its debtholders and shareholders. Disclosing such information may serve as a monitoring function reducing agency costs (Jensen and Meckling 1976; Watts and Zimmermann 1983; Hossain et al. 1995).

3.1 Management Ownership

Management ownership is defined as the percentage of ordinary shares held by the Chief Executive Officer and the executive directors (Eng and Mak 2003). From an agency cost perspective, it is assumed that the higher management's ownership, the lower the agency cost of equity due to a better alignment of manager's and shareholder's incentives (Deumes 2004). If management ownership is low, outside shareholders will increase their monitoring of manager's behavior to reduce agency conflicts (Jensen and Meckling 1976; Eng and Mak 2003). Thus, voluntary disclosure is deemed to be a substitute for monitoring activities (Eng and Mak 2003). Prior studies have not been entirely decisive on this association. Indeed, a vast majority of the studies empirically confirmed this predicted negative association between management ownership and the extent of disclosure (e.g., Ruland and Tung 1990; Eng and Mak 2003; Deumes 2004). However, Leng and Ding (2011) found no significant association in this regard. This paper follows the suggested theoretical reasoning and therefore, the first hypothesis is as follows:

H1. Ceteris paribus, the extent of internal control disclosure is negatively related to management's ownership.

3.2 Blockholder Ownership

Blockholder ownership is the percentage of ordinary shares held by the largest investor (Leng and Ding 2011). Existing theoretical arguments and empirical findings are not decisive on the association between the extent of blockholder ownership and internal control disclosure. Bronson et al. (2006) argue, by drawing on Shleifer and Vishny (1986) and Dye (2001), that large shareholders have an

incentive to monitor managerial behavior due to their larger investments. Such large shareholders are supposed to play an important role in the corporate governance through their monitoring of management. Moreover, larger shareholders are probably more willing and able to play an active monitoring role in contrast to small, dispersed shareholders (Deumes 2004). Following these arguments, Bronson et al. (2006) argue: "We therefore expect that institutional investors and blockholders will monitor the firm's financial reporting quality, which provides an incentive for management to signal the quality of its internal accounting controls by voluntarily issuing an MRIC[b]" (p. 29). In contrast to Bronson et al. (2006), several authors predicted that the agency costs of equity are lower if a company is owned by large investors (e.g., Leng and Ding 2011). Thus, this will give the management less incentives to implement additional monitoring activities. Eng and Mak (2003) further argue: "When share ownership is diffused, more monitoring is required" (p. 330). This statement is empirically confirmed by several studies (e.g., McKinnon and Dalimunthe 1993; Mitchell and Chia 1995; Deumes 2004). Following Eng and Mak (2003), the second hypothesis is presented as follows:

H2. Ceteris paribus, the extent of internal control disclosure is negatively related to the percentage of shares held by the largest investor.

3.3 Board Size

The board of directors is responsible for the company's internal control system (The Institute of Chartered Accountants 1999). It has to set appropriate policies on internal control. The board must further ensure that internal controls are effective in managing risks in the way which it has approved. Leng and Ding (2011) argue that board size partially reflects the ability of directors to participate in important business decision-making processes and to effectively monitor the management. They assume that board size is a proxy for expertise and professional experience of the board. Thus, a larger board may improve the quality of voluntary disclosure on internal control. This study follows Leng and Ding (2011) by assuming that a lot of expertise and experience affects the quality of disclosure on internal control issues. Therefore, the next hypothesis is presented as follows:

H3. Ceteris paribus, the extent of internal control disclosure is positively related to board size.

3.4 Company size

A couple of studies on voluntary disclosures found a positive relationship between the extent of disclosures and company size, either included as a control variable (e.g., Leng and Ding 2011) or a variable of interest (e.g., Cooke 1991; Hossain et al. 1995; Deumes 2004; Bronson et al. 2006). Based on agency cost theory, one may argue the larger the company, the more stakeholders are involved. To satisfy a greater number of stakeholders, the company needs to disclose more internal control information (Hunziker 2012). Further, Chow and Wong-Boren (1987) state that the potential benefits to voluntary disclose information are likely to increase in larger companies as the amount of potential wealth transfers increases with company size. Deumes (2004), drawing on Abdel-Khalik (1993), argues that internal agency costs increase with company size due to the increased risk of potential organizational control loss in larger companies. Therefore, the fourth hypothesis is presented as follows:

H4. Ceteris paribus, the extent of internal control disclosure is positively related to company size.

[b] MRIC is an acronym for Management Report on Internal Control

3.5 Leverage

From an agency theory perspective, high levered companies induce higher agency costs and therefore need to disclose more information to the creditors (Hunziker 2012, drawing on Jensen and Meckling 1976). Further, Jensen and Meckling (1976) state that potential wealth transfers from fixed claimants to residual claimants increase as leverage increases. Hossain et al. (1995) further argue: "With debtholders price-protecting themselves, shareholders and managers have incentives to offer an increased level of monitoring such as voluntary disclosure of information in the published annual reports. Thus, agency theory posits that the extent of corporate voluntary disclosure will be an increasing function of leverage" (p. 73). Prior empirical studies on this theoretically predicted association provide conflicting results. Bradbury (1992) and Hossain et al. (1995) confirmed a significant positive association between the extent of voluntary disclosure and leverage in New Zealand companies. However, Deumes (2004) and Bronson et al. (2006) found no statistically significant association. To examine the association of leverage and the extent of disclosure on internal control in Swiss companies, the last hypothesis follows the agency cost perspective and is therefore stated as:

H5. Ceteris paribus, the extent of internal control disclosure is positively related to leverage.

4. Data and research method

4.1 Data

The first sample of Swiss companies to investigate the analysis of internal control disclosure comprises 149 companies primary listed on the main standard of the Swiss Exchange as at 31 December 2011. Financial firms (i.e. banks and insurance companies) were excluded from this study for two reasons. Firstly, financial firms can be considered as risk management entities and therefore may be expected to make significantly different disclosures on internal control due to different reporting rules. Secondly, their business activities are too much different from other industry sectors (Hossain et al. 1995). Companies with partially missing capital market data were excluded to follow a complete case approach (Hair 2010). Accordingly, the final sample comprises 91 companies. Annual reports with a year-end date nearest to 31 December 2011 were collected from the company's website.

4.2 Dependent Variable

The analysis of internal control disclosure for the sample companies was performed on the corporate governance sections of the annual reports (Cooke und Wallace 1989). To gather internal control information, content analysis was employed. Content analysis is a widely accepted and often applied method within the disclosure literature (Hunziker 2012, drawing on e.g., Beattie et al. 2004; Lajili and Zéghal 2005; Mohobbot 2005; Linsley and Shrives 2006; Elzahar and Hussainey 2012). Cooke and Wallace 1989 state that "[…] disclosure is an abstract concept that cannot be measured directly" (p. 51). A possibility to overcome this issue is to build a disclosure index that serves as a means to gain insight in the level and quality of disclosed internal control information (Hossain et al. 1995). The rationale to use a disclosure index is to produce a cross-sectional ranking of internal disclosure levels based on predefined criteria of voluntary disclosure provided by the sample companies in their annual reports (Botosan 1997). A large body of literature exists using disclosure indices as the dependent variable (e.g, Chow and Wong-Boren 1987; Hossain et al. 1995; Botosan 1997; Deumes 2004). The selection of items to be included in disclosure indices requires subjective assessments by the researcher. Thus, to test for internal consistency of such an instrument and to examine the sensitivity of the results with respect to other items in the index is crucial (Deumes 2004). The selection of items

included in the internal control disclosure index (ICDI) used in this paper was predominantly guided by the COSO requirements about reporting on internal control. Following Deumes (2004), a three-step process was applied to obtain ICDI. The first step to build ICDI is to identify and to reason the items that best proxy for the extent and quality of internal control reporting.

The *first item* to evaluate a company's internal control system reflects a statement about the objectives of the implemented control system. COSO (1992) states that internal controls provide assurance regarding different categories as operational effectiveness and efficiency, reliability of financial reporting and compliance with laws and regulations. Consequently, in order to evaluate the scope of a company's control system, management should disclose a statement on what objectives are pursued. The following example illustrates this kind of disclosure element: Ascom disclosed in the annual report 2011 among other things that "the aim of the ICS is to ensure the integrity and completeness of accounting, to provide timely and reliable financial reporting, and to prevent, minimize and identify errors and irregularities in the financial statements".

The *second item* deals with management's responsibility of the control system. COSO and The Turnbull Committee recommend that management discloses a statement on their responsibilities in the annual report. It can be argued that such a statement represents a signal regarding the commitment to internal control by the top management. For example, Aryzta reported in the annual report 2011 within the Statement of Director's Responsibilities: "[…] This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation and fair presentation of the Group and Company financial statements that are free from material misstatement, whether due to fraud or error".

The *third item* is derived from the recommendations by Cadbury Committee on the Financial Aspects of Corporate Governance (1992) and COSO (1992) that management should make a statement whether the objectives of the control system have been fulfilled. Management might therefore address the effectiveness or the adequacy of the company's internal controls (Deumes 2004). For example, Adecco disclosed in the annual report 2011 the following statement: "Management has assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2011. In making this assessment, management used the criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management has concluded that, as of December 31, 2011, the Company's internal control over financial reporting is effective".

The *fourth item* is derived from the recommendation made by COSO (1992) that management should discuss specific elements of the internal control system. On the one hand, stakeholders may be interested in additional information on specific control or process elements that management has implemented. On the other hand, the board of directors may wish to signal the quality of internal controls by exemplifying specific control-related elements. For example, Advanced Digital Broadcast stated in the annual report 2011: "In 2011, the Group addressed with specific emphasis the risk rated with high relevance by its Internal Control System, while maintaining strong focus on its established risk management policies for those areas rated with a lower relevance".

The *fifth item* deals with the limitations associated with an internal control system. COSO (1992) states "It is well established that no internal control system can guarantee reliable financial reporting. With few exceptions, reporting guidelines suggested by others and published reports include language to remind report readers of this limitation" (p. 125). An internal control provides only *reasonable* assurance on the achievement of the pursued objectives. If management identifies an internal control system as being effective, this judgement is only subjective and may be an overestimation. For

example, ABB discloses the following statement about the inherent limitations in its internal control system: "Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with ABB's policies and procedures may deteriorate".

The *sixth item* represents the statement about a regular assessment of the internal control system carried out by the management. COSO (1992) recommends disclosing a statement about the existence of mechanisms for control system monitoring and responding to identified control deficiencies. Monitoring activities identify control weaknesses and opportunities for improvement which usually serve as a basis for the evaluation of the control system. To disclose information on how an internal control system is monitored may be interpreted by the stakeholders as a signal of continuous improvement of the control system's quality. For example, BKW states in the annual report 2011 that one task of the audit committee among others is as follows: "Evaluation and monitoring of the organisation and effectiveness of internal controls, compliance, the activities and performance of external auditors and their interaction with internal Group auditors".

Finally, the *seventh item* deals with internal audit issues. COSO (1992) argues that many reports refer to the entity's program of internal auditing. An internal auditing program should independently assess the effectiveness of the internal control system and recommends potential improvements in it. The disclosure of the presence of an internal audit assessment of the internal control system may enhance the perceived reliability and effectiveness of the system by users of the annual report. It further shows how the board of directors has reviewed the effectiveness of internal controls (Deumes 2004). For example, Bopst Group discloses in the annual report 2011: "The internal audit function provides separate evaluations of the effectiveness and efficiency of the internal control systems at the level of the Group companies. On the basis of these evaluations, recommendations for improvement are formulated".

Table 1 summarizes the seven discussed items. The second step in building the ICDI is to examine each of the 91 annual reports and to identify the presence of each item. If a company discloses an item of information included in the ICDI it received a score of 1, and 0 if it is not disclosed (e.g, Cooke 1991; Hossain et al. 1995).

Table 1
Items of the internal control disclosure index

Item	Content	Scores
1. Objective	Statement about the objectives of the ICS	Disclosing=1; otherwise=0
2. Responsibility	Management's responsibility of the ICS	Disclosing=1; otherwise=0
3. Effectiveness	Statement about the effectiveness of the ICS	Disclosing=1; otherwise=0
4. Specific elements	Discussion of specific control activities	Disclosing=1; otherwise=0
5. Limitations	Discussion of the limitation of an ICS	Disclosing=1; otherwise=0
6. Monitoring	Statement about regular assessment of the ICS	Disclosing=1; otherwise=0
7. Internal Audit	Assessment of the ICS by an Internal Audit	Disclosing=1; otherwise=0

The third step is to sum up each individual item a company reported on and to calculate the index score. The index used in this study is not weighted. Weighted indices are heavily criticized in the disclosure literature. Hossain et al. (1995), drawing on Chow and Wong-Boren (1987), argue that a great deal of subjectivity exists on the assignment of weights due to it reflects the perceptions rather than actual information needs of the reader of annual reports. Thus, an unweighted index is considered to be an adequate instrument in this study.

4.3 Independent variables

Table 2 gives an overview over the used key variables in this study. The independent variables that proxy for agency costs are based on the presented hypotheses in section 3 and are derived from literature and prior research. Data about management ownership, blockholder ownership and board size have been collected from the Aktienführer Schweiz 2012[c]. *Management ownership* has been calculated by adding up the percentages of shareholdings by company management. Following prior disclosure studies, *company size* is measured as the sum of market value of equity and the book value of debt (e.g., Linsley and Shrives 2006; Leng and Ding 2011). *Leverage* is measured as the ratio of the book value of debt to the sum of the market value. Data to calculate company size and leverage have been collected from Thomson database. *Blockholder ownership* is proxied by the percentage of shares held by largest investor. Prior studies used different measures to proxy for ownership concentration. One approach applied by Deumes (2004) is to add up the percentages of shareholdings by non-managers greater than 5%[d] to get total blockholder ownership. Following this approach, the blockholder concentrations have been calculated for the sample companies.[e] However, Leng and Ding (2011) argue that taking into account only the percentage of the *largest* investor is an adequate proxy for ownership concentration. Thus, both measures have been calculated and tested in this study. The uni- and multivariate results presented in the next section 5 remained the same either way.

Table 2
Definition and measurement of independent variables

Type of variables	Variables	Definition
Variables of interest	Management ownership	Percentage of shares held by company management
	Blockholder ownership	Percentage of shares held by largest investor
	Board size	Total number of board members
	Company size	Sum of market value of equity and book value of debt
	Leverage	Ratio of book value of debt to sum of market value of equity and book value of debt
Control variables	Listing Age	Listed on SIX Swiss Exchange before or after 2008
	Listed on NYSE	Listed on NYSE New York Stock Exchange
	Beta factor	Average beta factor 2011

The last variable of interest, *board size*, is measured as the total number of board members at year-end 2011.

To control for other effects on the extent of voluntary internal control disclosure than hypothesized by agency theory, three control variables were included in this study since prior literature has shown that these are related to internal control disclosure. Firstly, *listing age* is measured as a dummy variable, set to one if it the company has been listed on Swiss Exchange before 2008. The rationale for including listing age is that Swiss listed companies are required to demonstrate the existence of an ICS for annual periods beginning on or after 1 January 2008 according to Article 728a of the Swiss Code of Obligations. As this law came into force, a company's general disclosure strategy may be affected. The predicted association between listing age and voluntary disclosure on internal control is not decisive. Following the statement of Leng and Ding (2011), the quality of internal control of later listed companies is better than of earlier listed companies, possibly due to the increased awareness of

[c] Aktienführer Schweiz is issued yearly by Finanz und Wirtschaft AG, see http://www.fuw.ch/buchshop/ for further details.
[d] Dutch stock exchange requires reporting shareholdings greater than 5%, see Securities Board of the Netherlands.
[e] The disclosure threshold to the Swiss Exchange for shareholdings is 3% in Switzerland.

companies making an application for listing at that time. However, it may also be argued that companies with a longer listing history had more time to deal with the upcoming legal changes in 2008 and thus were earlier and better prepared to the adoption of an ICS.

Secondly, a listing on NYSE is measured as a dummy variable, set to one if it the company is listed on NYSE at year-end of 2011. Swiss companies that are listed on NYSE are likely to be under more pressure from capital markets (Lapointe et al. 2005, drawing on Hope 2003). Thus, these companies typically disclose more voluntary information to meet the needs of the investors. Further, Swiss companies listed on NYSE are also exposed to greater litigation and should therefore disclose more information to avoid future legal liabilities (Ball et al. 2000). A major reason to include this dummy variable is that all public companies listed on NYSE have to include an internal control report stating management's responsibility for establishing and maintaining an appropriate internal control system. Thirdly, *beta factor* is included in this study, measured as the mean value of 2011. There is on-going academic discussion on choosing an appropriate proxy for firm risk (Hunziker 2012). It is beyond the scope of this paper to thoroughly discuss the adequate proxy to measure general firm risk. The beta factor derived from the capital asset pricing model is considered problematic due to well-known limitations. Linsley and Shrives (2006) argue that companies facing a higher level of risk are probably willing to disclose more risk information as the directors are forced to explain the causes of the higher risk. Thus, following Linsley and Shrives (2006), beta factor is used in this study to control for general company risk.

5. Empirical Results

5.1 Descriptive statistics

Descriptive statistics are reported in Table 3 for the final sample of 91 companies. Except SIZE, all of the variables are skewed and do not follow a normal distribution, as Kolmogorov-Smirnov tests showed. To reduce skewness in the data set, SIZE was transformed to the natural logarithm. There are considerable differences in the degree of management ownership, ranging from 0% to almost 90% and in the percentages of shares held by the largest investor, ranging from 3.7% to roughly 90%. The mean disclosed amount of internal control items is only 1.923. No company reported on all seven items in their annual report 2011. Only 2 (2.2%) companies reported the observed maximum value of 6 items. Further, 3 (3.3%) reported on 5 items, 11 (12.1%) on 4 items, 12 (13.2%) on 3 items, 23 (25.3%) on 2 items, 22 (24.2%) on 1 item and finally 18 (19.8%) companies disclosed no item at all.

Table 3
Descriptive statistics (n=91)

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Variables of interest						
MO	.000	89.200	15.670	22.840	1.483	1.072
LAI	3.700	89.100	30.040	21.350	.734	-.361
BS	3.000	14.000	7.242	2.505	.769	-.035
SIZE	3.064	12.241	7.199	1.958	.365	-.090
LEV	.000	.803	.211	.196	1.042	.249
Control variables						
LA	.000	1.000	.901	.300	-2.732	5.588
NYSE	.000	1.000	.080	.268	3.229	8.615
Beta	-.700	2.190	.869	.451	.071	1.175
Dependent variable						
ICDI	.000	6.000	1.923	1.522	.616	-.215

* ICDI = Internal Control Disclosure Index; MO = Management Ownership; LAI = Largest Investor; BS = Board Size; SIZE = Company Size; LEV = Leverage; LA = Listing Age; NYSE = Listed on NYSE; Beta = Firm Risk

To ensure the internal consistency of the ICDI, Cronbach's Alpha test has been applied and a value of .702 was calculated. Compared to the generally accepted value of reliability of .70, internal consistency of the ICDI is satisfactory (e.g., Botosan 1997; Deumes 2004).

5.2 Bivariate tests

To investigate bivariate correlations between variables, Spearman correlations have been calculated instead of Bravais-Pearson correlations for two reasons. Firstly, the dependent variable ICDI is treated as an ordered variable (instead of interval-scaled). Secondly, the dependent and independent variables follow a non-normal distribution, except the natural logarithm of SIZE. Table 4 presents the results of the bivariate correlation analysis. ICDI is significantly related to LAI, BS, and NYSE in the hypothesized direction. The direction of the association between MO, LEV, Beta and ICDI is as predicted, but not on a significant level. There are many significant correlations between the independent variables. The highly significant bivariate correlation between SIZE and BS is strong (0.646). In addition, many other independent variables significantly correlate with each other. The associations between the independent variables and ICDI may therefore be biased. Thus, a multivariate analysis is considered more appropriate to evaluate the simultaneous effect of the explanatory variables on the extent of voluntary internal control disclosure (Hossain et al. 1995). The Spearman correlations between the independent variables suggest that multi-collinearity is not an issue in this study.[f]

[f] Unless a bivariate correlation of independent variables exceeds 0.8, there is no indication for multi-collinearity, see e.g. Hossain et. al. (1995); Deumes (2004).

Table 4
Spearman correlations (n=91)

	MO	LAI	BS	SIZE	LEV	LA	NYSE	Beta
ICDI	-.090	**-.190***	**.416****	**.366****	.089	**.177***	**.305****	.122
MO	1.000							
LAI	.175*	1.000						
BS	-.138	.034	1.000					
SIZE	-.246**	.045	.646**	1.000				
LEV	-.228*	-.134	.089	-.017	1.000			
LA	-.247**	.001	.141	.177*	-.094	1.000		
NYSE	-.185*	-.177*	.238*	.270**	-.097	.096	1.000	
Beta	.155	-.199*	.232*	.289**	.236*	.061	.098	1.000

* ICDI = Internal Control Disclosure Index; MO = Management Ownership; LAI = Largest Investor; BS = Board Size; SIZE = Company Size; LEV = Leverage; LA = Listing Age; NYSE = Listed on NYSE; Beta = Firm Risk

*Correlation is significant at the 0.05 level (1-tailed).
**Correlation is significant at the 0.01 level (1-tailed).

5.2 Multivariate tests

An Ordinary Least Square (OLS) model taking into account the simultaneous effects of the explanatory variables on internal control disclosure is not appropriate in this study for several reasons. Firstly, the dependent variable is treated as an ordered variable and thus can be interpreted only as a ranking (Greene 2000). Secondly, OLS requires a linear relationship between the variables. By investigating scatter plots of the residuals, it is concluded that this assumption does not hold. Thirdly, either the sample size is sufficiently large (i.e. central limit theorem applies) or the population error term is normally distributed. As histograms of the residuals indicate being not normally distributed, this assumption is violated as well. Thus, an alternative multivariate technique is required to deal with these limitations. An Ordered Logit analysis was chosen in this study.[g] The multivariate test is based on the following ordinal regression model:

$$ICDI^* = \alpha + \beta_1 * MO + \beta_2 * LAI + \beta_3 * BS + \beta_4 * SIZE + \beta_5 * LEV + \beta_6 * LA + \beta_7 * NYSE + \beta_8 * Beta + \varepsilon$$

where α is the regression intercept, β_i are coefficients of the independent and control variables (i = 1, 2,…8) and ε is the error term. Table 5 presents the Ordered Logit regression results.

[g] See Deumes (2004) for an application of an Ordered Logit analysis in a similar context.

Table 5
Ordered logit analysis (n=91)

		Predicted sign	Beta	Wald
Hypotheses				
H_1	Management Ownership (MO)	-	**0.024****	4.615
H_2	Largest Investor (LAI)	-	**-0.028****	6.010
H_3	Board Size (BS)	+	**0.251****	5.735
H_4	Company Size (SIZE)	+	.179	1.685
H_5	Leverage (LEV)	+	**1.981***	3.148
Control variabls				
	Listing Age (LA)	?	**1.455****	4.060
	Listed on NYSE	+	**2.297*****	7.879
	Beta	+	-.559	1.294
2Log likelihood	-277.089			
Chi-Suare (8*df*)	37.839	(p=.000)		
Pseudo-R^2 (Nagelkerke)	0.351			

*Significant at the 0.1 level (1-tailed).
**Significant at the 0.05 level (1-tailed).
***Significant at the 0.01 level (1-tailed).

The first step is to test the overall explanatory power of the model by checking the null hypothesis that the coefficients for all of the variables in the model are 0. This test is based on the change in –2 log-likelihood value when the variables are added to the model compared to the model only containing the intercept. The change in the likelihood function has a chi-square distribution. Table 5 reports a difference between the two log-likelihoods of 37.839. This value has an observed significance level of less than 0.000. Therefore, the null hypothesis that the model without predictors is as good as the model with the independent variables can be rejected (Norusis 2011). Secondly, the overall strength of the association between the dependent variable and the independent variables is measured. For ordinal regression models it is not possible to compute the same R^2 statistic as in OLS models, so an approximation is calculated by Nagelkerke's Pseudo-R^2 instead (Norusis 2011). Smith and McKenna (2012) concluded in their study on ordinal regression goodness-of-fit indices: "Results indicated that Nagelkerke's (1991) index most closely approximated OLS R^2 […]" (p. 1). The results from Table 5 show a quite satisfactory value of 0.351. This indicates that the independent variables explain a substantial proportion of the variation between the different ICDI scores.

Finally, the estimated coefficients are examined. The coefficients of Ordered Logit analysis cannot be interpreted equally as in OLS models (Greene 2000). A significant negative coefficient means that an increase in the value of the related coefficient is associated with a poorer ICDI score, and vice versa. The results of the analysis show that companies with high blockholder ownership (LAI) are likely to attain a lower ICDI score than companies with lower blockholder ownership on a highly significant level and in the direction hypothesized. Further, companies with a high number of board members (BS) and highly levered companies (LEV) are likely to achieve a higher ICDI score. These findings are as well in line with the predicted sign of associations. Contrary to the predicted association, management ownership (MO) is significantly positively related to ICDI score. Thus, the probability of

a company achieving a higher ICDI score increases with the percentage of shares held by company management. Company size (SIZE) is positively related to ICDI score as predicted, but the association is not statistically significant. Two of the three included control variables - listing age (LA) and listing on NYSE - show a highly significant positive association with ICDI score. However, contrary to the predicted sign of association, beta factor has a negative association to ICDI score even if this relation is not significant.

6. Discussion of results

The overall results of this study support the hypothesized relations between the predicted associations based on agency cost theory to a large extent. The findings conform to the a priori developed hypotheses H2, H3 and H5. In contrast to the findings from Eng and Mak (2003) and Deumes (2004), a positive and significant association between the percentage of shares held by company management (H1) and the extent of disclosure on internal control was found.[h] Thus, against the suggested association by agency cost theory, company management holding a certain amount of ordinary shares is indeed willing to signal mechanisms that ensure the firm's financial reporting quality by voluntarily reporting on internal control disclosure. In line with the Dutch study from Deumes (2004), blockholder ownership (H2) is negatively related to the extent of voluntary internal control disclosure. Large shareholders are supposed to play an active role in the corporate governance through their monitoring of management. Thus, to signal having implemented additional monitoring mechanisms by voluntarily reporting on internal control in annual reports seems no to be necessary. Board size (H3) is statistically significant related to voluntary reporting on internal control. Thus, larger boards of directors may improve the quality of voluntary disclosure on internal control. This finding is to interpret with care because there is a strong correlation between board size and company size ($r=0.646$, $p<0.01$). It is argued that the influence of board size on internal control disclosure is presumably biased because board size does pretty much proxy for company size.

Company size (H4) shows a coefficient in the direction hypothesized. However, the association is not statistically significant.[i] By excluding board size from the model, company size gets highly significant, as a large body of prior research confirmed (Chow and Wong-Boren 1987; Raffournier 1995; Hossain et al. 1995; Deumes 2004; Lapointe et al. 2005). The assumption of the hypothesized positive association between company size and disclosure level can be challenged. It may be postulated a *negative* relationship, suggesting that large companies would usually be motivated to disclose less information because of their fear of political costs. Basically, the problem is not the sign of the association between size and voluntary disclosure on internal control but rather whether size can be considered as a good proxy for internal and external agency costs (Raffournier 1997). Further, in line with agency cost theory, but contrary to the findings from Deumes (2004) and Bronson et al. (2006), leverage (H5) is significantly and positively related to internal control disclosure.[j] Thus, agency conflicts related to debt financing affect company's decisions on voluntary disclosure. The results from this study suggest that high levered companies induce higher agency costs and therefore need to disclose more information to the creditors.

In contrast to the findings from Leng and Ding (2011), listing age is positively related to ICDI score. Therefore, it is suggested that companies with a longer listing history had more time to deal with the upcoming legal changes in 2008 and thus were better prepared to the adoption of an internal control

[h] Management ownership is negatively associated with internal control disclosure applying bivariate tests. However, this relationship is not statistically significant.
[i] Company size shows only a significant relationship to ICDI score applying bivariate tests.
[j] In the bivariate tests, however, leverage showed indeed a positive, but no statistically significant association with ICDI.

system. Listings on NYSE positively affect the disclosure strategy of Swiss companies mainly due to other legal requirements and the pressure from capital markets. This finding is consistent with Hossain et al. (1994), stating that dealing with a plurality of stock exchange reporting requirements are likely to disclose more information voluntarily than companies that are not subject to a multiplicity of international reporting rules. For Switzerland, this is also well demonstrated by Raffournier (1995). Finally, beta factor is assumed to control for general company risk. Contrary to the predicted sign of the coefficient, beta factor suggests a negative, statistically insignificant effect on voluntary disclosure. It may be argued that company's facing higher general risk "may not to want to draw attention to their 'riskiness' and, conversely, therefore may be reluctant to voluntarily disclose significant amounts of risk information" (Hunziker 2012, drawing on Linsley and Shrives 2006, p. 391).

7. Conclusions

Prior internal control disclosure studies focused mainly on general disclosures in annual reports (e.g., Hossain et al. 1995; Eng and Mak 2003; Lapointe et al. 2005). The aim of this paper was to examine the relation of the extent of voluntary disclosure *specifically on internal control* and the agency costs a company faces. It is presumably the first study to address the extent of voluntary disclosure on internal control within Swiss annual reports for non-financial companies after article 728a of the Swiss Code of Obligations came into force. It was assumed that companies reporting extensively on internal control are seeking a higher level of monitoring because of higher agency costs. For this purpose, content analysis in annual reports of a sample of 91 Swiss listed non-financial companies has been conducted. The present study tested for associations between the extent of internal control disclosure and management ownership, blockholder ownership, board size, company size and leverage.

The main conclusion of the study is that four company-specific characteristics derived from agency theory do significantly explain the variability in the level of voluntary disclosure on internal control, i.e. management ownership, blockholder ownership, board size and leverage. Overall, agency cost theory seems to be a powerful theory to explain voluntary disclosure strategies of Swiss companies. The results of this study contribute to the voluntary disclosure literature in several ways. Firstly, the findings are of particular relevance for accounting policy-makers. It seems that a company's decision about voluntary reporting is based on economic rationality considerations. Thus, there is basically no need for further legal regulation in Switzerland in this area. Mandatory reporting on internal control would neutralize the important signalling effects.[k] Secondly, the findings of this study show that smaller companies disclose less on internal control that larger ones. Policy-makers should be aware of this fact by deciding on increased mandatory reporting on internal control. Because smaller companies are subject to lower agency costs, the costs associated with monitoring aspects may exceed the associated benefits. Secondly, this study provides empirical evidence on internal control disclosure for the first time from *Switzerland* after Article 728a of the Swiss Code of Obligations came into force. Thirdly, in contrast to prior studies, a new, extended internal control disclosure index was developed mainly derived from the COSO quasi-standard for internal control. Finally, the study contributes to the general academic debate on what company-specific characteristics affect voluntary disclosure decisions.

Limitations of the presented analysis include subjective judgement about the item choice of the ICDI. Therefore, sensitivity analysis has been conducted. By one-for-one excluding each item from the original score, it was concluded that the overall results remained stable. Nevertheless, an index based on other items not based on COSO would presumably provide slightly different results. Further, it is also acknowledged that only cross-sectional data from annual reports 2011 is examined. To get more

[k] See Deumes 2004 for similar considerations.

reliable results, there is a call for longitudinal studies. The analysis of internal control disclosure is based solely on one vehicle (annual reports). For example, press releases and publications on the company's website were excluded from this study. Moreover, Ordered Logit analysis showed a quite satisfactory overall explanatory power, however, the model does not fully explain management's decision on internal control disclosure. The results of this study are considered as a starting point for future research on voluntary reporting on internal control in Switzerland. Thus, future research could extend this study by including other channels of disclosure, as called for by Hossain et al. (1994).

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