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The relation of intellectual capital disclosure strategies and market value in two political settings

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Purpose – The purpose of this paper is to investigate whether the political setting (civil war versus temporary truce) in a country has an influence on firms' current narrative, visual, and numerical intellectual capital disclosure being included in the current market value of equity. Design/methodology/approach – Using content analysis for data generation, this study identifies narrative, visual, and numerical intellectual capital disclosure in firms' annual reports. Financial data were obtained from firms' annual reports and the stock exchange. Fixed effect panel regression was conducted separately for the civil war period and temporary truce period. Findings – The paper finds that during the period entirely beset by civil war, the current market value of equity includes net book value and current earnings only, and does not include narrative, visual, or numerical intellectual capital disclosure. During the period of temporary truce, the current market value of equity includes net book value, current earnings, and narrative disclosure, but not visual or numerical intellectual capital disclosure. Practical implications – The findings provide insights into the effectiveness of disclosure strategies in politically unstable environments. Originality/value – This study analyses the disclosure strategies in a civil war and temporary truce context.

Keywords

relation, intellectual, disclosure, political, strategies, market, settings, value, capital, two

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1. Introduction

This study investigated whether an unstable political setting in a country (i.e., civil war environment, and temporary truce environment) has an influence on narrative, visual, and numerical intellectual capital disclosure being included in the current market value of equity. It explored the research question using the top 30 listed firms in Sri Lanka from 1998 to 2004, a period dominated by the civil war which began in 1983. In late 2001 a formal ceasefire was declared, and in 2002 the Sri Lankan government entered into a temporary truce with the rebel forces through a memorandum of agreement mediated by the Norwegian government. The temporary truce period ended in 2005, and the civil war resumed. This study examined the association between the current market value of equity in firms and intellectual capital disclosure strategies (measured as narrative, visual, and numerical disclosure) in two distinct unstable political periods: the period entirely beset by civil war (1998 to 2000), and the temporary truce period (2002-2004). The year 2001 was excluded from investigation, as it was during this year that transition from civil war to temporary truce period took place.

The term 'strategy' has diverse meanings and there are several definitions in the literature. According to Porter (1996), strategy means deliberately choosing a different set of activities to deliver a unique mix of value. Strategy is involved with the competitive positions of firms, and with differentiating the competitive position of one firm against another. This paper adopts Porter's (1996) perspective of strategy, as each

disclosure type – narrative, visual, and numerical intellectual capital disclosure – informs investors about a firm's competitive position in unique ways.

It was expected that during both periods, investors would not include intellectual capital disclosed as future earnings in the current market value of equity of firms. Due to greater stress resulting from political instability in the business environment, it was expected that investors would have a short-term outlook, and determine the current market value using historical financial information such as net book value and current earnings. However, during the temporary truce period, it was hypothesised that investors would become somewhat optimistic about future prospects of firms due to less stress imposed by the political environment, but that investor confidence would be less than optimum, as it was known to be only a temporary truce. As a result, this study expected that in addition to the net book value and current earnings, investors would include narrative intellectual capital disclosure only as future earnings in the current market value of equity of firms. They would not include visual and numerical intellectual capital disclosure, nor the information about future earnings resulting from the interaction of the narrative, visual, and numerical intellectual capital disclosure.

The findings of this study add a quantitative dimension to a previous qualitative examination of intellectual capital disclosure strategies in a stable political setting (Mouritsen et al., 2001). Using case studies, Mouritsen et al. demonstrated that narrative, visual, and numerical strategies of intellectual capital disclosure, and their interaction,

were able to inform investors about "value relevance" of resources unaccounted for in financial statements.

This paper is organised as follows. Section 2 outlines the stock market and the Sri Lankan political setting during the study period, while section 3 outlines the literature and introduces the hypotheses. Section 4 describes data collection using content analysis with annual reports as source documents, and provides details of the sample. The final section analyses results and provides concluding remarks.

2. Colombo Stock Market and the Sri Lankan situation

The Colombo Stock Market is the only stock exchange in Sri Lanka, and is largely dependent on foreign investors for liquidity. During the period of this study, the two indicators of market liquidity, namely market capitalisation as a percentage of GDP and trade volume as a percentage of market capitalisation, were the lowest in the South Asian Region (CSE, 1998; World Bank, 2002; De Silva, 2006). The Colombo Stock Exchange lists 237 firms with a US$6 billion total market capitalisation (Lanka Newspapers, 2005; De Silva, 2006). The civil war that formally erupted in 1983 between the rebel forces and the government continued for more than two decades. Although the fighting between the rebel forces and the government was in the northeast region of the country, the entire country felt the effect of the war, with sporadic and frequent bomb blasts and violent attacks carried out by the rebel forces in civilian-dominated urban areas including the country's capital. The peace accord mediated by the Norwegian government brought a temporary truce from late 2001 with a signed memorandum of agreement between the

rebel forces and the government. The temporary truce, however, ended in the middle of 2005 with escalation of violence, and both parties accusing one another of dishonouring the signed accord. The temporary truce offered some economic and political optimism, however many were less than fully optimistic about its culmination in a lasting peace.

Abeysekera (2007a, 2008) and Abeysekera and Guthrie (2004, 2005) have conducted several studies examining intellectual capital disclosure practices during the civil war period in Sri Lanka. Abeysekera and Guthrie (2004) analysed 25 human capital items, demonstrating differences in disclosure intensity among human capital disclosure items. Abeysekera (2008a), using the political economy of accounting perspective, identified motivations behind human capital disclosure in annual reports. The Abeysekera and Guthrie (2005) study extended the disclosure analysis into intellectual capital, analysed 45 intellectual capital items, and offered its findings as a benchmark for future intellectual capital disclosure studies in developing nations. Abeysekera's (2007) study demonstrated intellectual capital disclosure differences between firms in Australia and Sri Lanka, and Abeysekera's (2008b) study demonstrated intellectual capital disclosure differences between Sri Lanka and Singapore, attributing the differences in disclosures to nations' economic, social, and political factors. This study extends the earlier studies by acknowledging that intellectual capital disclosure contains future earnings information content, and by investigating intellectual capital as strategies of disclosure (disclosure strategies as narrative, visual, and numerical disclosure) and whether they are included in firms' market value of equity, in the two politically unstable environments: the Sri Lankan civil war period and the temporary truce period.

Literature review

Communicating financial accounting information has gone through several paradigm shifts, most discernibly moving from disclosing essential financial information presenting the history, to a trend of disclosing additional information about the resources not disclosed in financial statements such as intellectual capital capable of generating future earnings. CPA Australia and CMA Canada (1999, p. 4) in a guidance note stated that intellectual capital assists firms to produce higher (economic) value, is concerned about the future prospects of the firm, and mobilises resources for future growth. Such disclosure therefore is forward-looking, describing how firms can generate future earnings.

The importance of intellectual capital for disclosing future earnings potential has followed changing patterns of industry related to economic importance, technology, and consumer taste (Graham, 1999; Buckley and Carter, 2000; Thorne and Smith, 2000; King and Ranft, 2001). Disclosures have followed industry patterns, highlighting that not all future earnings information is explained in firms' financial statements, and that additional disclosures are required beyond mandatory financial disclosure in annual reports to meet the shortfall in information. Although accounting for intellectual capital is of economic significance (Ashton, 2005; Boone and Raman, 2001a, 2001b; Daley, 2001; Ho and Williams, 2003; Ronen, 2001), there has been limited empirical investigation about the future earnings content included in disclosure strategies such as narrative, visual, and numerical disclosure, as information to investors.

Ashton (2005), reviewing the value relevance of intellectual capital, pointed out that firms can overcome the limited relevance of accounting information in financial statements through the use of discretionary disclosure. The discretionary intellectual capital disclosure of firms can "bring the future forward" by revealing information in the current period about future earnings, changing the mix of current and future information reflected in the current market value of equity. Lundholm and Myers (2002) measured the discretionary corporate disclosure activity of firms using Association for Investment and Management Research (AIMR) ratings of discretionary corporate disclosure, and concluded that discretionary corporate disclosure informed future earnings.

Research has used various benchmarks to measure firms' economic capital in the marketplace, with one widely used measure being the current market value of equity (Wang, 2008). A few studies have investigated the association between the value of intellectual capital disclosure (rather than disclosure itself) representing future prospects, and its association with the market value of equity (Firer and Williams, 2003; Chen, Cheng, and Hwang, 2005). Chen et al. measured the value of intellectual capital as an efficiency measure (value-added intellectual capital) of Taiwan listed firms, and found that the value of intellectual capital is associated with the current market value. Firer and Williams, using the same measurement technique to value intellectual capital, found similar results. They also concluded that the net book value has a stronger positive association with the current market value of equity than does the value of intellectual capital.

Abdolmohmmadi (2005), on the other hand, defined intellectual capital as the voluntary and mandatory disclosure of intangibles, examined intellectual capital disclosure (with both discretionary and mandatorily disclosed intangibles comprising intellectual capital) rather than its value, using content analysis of 284 randomly selected annual reports over a five-year period (1993-1997) in the US, and found a positive association between intellectual capital disclosure and market value of equity of firms. The author noted that the period selected for the study was unaffected by market-wide volatility, in that it excluded the market excesses of the late 1990s and the market declines of the post-2000 years. Although Abdolmohmmadi's study confirmed that intellectual capital disclosure has future earnings information content since the disclosure is associated with current market value of equity, studies so far, however, have not extensively examined discretionary disclosure as narrative (i.e., structured talk), visual (i.e., visualisations), or numerical (i.e., a set of digits) disclosure strategies. Since intellectual capital disclosure does not present a bottom line but rather "a set of talk" loosely structured with visualisations and numbers, the information content about future earnings can differ among the three disclosure strategies.

Predictors – strategies for intellectual capital disclosure

The qualitative case-study-based analysis undertaken by Mouritsen et al. (2001), investigating firms producing intellectual capital statements, revealed that firms strategise intellectual capital "news" to market participants as narrative, visual, and numerical disclosure to inform about their "value-relevant" activities (future earnings activities).

Mouritsen et al. noted that the narrative provides the "legitimacy" of the resources deployed as intellectual capital, the visual constructs the "wholeness" for the intellectual capital resources, and the numerical content informs the "seriousness" of management to hold them accountable for the resources disclosed. From a communication perspective, the *narrative* is textual material, *visual* is charts and photos, and *numerical* is numbers (non-fiscal) and monetary value (fiscal).

Narrative disclosure

The core of narrative is the sequencing of events; like in a story, narrative has become the key factor in convincing the reader (Schank and Abelson, 1977, p. 17; Weick, 1995, pp. 128-129). People learn best from stories (Brown and Duguid, 2000), and firms can influence the perception and decision-making of investors through the narrative disclosure strategy (Hough and White, 2001). Davenport and Prusak (1998, p. 81) noted that encoding intellectual capital resources as narrative disclosure enabled firms to maximise the impact of the disclosure. Firms usually disclose intellectual capital narratives as episodes, and the episodic capacity is useful in narrative disclosure strategy to inform investors about the future earnings capabilities of intellectual capital.

Construction of such narrative disclosure is often a management activity, enabling management to explain to investors about the future earnings capacity of intellectual capital. Mouritsen, Larsen, and Bukh (2001), analysing firms in Denmark, demonstrated that intellectual capital is disclosed predominantly as narrative, with a smaller amount of visual and numerical disclosure, and is often adopted by firms as a norm in disclosing

intellectual capital. Abeysekera (2011) analysed the fastest growing companies in Australia and reached the same conclusion. The norm of narrative to inform investors about firms' economic capacity is also now supported by the accounting policymakers. In December 2010, the International Accounting Standards Board (IASB) released a practice statement on management commentary in annual reports; this was a broad, non-binding framework to encourage firms to engage in narrative disclosure to accompany financial statements prepared in accordance with international financial reporting standards. The IASB stated that use of narrative in the management commentary could serve investors as a basis for understanding details about management's future strategy objectives (IFRS PS, 2010).

The use of narrative for intellectual capital disclosure serves to help investors understand management activity and to signal future management action and organisational change (Dumay, 2008). Although not referring explicitly to intellectual capital, research into narrative disclosure has suggested that narrative disclosure assists in improving stock return (Schleicher, Hussainey, and Walker, 2007). The study conducted by Balakrishnan, Qiu, and Srinivasan (2010), which investigated narrative content disclosed in annual reports (10-K and 10K-405 forms), also found a positive relation with size-adjusted firms' stock return. There is also agreement that narrative helps to establish clarity of meaning to stakeholders (Weick, 1995, pp. 128-129), has the constructive potential of messages (Preston and Young, 2000), and is a mechanism for understanding intellectual capital in qualitative terms (Mouritsen et al., 2001; Mouritsen, Bukh, Larsen, and Johansen, 2002). The narrative is the predominant disclosure strategy of intellectual

capital (Denis, 1996, pp. 163-164; Davenport and Prusak, 1998; Mouritsen et al., 2001), but its usefulness as a disclosure strategy during periods of political instability has received limited investigation.

As noted earlier, intellectual capital disclosure informs about the future earnings capabilities of resources not disclosed in financial statements. This study takes the position that investors become more certain that firms can use these resources to generate future earnings during times of political stability, and therefore in times of political stability in the country, investors become more prone to include such information in the current market value of firms. On the other hand, during times of political instability, due to greater uncertainty, although investors are aware of the future earnings potential of intellectual capital resources disclosed, they become less prone to include them in the current market value of firms. Hence, this study expects that during the period of temporary truce, investors would have become optimistic about the future earnings intellectual capital resources would realise, and would have included narrative disclosure in firms' current market value of equity. However, during the civil war period, investors would have become pessimistic about the future earnings potential of intellectual capital disclosed being realised into future earnings, and would not have included narrative disclosure in firms' current market value of equity. On that basis, the following hypothesis is stated.

H1: Narrative intellectual capital disclosure associates with firms' current market value of equity during the temporary truce period, but does not associate with firms' current market value of equity during the civil war period.

Visual disclosure

Visual disclosure has greater openness and ambiguity than narrative, opening up possibilities and multiplicities of meaning (Schirato and Webb, 2004). The visual strategy also enables firms to communicate specific events, feelings, and contexts that might otherwise be ignored in narrative and numerical disclosure (Moss, 2008), and can influence the way of thinking about the firm (Wagner, 2006, p. 58). Visual disclosure creates a permanent visible record of events and objects observed (Morphy and Banks, 1997). It has the advantage of being self-evident and simple, and no special training is required to interpret visuals (Sless, 1981, p. 74; Beattie and Jones, 2002). Graves, Flesher, and Jordan (1996) suggested that visual disclosure, as a strategy, allows firms to assert their claims unobtrusively to investors, but several authors have demonstrated that future earnings capabilities displayed in visual disclosure are superficial (Preston et al., 1996; Beattie and Jones, 2002). This study expects that visual intellectual capital as a separate disclosure strategy does not sufficiently inform and convince investors about the future earnings capabilities of those resources. This study therefore expects that during both the period of temporary truce and the civil war, investors would not have included future earnings capabilities of visual intellectual capital disclosure in firms' current market value of equity. On that basis, the following hypothesis is stated.

H2: Visual intellectual capital disclosure does not associate with firms' current market value of equity during the temporary truce period, or during the civil war period.

Numerical disclosure

Numerical disclosure is powerful in that it summarises management efforts (Mouritsen et al., 2001). Such disclosure seemingly provides a concrete description of affairs of firms in a precise but abstract manner. Numerical disclosure of intellectual capital, comprising fiscal (monetary) and non-fiscal (non-monetary) figures, occurs much less frequently than narrative disclosure. Much of the numerical intellectual capital information disclosed numerically appears as indicators rather than as resource measurements, as a way to avoid measurement errors resulting from direct measurement (Catasus, Ersson, Grojer, and Wallentin, 2007; Ittner and Larcker, 1988; Shevlin, 1996; Behn, Riley, and Richard, 1999). This study takes the view that as numerical intellectual capital information is scant, and is not often used as an expression of measurement of intellectual capital resources, numerical intellectual capital disclosure as a separate strategy is ineffective. Such reporting is more useful to management for monitoring resources, than to investors for ascertaining future earnings potential of intellectual capital. This study therefore expects that investors would not have included numerical information as future earnings in firms' current market value of equity, during the civil war period or during the period of temporary truce. Therefore, the following hypothesis is stated.

H3: Numerical intellectual capital disclosure does not associate with firms' current market value of equity during the temporary truce period, or during the civil war period.

Interaction among the three disclosure strategies

Mouritsen et al. (2001) equate these three disclosure strategies to actants, each actant evidencing an "attitude," with narrative providing the bulk and backbone of the message, visuals dramatising the management challenges, and numerical disclosure projecting seriousness to the disclosure and enhancing the impact of intellectual capital disclosure. When firms disclose intellectual capital, they have choices among the three disclosure strategies – narrative, visual, and numerical – but the inherent ability to inform about future earnings of firms can differ among the three separate strategies. The interaction among the three separate disclosure strategies can provide "synergy" to inform future earnings of intellectual capital during stable political periods of a country (Mouritsen et al., 2001, 2002). As the civil war period and the temporary truce period do not inspire sufficient optimism in investors to lead them to include future earnings information in firms' current market value of equity, the same "interaction" strategy that is effective in a stable political period can be a failure in an unstable political period of a nation (Callon and Law, 1989; Mouritsen et al., 2002).

Control variables

Taking guidance from other studies, this study expects that current market of equity has a positive association with net book value and current earnings. In the context of this study, the financials become vital information to investors both during the politically unstable civil war period and in the period of temporary truce, as investors need reassurance that

firms' market value of equity will prevail into the future; additionally, realised financials provide that assurance as a past record of accomplishment.

Firms that have a higher rate of growth have higher earnings potential, and these firms are likely to disclose a higher level of intellectual capital to inform investors about future earnings. A proxy for growth rate is market price over the net book value (Edvinsson, 1997; Jenkins, 1998, p. 1; Swinson, 1998, p. 4). The service-based, knowledge-based, and technological industries rely more than other industries on intellectual capital resources not recognised in their financial statements. These resources have a longer operating cycle (such as investment in human capital) and are realised as earnings over a longer period (Christian and Jones, 2004; Warfield and Wild, 1992). Firms can disclose about future earnings potential of these resources using disclosure strategies, so that investors can include them in current market value of equity.

Firm size can influence the discretionary disclosure practices of a firm; larger firms have greater visibility and thus greater public demand for information beyond the statutory disclosure limits (Nagar, Nanda, and Wysocki, 2003). However, since the firms in the study sample are the top 30 firms by market capitalisation, all having high but similar visibility levels in the market place, this study expects the size measured by sales level not to influence the intellectual capital disclosure. The firms with greater debt level can provide intellectual capital disclosure to show their future earnings potential to convince investors and debt holders to retain the capital, and the firms' debt level is expected to influence intellectual capital disclosure. Similarly, the firms with greater annual sales

level can provide intellectual capital disclosure to show their future earnings potential to attract and retain capital, and firms' asset value is expected to influence intellectual capital disclosure.

Regression model

Research on firms' market value of equity often has relied on the balance sheet model on the basis that market value of equity is a collection of separable assets. The balance sheet model often includes current earnings as an additional variable, making it similar to the transformed dividend-discounting models (Kothari, 2001). Prior studies have indicated that current earnings are a better proxy than firms' cash flow for current market value of equity (Dechow, 1994; Sloan, 1996). The Feltham-Ohlson model connects the accounting fundamentals (i.e., net book value and current earnings) to firms' market value of equity to uncover the extent of their association (Amir, 1993; Misund, Asche, and Osmundsen, 2008). Modifying a dividend-discounting model, Ohlson (1995) has developed a balance sheet model that connects firms' market value of equity with related net book value, abnormal earnings, and other information. The abnormal earnings in this study include current earnings and future earnings potential, with the evidence suggesting that political unrest can mediate the firms' current market value of equity (Reuters, 2008).

The literature has developed two types of regression model (the level model and the returns model) using the Ohlson (1995) balance sheet model. The returns-regression model has investigated the association between firms' changes in stock price with changes in earnings. Studies using the level model have investigated the association

between firms' market value of equity and net book value, current earnings, and future earnings. Since firm differences can influence the market value of equity, the scaling of variables is important to reduce spurious bias on R^2, heteroscedasticity, and coefficients (Easton and Sommers, 2003; Ota, 2003). To mitigate these biases, scaling is applied to deflate variables, but there is no common agreement on a preferred deflator (Misund et al., 2008). Misund et al. used the lagged market value of equity as the deflator, Easton and Sommers (2003) used the dependent variable as the deflator, and Barth and Clinch (2005) used the outstanding number of shares as the deflator. This study uses the lagged market value of equity as a deflator, as firms' market value of equity is the outcome variable.

Using the balance sheet model, this study tests the hypotheses using the following panel data regression model, as most firms are repeated observations in each regression model. The model design recognised that it takes three months from the year-end for an annual report to be released to the market, and for investors to respond to it.

$$MV_{,i,t} = a_0 + b_1\, ICNA_{i,t} + b_2\, ICVIS_{i,t} + b_3\, ICNUM_{i,t} + b_4\, ICNA_{\,i,t} * ICVI_{\,i,t} * ICNU_{\,i,t} + c_1\, NBV_{i,t} + c_2\, NI_{\,i,t} + c_3\, SIZE_{\,i,t} + c_4 PtoB + + c_5 LEV + e$$

Where,

ICNA =	Frequency count of narrative disclosures of intellectual capital in annual reports of firms in year t
ICVI =	Frequency count of visual disclosures of intellectual capital in annual reports of firms in year t
ICNU =	Frequency count of numerical disclosures of intellectual capital in annual reports of firms in year t
ICNA*ICVI*ICNU=	Interaction is measured as the multiplication effect of ICNA, ICVI, and ICNU

Scaled MVE =	The natural log of the market value of equity three months after the *end* of the measurement year t disclosed in annual reports divided by the market value of equity three months after *beginning* of the measurement year
Scaled NBV =	The natural log of the net book value of the measurement year t disclosed in annual reports divided by the market value of equity at the *beginning* of the measurement year
Scaled NI =	The natural log of the current earnings before tax for the measurement year t disclosed in annual reports divided by the market value of equity at the *beginning* of the measurement year
SIZE =	Size of firm measured as natural log of annual current sales
PtoB =	Market value of equity three months after the measurement year t divided by net book value of the measurement year t disclosed in annual reports
LEVERAGE =	Total assets divided by total liabilities at year-end
t =	Intellectual capital measurement year (war period from 1998 to 2000, and temporary truce period from 2002 to 2004)

3. Data collection

Content analysis

A database such as the AIMR in the United States that identifies corporate disclosure of firms is not available for Sri Lanka, and this study generated disclosure data about the three intellectual capital disclosure strategies (narrative, visual, and numerical) of the top 30 listed firms in Sri Lanka using content analysis. Content analysis is an established research method in the intellectual capital literature to generate disclosure data (Guthrie and Petty, 2000; Brennan, 2001; Bozzolan et al., 2003). The study identified disclosure using 45 intellectual capital resource items defined in the literature prior to the commencement of the study (Abeysekera, 2007b). The 45 resource items included know-how, vocational qualifications, career development, training programs, union activity,

employee thanked, employee featured, executive compensation plans, other employee compensation plans, employee benefits, employee share ownership plans, employee share option ownership plans, expert seniority, employee numbers, professional experience, education levels, expert seniority, age of employees, entrepreneurship of staff, workplace safety, equity issues (gender, race, and religion), equity issues (disability), value-added per expert staff, value added per non-expert staff, staff involvement with the community, patents, copyrights, trademarks, management processes, technological processes, information systems, network systems, management philosophy, corporate culture, favourable relations with financiers, brands, customer satisfaction, quality standards, firm name, favourable contracts, business collaborations, licensing agreements, franchising agreements, distribution channels, and market share.

In this study, annual reports were the source documents. Firms produce these reports regularly to present an account of their activities and capabilities, and outline management's thoughts in a comprehensive and compact manner (Niemark, 1995, pp. 100-101). Investors rely on annual reports for both financial and non-financial information about firms (Patten, 1992, p. 472; Gamble, Hsu, Kite, and Radtke, 1995, p. 34), and they are the preferred method of communicating with investors (Zeghal and Ahmad, 1990, p. 49; Neu, Warsame, and Pedwell, 1998).

To mitigate the subjectivity of data generation, two coders experienced in content analysis separately counted resource items and identified them as narrative, visual, or numerical disclosure. The level of agreement was then measured using Scott's π

technique to ascertain inter-coder agreement, which is greater than 0.9. Colombo Stock Exchange handbooks provided information about firms' market value of equity three months after the year-end, that is, shortly after releasing the annual reports to the public (HLC, 1998, 2000, 2003, 2006).

The study considered a sample of 90 firms for the civil war period (1998-2000) and also for the temporary truce period (2002-2004). Some firms were then excluded from the sample because of delisting by the stock exchange in the subsequent years of the relevant period. No firm in the study sample went through a merger activity during this period. As shown in Table 1, the resulting sample size for the civil war period was 82, and for the temporary truce period was 84.

Insert Table 1 about here

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4. Results and Discussion

As seen from Table 2 providing summary statistics, the narrative was the predominant disclosure strategy. The level of disclosure widely varied among firms for each disclosure strategy. All the firms in the sample had healthy balance sheets with more assets than liabilities. The narrative disclosure level was significantly higher for firms during the temporary truce period than during the civil war period. The market value of equity, net book value, current earnings, and annual sales level, all scaled by lagged stock price, were significantly higher during the temporary truce period than during the civil war

period, suggesting better financial performance of firms during the temporary truce period.

Insert Table 2 about here

Tables 3 and 4 outline the correlation matrix. The net book value and current earnings had a strong association with the current market value of equity, all scaled by lagged market value of equity. The net income and annual sales, both scaled by lagged market value of equity, also had a positive association with the outcome variable, scaled current market value of equity. The scaled annual sales also showed a positive association with narrative and visual intellectual capital disclosure level. During the civil war period only, firms showed a negative association between numerical intellectual capital disclosure level and the current market value of equity, net book value, and current earnings scaled by lagged market value of equity. The correlation between estimated coefficients is not high.

Insert Table 3 about here

Insert Table 4 about here

Table 5 reports results for the civil war period. The model without intellectual capital disclosure strategy showed a positive and significant association between the Scaled MVE (which is the outcome variable), and the Scaled NBV and the Scaled NI, which are the pre-determined variables. Introducing intellectual capital disclosure into the model did not change the significance of the association of the Scaled NBV and the Scaled NI, but the explanatory power of the model increased slightly. However, the investors have not included intellectual capital disclosed through any of the three disclosure strategies, and the interaction effect of the three disclosure strategies. The PtoB of firms is associated with the Scaled MVE, with investors attributing a higher market value of equity for firms with a higher growth rate.

Insert Table 5 about here

Table 6 reports results for the temporary truce period. Similar to the civil war period, the Scaled NBV and the Scaled NI as pre-determined variables showed a positive association with the Scaled MVE, which is the outcome variable. In addition to the PtoB, the LEVERAGE of firms also showed a positive association with the Scaled MVE, suggesting that investors included information about positively leveraged firms in the current market value of equity. The inclusion of the intellectual capital disclosure strategies as pre-determined variables in the regression model showed that investors included the narrative disclosure in the current market value of equity, but not visual, numerical, or the interaction effect of the three disclosure strategies.

Insert Table 6 about here

Results were consistent with the hypotheses. As expected, the Scaled NBV and the Scaled NI had a positive association with the Scaled MVE during both the civil war period and the temporary truce period. During the civil war period, investors did not include intellectual capital disclosure regardless of the disclosure strategy. During the temporary truce period however, investors did include ICNA in the Scaled MVE (H1), but not ICVI (H2), ICNU (H3), or the interaction of the three disclosure strategies in the Scaled MVE.

Additional analysis

Replacing PtoB with an industry variable

As noted earlier in outlining the control factors in this study, some authors suggested considering the nature of industry rather than the growth rate of firms to represent the industry factor. The regression model was run by replacing PtoB with a dichotomous industry variable (1= service industries, 0= otherwise). The mean and the standard deviation of the service industry sector were 10.7 and 1.3 respectively, and the other sectors were 10.2 and 1.2 respectively. There were 157 firms in the service industry sector, and 36 other firms. The regression results were similar to the main model.

Insert Table 7 about here

Omitting Scaled NI from the main models

There was a high correlation between the Scaled NBV and the Scaled NI (0.74 during the civil war period and 0.90 during the temporary truce period). Replacing the Scaled NBV with Scaled NI showed a strong association (0.81) between the Scaled NI and the SIZE. Hence, this study re-analysed results omitting Scaled NI, although the omission reduced the explanatory power of the models. The results reported in Table 8 confirm that the Scaled NBV has a positive significant association with the Scaled MVE during both the civil war period and the temporary truce period; also, the ICNA has a positive significant association with the Scaled MVE in the temporary truce period. The results obtained from dropping Scaled NI from the regression model are similar to the results reported in the main models as shown in Table 5 and Table 6 .

Insert Table 8 about here

The study highlights the limited understanding about intellectual capital disclosure strategies and their strength in communicating future earnings in two different periods of political instability. It flags the importance of further exploring investor behaviour in different settings of stress generated by politically unstable environments. These empirical findings would help firms to understand and consciously choose disclosure levels to inform investors about future earnings of intellectual capital resources in annual reports, and are included in the current market value of equity.

Limitations and future research propositions

The top 30 firms in a given year is a small number among the total 196 listed firms on the Colombo Stock Exchange, limiting generalising results to all listed firms, but these top 30 firms represented on average 60% of all the listed firms by market capitalisation (CSE, 2000). Sri Lanka typifies a low-middle-income developing country, suggesting that the findings of this study could serve as a benchmark for studies in other developing countries with different levels of political instability. This study investigated intellectual capital disclosure as a single construct, but a future study could examine intellectual capital by disclosure categories, and/or intellectual capital items. A future quantitative study in a stable political setting can add a new dimension to the Mouritsen et al. (2001) findings from case studies that the interaction of intellectual capital disclosure strategies informs "value-relevant" activities for investors. A future study can also elucidate other financial performance measures of relevance to investors for investigating the predictive value of intellectual capital disclosure strategies. Further, a future study might ascertain the association of intellectual capital disclosure strategies with the current stock return.

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Table 1: Sample composition

	During the civil war period (1998-2000) N=82			During the temporary truce period (2002-2004) N=84
Total firms	90		Total firms	90
1998	(4)		2002	(2)
1999	(3)		2003	(2)
2000	(1)		2004	(2)
Firms used	82		Firms used	84

Note: Sample comprises 30 firms in a given year.

Table 2: Sample summary statistics

	During the civil war period (1998-2000) N=82				During the temporary truce period (2002-2004) N=84				t-test
Variable	Mean	Median	Std. Dev		Mean	Median	Std. Dev		Probability/a
ICNA	62.3	51.0	52.5		109.3	68.5	108.5		0.00***
ICVI	19.5	4.5	44.7		18.2	12	20.2		0.60
ICNU	21.1	7.0	25.5		14.7	4	30.0		0.93
Scaled MVE	10.3	10.4	1.1		11.0	10.9	1.3		0.00***
Scaled NBV	10.3	10.3	1.0		10.8	10.9	1.4		0.00***
Scaled NI	8.7	8.7	1.2		9.3	9.5	1.7		0.01**
SIZE	14.8	15.0	1.0		15.3	15.4	1.4		0.01**
LEVERAGE	2.5	2.0	2.5		6.4	2	26.9		0.10
PtoB	12.9	12.0	9.2		14.2	6.0	41.7		0.40

/a indicates probability of the temporary truce period being greater than the civil war period.

Table 3
Pearson correlation and probability matrix of disclosure strategies – Civil war period

		1	2	3	4	5	6	7	8	9	10
1	Scaled MVE	1									
2	Scaled NBV	**0.84**	1								
	Pr	0.00									
3	Scaled NI	**0.86**	**0.74**	1							
	Pr	0.00	0.00								
4	ICNA	-0.06	0.00	0.04	1						
	Pr	0.59	0.97	0.70							
5	ICVI	0.00	-0.03	0.02	**0.28**	1					
	Pr	0.97	0.76	0.87	0.01						
6	ICNU	**-0.36**	**-0.26**	**-0.29**	**0.34**	0.03	1				
	Pr	0.00	0.02	0.01	0.00	0.76					
7	ICNAnVInNU	-0.02	0.03	0.01	**0.72**	**0.48**	**0.34**	1			
	Pr	0.86	0.82	0.92	0.00	0.00	0.00				
8	SIZE	0.16	0.18	**0.37**	**0.46**	**0.19**	0.17	**0.22**	1		
	Pr	0.15	0.10	0.00	0.00	0.09	0.12	0.04			
9	LEVERAGE	-0.17	-0.14	**-0.41**	**-0.30**	-0.15	0.01	-0.14	**-0.70**	1	
	Pr	0.13	0.21	0.00	0.01	0.18	0.95	0.20	0.00		
10	PtoB	0.01	-0.32	0.02	0.05	-0.13	0.00	-0.04	0.07	-0.10	1
	Pr	0.94	0.00	0.89	0.66	0.23	1.00	0.71	0.56	0.36	

Table 4

Pearson correlation and probability matrix of disclosure strategies – Temporary truce period

		1	2	3	4	5	6	7	8	9	10
1	Scaled MVE	1									
2	Scaled NBV	**0.81**	1								
	Pr	0.00									
3	Scaled NI	**0.88**	**0.90**	1							
	Pr	0.00	0.00								
4	ICNA	**0.25**	**0.27**	**0.26**	1						
	Pr	0.02	0.01	0.02							
5	ICVI	-0.02	0.04	0.13	**0.36**	1					
	Pr	0.83	0.69	0.26	0.00						
6	ICNU	-0.08	0.03	0.00	0.06	0.08	1				
	Pr	0.47	0.78	0.99	0.57	0.50					
7	ICNAnVInNU	-0.02	0.09	0.04	**0.49**	**0.48**	**0.65**	1			
	Pr	0.84	0.44	0.72	0.00	0.00	0.00				
8	SIZE	**0.56**	**0.65**	**0.81**	**0.44**	**0.31**	0.14	**0.20**	1		
	Pr	0.00	0.00	0.00	0.00	0.00	0.19	0.06			
9	LEVERAGE	**-0.27**	**-0.32**	**-0.49**	-0.14	-0.14	-0.08	-0.08	**-0.47**	1	
	Pr	0.01	0.00	0.00	0.19	0.20	0.47	0.49	0.00		
10	PtoB	**-0.26**	**-0.35**	**-0.41**	-0.17	-0.06	-0.03	-0.03	**-0.37**	0.15	1
	Pr	0.02	0.00	0.00	0.13	0.59	0.76	0.76	0.00	0.18	

Table 5

Panel regression results for the war period (1998-2000)

	Excluding intellectual capital disclosure (N=82)				Including intellectual capital disclosure (N=82)		
	Coef.	Std. Dev	Pr.		Coef.	Std. Dev	Pr.
ICNA					0.000	0.001	0.763
ICVI					0.001	0.001	0.234
ICNU					0.000	0.001	0.897
ICNA*ICVI*ICNU					0.000	0.000	0.333
Scaled NBV	**0.727*** **	0.069	0.000		**0.739*** **	0.072	0.000
Scaled NI	**0.241*** **	0.050	0.000		**0.238*** **	0.051	0.000
SIZE	-0.047	0.061	0.445		-0.044	0.067	0.513
LEVERAGE	0.027	0.022	0.216		0.030	0.023	0.184
PtoB	**0.006***	0.003	0.091		**0.007***	0.004	0.057
Constant	1.169	1.029	0.256		0.990	1.081	0.360
_cons							
Overall R^2	86.3%				86.8%		
Wald Chi Square (Pr)	449.1 (0.001)				439.5 (0.001)		

*** Strong significance at 0.01 level; ** moderate significance at 0.05 level; weak significance at 0.1 level; Number of groups =34

Table 6

Panel regression results for the temporary truce period (2001-2004)

	Excluding intellectual capital disclosure (N=84)				Including intellectual capital disclosure (N=84)		
	Coef.	Std. Dev	Pr.		Coef.	Std. Dev	Pr.
ICNA					**0.002*** **	0.001	0.004
ICVI					-0.005	0.004	0.192
ICNU					-0.001	0.003	0.710
ICNA*ICVI*ICNU					0.000	0.000	0.502
Scaled NBV	**0.366*** **	0.124	0.003		**0.363*** **	0.127	0.004
Scaled NI	**0.564*** **	0.137	0.000		**0.543*** **	0.138	0.000
SIZE	-0.056	0.091	0.538		-0.074	0.095	0.433
LEVERAGE	**0.008*** **	0.002	0.001		**0.007*** **	0.002	0.001
PtoB	**0.003** **	0.001	0.022		**0.003** **	0.001	0.014
Constant	2.486	1.249	0.047		2.930	1.272	0.021
_cons							
Overall R^2	86.3%				87.7%		
Wald Chi Square (Pr)	338 (0.001)				340.1 (0.001)		

*** Strong significance at 0.01 level; ** moderate significance at 0.05 level; * weak significance at 0.1 level; Number of groups in the sample =37

Table 7

Regression analysis – Replacing PtoB with Industry variable

	During the civil war period (N=82)				During the temporary truce period (N=84)		
	Coef.	Std. Dev	Pr.		Coef.	Std. Dev	Pr.
ICNA	0.001	0.002	0.59		**0.002**	0.00	0.01
ICVI	0.000	0.001	0.75		-0.006	0.00	0.10
ICNU	-0.002	0.002	0.29		-0.001	0.00	0.64
ICNAnVInNU	0.000	0.000	0.68		0.000	0.00	0.97
Scaled NBV	**0.641**	0.062	0.00		**0.852**	0.07	0.00
SIZE	-0.026	0.107	0.81		**-0.163**	0.09	0.08
LEVERAGE	**0.063**	0.036	0.08		**0.008**	0.00	0.00
INDUSTRY	0.018	0.107	0.86		**-0.340**	0.18	0.06
CONSTANT	4.884	1.566	0.00		5.731	1.00	0.00
Overall R^2	78.1%				85.4%		
Wald Chi Square (Pr)	134 (0.001)				246.8 (0.001)		

*** strong significance at 0.01 level; ** moderate significance at 0.05 level; * weak significance at 0.1 level

Table 8

Robustness analysis – Omitting Scaled NI

	During the civil war period (N=82)				During the temporary truce period (N=84)		
	Coef.	Std. Dev	Pr.		Coef.	Std. Dev	Pr.
ICNA	0.000	0.00	0.96		**0.002****	0.00	0.01
ICVI	0.001	0.00	0.33		**-0.008***	0.00	0.06
ICNU	0.000	0.00	0.79		-0.004	0.00	0.21
ICNAnVInNU	0.000	0.00	0.49		0.000	0.00	0.90
Scaled NBV	**0.926*****	0.07	0.00		**0.629*****	0.10	0.00
SIZE	-0.026	0.08	0.74		0.021	0.10	0.83
LEVERAGE	0.003	0.03	0.92		**0.006****	0.00	0.01
PtoB	**0.008***	0.00	0.05		0.002	0.00	0.27
CONSTANT	1.002	1.27	0.43		3.855	1.32	0.00
Overall R^2	73.8%				64.6%		
Wald Chi Square (Pr)	273.7 (0.001)				75.14 (0.001)		

*** Strong significance at 0.01 level; ** moderate significance at 0.05 level; * weak significance at 0.1 level