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The role of intangible assets and liabilities in firm performance: empirical evidence
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INTRODUCTION

Accounting researchers and practitioners have long discussed about the ability, or indeed inability, of standard financial reports to reflect the actual value of a firm (Lev, 2008; Skinner, 2008a; Penman, 2009). In particular, the accounting treatment of intangibles is one of the most debated, repeated and unresolved issues in accounting, both in academic research as well as in standard setting (Skinner, 2008a; Wrigley, 2008; Penman, 2009; Lev et al., 2009). The widening gap between market value of companies and reported book values is cited as an indication of the significance of intangibles in the modern economy, with the difference between market and book values, in some cases, reaching as high as 80 percent (Penman, 2009; Lev et al., 2009). For instance, market forecasts show that Apple's market value, currently over 700 billion US dollars, is expected to hit the 1 trillion mark in few years (Reuters, 2015). Apple's financial records show that its book value is substantially lower than its ballooning market value. The hidden, or unaccounted, value between market and book values of Apple, and many other companies such as Microsoft and Dell is categorically attributed to intangible (intellectual) assets (Penman, 2009; Lev et al., 2009; Edvinsson, 2013).

In contrast, studies suggest that intangible *liabilities* also exist (Harvey and Lusch, 1999; Giuliani, 2013). Intangible liabilities such as environmental spills, air pollution and poor corporate reputation can negatively impact market value of a company. For example, the recent Volkswagen diesel emissions scandal has significantly decreased the company's market value by nearly 30% since the news emerged in March, 2015 (CNN, 2015).

Despite acknowledging the significance of intangibles in the modern economy, accounting researchers struggle the identification, measurement and systematic disclosure of intangibles. Wrigley (2008, p. 259) argues that "the best valuation you can get - already exists for the aggregate intangibles for a business", claiming that the "market cap at the year-end minus the tangible book value could be used as the value of the intangibles". More specifically, a number of academic researchers maintain that "if the market value of a firm exceeds its book value" then there are unrecorded intangible assets (Lev, 2008; Lev et al., 2009). On the other hand, "if a firm is selling for less than book value it has some unrecorded intangible liabilities" (Harvey and Lusch (1999, p. 87). In essence, intangibles assets (liabilities) are significantly driving (restraining) how businesses create (destroy) value in the modern economy (Chen et al., 2005; Lev et al., 2009; Stam, 2009; De Santis and Giuliani, 2013).

However, the existing academic research and practitioner commentaries on intangibles is largely one-sided, given the dominant focus on intangible assets (Lev, 2008; Wrigley, 2008; Lev et al., 2009; Bloom, 2009), rather than both intangible assets and liabilities (Gowthorpe, 2009). A limited number of normative studies notwithstanding (Gowthorpe, 2009; De Santis and Giuliani, 2013), the role of intangible liabilities in firm performance is either sidelined or ignored. Hence, while empirical evidence reveals that intangible assets have positive impact on corporate financial performance (Chen et al., 2005; Lev et al., 2009), little is still known about the role of intangible liabilities in firm performance (De Santis and Giuliani, 2013; Giuliani, 2013).

This study examines the role of intangible assets and liabilities in corporate financial performance. In particular, we first investigate whether intangible liabilities arise in practice, especially within the context of large companies. Using a straight forward measure based on financial data, we examine intangible assets and liabilities of a large sample of Malaysian companies over a six-year period (2008-2013). Second, given intangible assets (liabilities) entail unaccounted corporate resources (obligations), we compare the financial performance of matched-paired samples: a group of companies which had consistently recoded intangible assets, and another matched-group of firms with consistent intangible liabilities. Third, we examine the relation between sustained intangible assets/ liabilities and performance over time. In so doing, we determine whether intangible assets and liabilities have contrasting roles in firm performance.

Our results first show a significant number of the sample companies have large amount of intangible liabilities, with the trend analyses revealing that a substantial number of the sample companies had unrecorded amount of intangible liabilities over time. Second, consistent with the predictions of economics-related theories, we find firms with intangible assets have superior financial performance than comparison group of firms with intangible liabilities. Third, the findings, robust to controls of company-specific characteristics and various measures of financial performance, show that intangible assets have significant *positive* impact on firm performance whereas intangible liabilities have significant *negative* impact on firm performance. Finally, we find that last year's intangible assets contribute to current year performance, whereas last year's intangible liabilities have negative impact on current performance. Overall, the results of this study show that intangible assets and liabilities have contrasting roles in firm performance.

This study provides a number of contributions to the extant intangibles literature. First, in departure from prior empirical studies which have largely focused on intangible assets, this study

2

adopts a wider perspective of intangibles by considering both intangible assets and liabilities. The empirical observation asserted in this study shows the dual and contrasting roles of intangible assets (liabilities) in the value creation (destruction) process of a firm. Therefore, the findings of this study affirm prior studies that observed a positive link between intangible assets and firm performance (Chen et al., 2005; Shiu et al., 2006; Lev et al., 2009; Clarke et al., 2011), whilst introducing the unfavourable role of intangible liabilities. Second, given the preference to focus on the bright side of intangibles, standard setters and the business community as well as academic scholars concentrate only on intangible assets, either sidelining or ignoring intangible liabilities (Stam, 2009; Gowthorpe, 2009).

Moreover, the extant academic research as well as practitioner commentaries on intangibles is remarkably silent on intangible liabilities, with the exception of very few normative studies (Harvey and Lusch, 1999; Stam, 2009; Gowthorpe, 2009; De Santis and Giuliani, 2013). We argue differentiation of intangible constructs is useful in making sense of intangibles. A significant contribution of this study is that it provides empirical account of the existence of intangible liabilities and highlights the need to conceptualize broader theoretical and practical frameworks for intangibles (De Santis and Giuliani, 2013; Giuliani, 2013). In particular, we argue that the ongoing initiatives pertaining capitalization and disclosure of intangibles should go beyond intangible assets by taking into consideration intangible liabilities. Within the context of the emerging Integrated Reporting (IR) agenda, the results of this study highlight the need to go beyond the "capitals" framework and consider inclusion of corresponding intangible liabilities.

This study focuses on Malaysian stock market for two main reasons. First, the Malaysian economy, similar to other second-tier emerging economies (e.g., China, Singapore, Indonesia etc.), is increasingly becoming knowledge-based economy, driven by knowledge-intensive industries (Kweh et al., 2013). In particular, Malaysian listed companies are found to have significant amount of intellectual assets, with an increasing trend over time (Salamudin et al., 2010; Ahmed Haji, 2016). However, little is still known about how different intangible constructs especially intangible liabilities impact the financial performances of companies in emerging economies. Second, Bursa Malaysia, which is the main regulatory authority, continues to introduce comprehensive corporate reporting reforms which go beyond financial information and include specific reporting requirements of non-financial aspects of public listed companies.

For example, Bursa Malaysia's CSR reporting framework, which was introduced in 2007, and more recently the sustainability reporting framework in 2015, require public listed companies to report on environmental, social and governance aspects of a company. However, the reporting reforms focus only on non-financial capitals such as human, social and natural capitals, and therefore ignore specific disclosure requirements for corresponding non-financial liabilities. This study, therefore, informs the ongoing policy initiatives in Malaysia, and other similar emerging economies, by highlighting the significance of intangible liabilities. The next section reviews the extant intangibles literature with a focus on contrasting views on intangible accounting treatment.

LITERATURE REVIEW

Perspectives on Intangible Treatment

Leading researchers and practitioners view intangibles as productive organizational resource that can assist firms to achieve *sustained* competitive advantage (Edvinsson and Malone, 1997; Hall, 2001; Brennan, 2001; Lev, 2001; Edvinsson, 2013). Intangibles or intellectual capital (IC), in this regard, is grossly conceptualized as the difference between a firm's market value and its book value (Hall, 2001; Lev, 2008; Wrigley, 2008). Hence, firms with higher market values than book values are said to have some unrecorded intellectual assets (Wrigley, 2008; Lev, 2008). Evidence shows that the market value of a firm is often significantly higher than the accounting book value (Lev, 2001; Penman, 2009; Lev et al., 2009; Ahmed Haji, 2015), with the unaccounted hidden value in some cases amounting to more than 80 percent (Lev et al., 2009). For instance, Penman (2009) demonstrates that Microsoft Corporation and Dell Inc, two firms known to have significant amount of intangibles, had hidden values of 84.14% (price-to-book ratio of 6.3) and 90.93% (price-to-book ratio of 11) in 2008, respectively. The glaring difference between market and book values was initially thought as only a blip, with the stock market attributing much of the widening gap to the 'internet bubble" in the 1990s (Basu and Waymire, 2008). But decades on, the gap is not getting any narrower, seemingly due to a shift in the nature of the economy which largely drives value from intangibles (Lev et al., 2009; Edvinsson, 2013).

There is a division within accounting scholarship on possible approaches to account for intangibles (Lev, 2008; Skinner, 2008b; Walker, 2009; Lev, 2008; Dumay, 2012). In particular, two main lines of thought on intangibles exist. One view maintains that the hidden values, or the

gap between market and book values, of a firm is a reflection of unaccounted intangible assets (liabilities) (Harvey and Lusch, 1999; Lev, 2008). On this line of thought, proponents call for reform in current accounting standards: (1) capitalize intangibles to compensate the market-to-book ratio and (2) mandate a standardized intangible disclosure (Lev et al., 2009). The argument for reform is based on three observations. First, intangibles has grown significantly in value and importance that they are now the key drivers of business performance (Lev, 2001; Bloom, 2009; Lev et al., 2009; Penman, 2009; Edvinsson, 2013). Second, proponents argue that given the significance of hidden values and the absence of such information from the balance sheet, investors and other information users are potentially misled (Lev, 2008; Wrigley, 2008). Third, capital market-based evidence shows users of information place tremendous value on non-financial information, particularly information on intangibles (Merkley, 2014). In sum, proponents of reform call for significant reforms in intangible accounting treatment to compensate fundamental flaws in existing financial reporting, reforms similar to segment reporting (Lev et al., 2009).

The view, albeit acknowledging the importance and growth of intangibles, rejects proposals to reform and believe that there is nothing wrong with current accounting treatments of intangibles (Skinner, 2008a; Basu and Waymire, 2008; Elwin, 2008; Walker, 2009; Penman, 2009). For instance, the anti-reform perspective categorically refutes the idea of intangible capitalization and disclosure. Skinner (2008a) challenges the calls for reform and argues that capital markets work rather well, and disclosures pertaining intangibles should be incentive-based, rather than standard-driven. In essence, Skinner and others (e.g., Elwin, 2008; Walker, 2009) are critical about the costs and benefits associated with standardizing intangible accounting with no or little evidence of incremental benefits of intangible reforms. In particular, these scholars question the premises of the calls for reform given that, in the first place, "the role of the balance sheet is not to arrive at a book value that tracks market value" (Skinner, 2008b, p. 216). A growing number of researchers concur this perspective, maintaining that the difference is just a difference of many encompassing variables and not just intangible assets or liabilities (Walker, 2009; Dumay, 2012).

A suggested solution is to use the income statement, not the balance sheet, to value a firm (Basu and Waymire, 2008; Elwin, 2008; Penman, 2009). Using an income statement perspective, Penman (2009, p. 358) argues that the omission of intangibles or hidden values from the balance

sheet is not necessarily a problem because "there is also an income statement, and the value of intangible (and other) assets can be ascertained from the income statement". Penman illustrates that the current financial reporting regime does not fail to value intangibles – the income statement can be used to derive the value of a firm's intangible assets and to arrive at a value close to or similar to the market capitalization of a firm. He argues that analysts and other capital market players hardly worry about a company's balance sheet and would rather value a company based on its income statement, not its balance sheet (also see Basu and Waymire, 2008; Elwin, 2008). Penman concludes that any deficiencies associated with the balance sheet (e.g., omission of intangible assets) are compensated by the income statement and therefore current accounting statements, when examined collectively, can be insightful. Penman and others (Basu and Waymire, 2008; Elwin, 2008) do not mention the issue of "intangible liabilities" and whether or not the income statement can be used to derive such values.

The common ground of the dialogue in the preceding discussion is that intangibles are significant in the modern economy and play a critical role in organizational value creation/destruction process. Notwithstanding differences in its accounting treatment, researchers acknowledge the market-to-book ratio, or hidden values, whether they are a reflection of a firm's intangible assets/liabilities or not, is a phenomenon that requires critical examination and explanation (Lev, 2008; Wrigley, 2008; Penman, 2009; Dumay, 2012). In the following section, we discuss the role of the current study.

Scope of the Study

This study provides empirical account of the role of intangibles in corporate financial performance. In particular, our focus is to examine the role of intangible liabilities in firm performance (Harvey and Lusch, 1999; Stam, 2009; Gowthorpe, 2009; De Santis and Giuliani, 2013). The preceding discussion, and the natural process, concerning intangibles is largely one-sided, given its narrow focus on intangible assets (Gowthorpe, 2009), assumed to exist when a firm's market value is higher than its reported book value (Wrigley, 2008). But in our study, we make a case for a comparatively contrasting situation where the market value of a firm is lower than its reported net assets, in which case the company is said to have unrecorded intangible liabilities (Harvey and Lusch, 1999; De Santis and Giuliani, 2013). In particular, Harvey and Lusch (1999, p. 87) advanced that:

6

> "….if the market value of a firm exceeds its book value it is usually argued that intangible or intellectual capital exists. This being the case, one could similarly argue that if a firm is selling for less than book value it has some unrecorded intangible liabilities. These liabilities are not a responsibility owed to an external entity but rather represent a dilution in shareholder equity which has the equivalent effect of an increased liability".

In essence, not all intangibles are assets, and companies could have significant intangible liabilities. Barney (1991), for instance, maintains that not all aspects of a firm's physical capital resources, human capital and organizational capital contribute to its value creation endeavors as some of the organizational resources can prevent firms to execute value creation, becoming intangible liabilities (Barney, 1986). Examples of intangible liabilities include, albeit not limited to, poor corporate reputation, employee turnover, dangerous work conditions, reputational loss, environmental incidents, fraud cases, poor organizational culture, and broader political environment among others (Barney, 1986; Harvey and Lusch, 1999; Caddy, 2000; Stam, 2009). These intangibles can potentially destroy organizational value (Caddy, 2000; Stam, 2009; Giuliani, 2013). The recent Volkswagen diesel emissions scandal, illustrates that occurrence of intangible liabilities has significant impact on firm value. The share price of VW has plunged nearly 30% since the news first emerged in Match, 2015 (CNN, 2015).

The limited academic research on intangible liabilities is largely due to two main reasons. First, the discussion usually surrounds around large firms with seasoned investments in intangibles (Penman, 2009). While size alone may not be the driving force for intangible assets, it could nonetheless be a factor. Second, given the existence of goodwill and brand values in large and established companies, there seems to be a categorical assumption that the book-to-market ratio is *always* greater than one which as a result disqualifies any discussion pertaining intangible liabilities (Stam, 2009; Gowthorpe, 2009). This study, therefore, examines the role of both intangible assets and liabilities in firm performance.

By simultaneously examining the roles of intangible assets and liabilities in firm performance, this study informs both the ongoing evaluations of accounting standard-setters for various intangible constructs (Skinner, 2008a), as well as reporting reforms for wider organizational reporting practices. In particular, this study is useful to the integrated reporting (IR) initiative, which only focuses on multiple capitals and ignores corresponding liabilities.

THEORY AND HYPOTHESES

Economics-related theories propound that intangible assets drive corporate financial performance. The resource-based theory, for example, posits that firms in a similar line of business have different performances (Marzo, 2014), and that a company's success (performance) is largely driven by the resources it owns (Wernerfelt, 1984; Galbraeth, 2005). Barney (1991) discusses three types of resources: physical capital, human capital and organizational capital. The latter two, intangible in nature, are what is now considered a firm's intangible assets. Lev et al. (2009) argue that while all firms own and use these three resources, there is notable difference in their ability to convert them into financial success. For instance, companies that have significant investments in intangible resources such as technological systems, employee development programs, and effective employee compensation packages have often superior financial performance than comparable companies with no such investments (Lev et al., 2009). Empirical evidence, albeit inconclusive, shows that intangible resources, overall, have significant positive impact on firm performance (Chen et al., 2005; Shiu et al., 2006; Lev et al., 2009; Clarke et al., 2011). However, other studies found limited support (Firer and Williams, 2003; Maditinos et al., 2011).

Given the focus on intangible assets, there is limited empirical evidence on the role of intangible liabilities in the value creation process of a company (Giuliani, 2013). This study adopts the resource-based view to examine the contrasting roles of intangible assets and liabilities in firm performance. In so doing, we compare the financial performance of companies with high levels of intangible assets and matched-companies with intangible liabilities.

Researchers argue that the level of hidden values is a reliable indicator of a firm's intangible assets and liabilities (Harvey and Lusch, 1999; De Santis and Giuliani, 2013; Giuliani, 2013). Building on this assumption, this study draws from the resource-based view that a company's performance is largely driven from the resources it owns (Wernerfelt, 1984; Galbraeth, 2005). Therefore, we expect firms with high levels of intangible assets to outperform financially than firms with unrecorded intangible liabilities. The following hypotheses are therefore proposed:

H1: Other things being equal, firms with unrecorded intangible assets record superior financial performance than firms with unrecorded intangible liabilities.

H2: There is a significant *positive* relationship between intangible assets and financial performance of a firm.

H3: There is a significant *negative* relationship between intangible liabilities and financial performance of a firm.

The impact of intangible assets and liabilities on performance may take time. Previous studies, which have considered the lagging effect of intangible resources on future years' performance, find that prior year's intangible assets have significant impact on subsequent year's financial performance (Chen et al., 2005; Clarke et al., 2011). However, none of the previous studies have examined the impact of intangible liabilities on firm performance. This study extends existing research by introducing the role of intangible liabilities in firm performance. The following hypotheses capture the lagging effects of last year's intangible assets and liabilities on current performance:

H4: Last year's intangible assets have a significant positive impact on current year's financial performance.

H5: Last year's intangible liabilities have a significant negative impact on current year's financial performance.

RESEARCH METHODS

Sampling Procedures

The main objective of this study is to examine the roles of intangible assets and liabilities in firm performance. The sample of this study is drawn from the largest 300 Malaysian companies, by market capitalization, over a six-year period spanning from 2008 to 2013. We use a matched-paired sampling methodology to select companies with intangible assets and liabilities. Our sample period is limited to six years to increase chances of data traceability whilst still providing a longitudinal coverage. This period also corresponds to a number of significant incidents including the global financial crises, corporate governance and reporting reforms as well as Malaysia's convergence to IFRS (Abdullah et al., 2015; Ahmed Haji, 2016).

To avoid selection bias in terms of firm size, we have limited the analyses to top 300 firms to control the 'size effect', whilst also disqualifying the notion that the potentiality to have high levels of intangible liabilities (negative hidden values) is a 'smaller-size' syndrome. We classified potential sample companies into two cases: (1) firms with sustained intangibles assets across the research period and (2) firms with sustained intangible liabilities across the same

period. One benefit of the matched-paired method is that it avoids "sampling on success" because studying a contrasting set of cases would enlighten whether the variable in question had anything to do with that success (Collins and Porras, 2002; Collins and Hansen, 2011).

Our sampling approach was grounded by three main criteria. First, the selected companies must have been in the top 300 companies by market capitalization as of December 31, 2013. We started our selection from 2013 and went backward to ensure that the company, despite its level of hidden value, was a top company in the latest year of our research period. In the negative hidden value cases, this selection shows that the companies enjoyed a higher market value than non-selected cases with positive hidden values in spite of its negative hidden value. Second, the selected companies must have *consistently* recorded a positive (negative) hidden value over the six-year study period. Given fluctuations in stock market, the prevalence of negative or positive hidden value is largely a random event. To monitor such a scenario and at the same time examine the role of hidden values in firm performance, we have excluded firms that had a fluctuating hidden value. As a result, we have targeted and selected firms with sustained positive or negative hidden values over the six-year study period. Finally, the company must have been a listed company throughout the six-year study period.

As shown in Table I below, 71 firms had consistent positive hidden values over the six-year period, resulting in a total of 426 firm-year observations (i.e., 71 x 6 years = 426). In the comparison group, we have identified 50 firms that had consistent negative hidden values over time, producing 300 firm-year observations (50 x 6 years = 300). Table I summarizes the sampling procedures and data selection process.

TABLE I

Variables Measurement

Dependent Variables

We use four measures of firm performance (ROA, ROE, Net Income and Profit Margin) to ascertain that the correlation between financial performance and intangible assets/liabilities is not specific to certain performance measures. The four performance measures are the dependent variables while intangible assets and liabilities represent the independent variables of this study.

We run several panel regression models to examine the relationship between firm performance and intangible assets/ liabilities. We first examine the impact of both current and last years' *intangible assets* on firm performance. We then run a second set of regressions to determine the role of current and last years' *intangible liabilities* in firm performance. We measure intangible assets and liabilities as the difference between market value and book value of the sample companies, with a positive difference entailing intangible assets while negative difference (i.e., book value is higher than the market capitalisation) indicates presence of intangible liabilities. This approach is consistent with prior studies (Harvey and Lusch, 1999; Garcia-Parra et al., 2009; Giuliani, 2013; De Santis and Giuliani, 2013). For instance, Wrigley (2008, p. 259) advances:

> ….the best valuation you can get - already exists for the aggregate intangibles for a business. The market cap at the year-end minus the tangible book value could be used as the value of the intangibles. There just follows an exercise in attribution of that value between the different sorts of intangible assets. The problem is that the component parts are completely subjective and I would argue that there is little point in paying valuers to make this attribution.

In a similar vein, other studies maintain that the difference between market value and book values can be categorically[1] attributed to intangible assets and liabilities (Harvey and Lusch, 1999; Garcia-Parra et al., 2009; De Santis and Giuliani, 2013). Harvey and Lusch, 1999, p. 87) maintain that if the book values are higher than the market capitalization, there are some unrecorded intangible liabilities[2]. This approach is lauded as an "immediate method" to conceptualize intangible liabilities and has a financial accounting logic of assets, liabilities and net equity (Garcia-Parra et al., 2009; De Santis and Giuliani, 2013; Giuliani, 2013). However, we acknowledge a limitation of this approach as it grossly attributes the entire difference between market and book value of a firm to intangible assets or liabilities. Stock market fluctuations in share prices can, to a certain extent, account for the difference between a firm's market value and its book value (Dumay, 2012; De Santis and Giuliani, 2013). To mitigate this problem, we undertake longitudinal analyses to identify sustained positive/negative hidden values.

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[1] There a number of studies that reject the notion that the difference between market and book value is attributable to intangible assets or liabilities (e.g., Dumay, 2012).

[2] Harvey and Lusch (1999) identify four categories of intangible liabilities viz. 1) process issues; (2) human issues; (3) informational issues; and (4) configuration issues.

Control Variables

We control a number of variables to determine the impact of intangible assets and liabilities on firm performance. These variables are firm size, firm age, industry and leverage. Table II provides a summary of the measurement and operationalization of all research variables.

TABLE II

Data analyses

We employ panel data regression analyses to determine the role of intangible assets and liabilities in firm performance. We conducted the Hausman specification test to identify the appropriate method between the 'fixed-effects model' and the 'random-effects model'. To simplify, the Hausman specification test suggests if the probability value (p-value) of the test is greater than 0.05, the random effects model should be used and vice-versa (Gujarati and Porter, 2009). In this study, the Hausman specification test has been conducted and depending on the results of the test, either the random effects model or fixed-effects model were performed for the various regression analyses. In most cases, however, the results, regardless of the test, were largely similar.

Before running the panel regression models, the correlation analyses were conducted to check the existence of multicollinearity problems among the independent variables. The results presented (unreported) show that there is no multicollinearity problems among the independent variables as the highest correlation coefficient among the independent variables is below 0.7 cut-off point, thereby allowing the inclusion of all the independent variables into the same regression model.

The Panel Regression Models

Building on the preceding discussion, the following panel regression equations were used:

$$ROA/ROE/NI/PMargin_{it} = \beta_0 + \beta_1 IA/IL_{it} + \beta_2 SIZE_{it} + \beta_3 AGE_{it} + \beta_4 INDUSTRY_{it} + \beta_5 LEV_{it} + \varepsilon_{it}$$

$$ROA/ROE/NI/PMargin_{it} = \beta_0 + \beta_1 IA/IL_{it-1} + \beta_2 SIZE_{it-1} + \beta_3 AGE_{it-1} + \beta_4 INDUSTRY_{it-1} + \beta_5 LEV_{it-1} + \varepsilon_{it}$$

12

RESEARCH FINDINGS

Descriptive Results

The descriptive results shown in Tables I reveal that hidden values, both positive and negative, do prevail among large firms in Malaysia. We find that a significant number of the sample companies had consistently recorded 'negative hidden values' over the six-year research period (2008-2013). For instance, in the year 2008, 178 firms (59.33%) from the largest 300 firms, by market capitalization, had 'negative hidden values', that is, a book value higher than the market value, with the remaining 122 firms (40.67%) recording 'positive hidden values'. The results in Table I also show the hidden values of the firms in the following years, with the evidence revealing that the lowest number of firms with negative hidden values was 102 firms in 2013. In terms of the number of firms with negative hidden values, there was no particular trend as, for instance, there was a decrease in the number of firms with negative hidden values from 178 firms in 2008 to 136 in 2009 and then to 124 in 2010 before increasing to 129 firms in 2011 and 130 in 2012. This suggests that the convergence to IFRS in Malaysia did not preclude the widening gap between market and book values. The recent global financial crises as well as corporate governance reforms did not also alter the occurrence of negative hidden values among top companies in Malaysia.

Given the significant number of companies with negative hidden values, these findings are unexpected for a number of reasons. First, given our sample is limited to large companies, we expected the bulk of the sample companies to have market values higher than book values. The evidence, which suggests otherwise, leads us to our second unexpected finding: the mean scores in hidden values, as shown in Tables III Panel A and B, reveal 'positive hidden values' are increasing over time whereas 'negative hidden values' are deteriorating. Given these findings, we have undertaken further analyses to investigate whether the presence of 'positive' or 'negative' hidden values is just a random phenomenon. We discuss this in the next section.

TABLE III PANEL A

TABLE III PANEL B

Trend of Hidden Values

A compelling argument maintains that 'hidden values' are subject to market and share price fluctuations and given the frequency of market changes, it does not have any particular trend. In other words, a given firm can have positive or negative hidden value at any point of time. To refute or support this claim, we have undertaken extensive analyses involving individual firms to understand the nature and pattern of hidden values over time. We find 71 firms had *consistently* demonstrated positive hidden values over the six-year research period, whereas another 50 firms had consistent negative hidden values over the same period. As shown in Table V, the trend of positive hidden values has increased significantly over time at $p = 0.001$. However, the trend analyses show that negative hidden values have significantly deteriorated at $p = 0.001$, suggesting that the sample companies with negative hidden value continue to have higher levels of negative hidden values, an indication of intangible liabilities (Harvey and Lusch, 1999; De Santis and Giuliani, 2013)

TABLE V

From this point we draw two main conclusions. First, a substantial number of Malaysian companies have unrecorded intangible liabilities. Given the number of companies with consistent hidden values over time, our findings refute the notion that hidden values occur only as a result of market fluctuations. Given the consistency and presence of hidden values in large firms, we show that hidden values are more than mere market fluctuations. Second, we also learn that there is a particular pattern in the trend of hidden values, with positive hidden values showing an increasing trend whilst the trend in negative hidden values has deteriorated over time. This implies that the stock market captures both positive and negative hidden values and reacts accordingly. Third, we find that the presence of hidden values, both positive and negative, is not related to a particular industry or business sector but is spread across various industries.

Performance: Is there a difference in the financial performance?

Using four proxies of financial performance (ROA, ROE, Net Income, and Profit Margin), we compare the financial performances of firms with 'positive hidden values' to a comparison group of firms with 'negative hidden values' over the six-year period. As shown in Table VI, we find

14

firms with positive hidden values have consistent[3] significant superior financial performance than the comparison firms with negative hidden values over the six-year period. The results provide support to our first research hypothesis (H1). The findings are also in line with the resource-based view that a company's performance is driven by the resources it owns. In this context, we argue 'positive hidden values', which reflect unrecorded intangible assets, drive firm performance, whereas negative hidden values, an indication of intangible liabilities, hinder firm performance. One possible explanation for the superior financial performance of the companies with intangible assets is that investments in intangible resources (e.g., human capital, R&D, technological systems) have the potential to enhance business profitability. The absence of such intellectual investments results in poor financial performance. For instance, a firm that invests in its employees through training programs and provides the necessary systems with effective compensation packages would outperform a firm without such investments (Lev et al., 2009).

TABLE VI

Empirical Results: Panel Regressions
Performance and hidden values: Direct relationship with current year performance

To determine the role of intangible assets and liabilities in corporate performance, we have performed several panel regressions. The objective is to show correlations, not causality. The first panel regression analyses in Table VII report the relationship between intangible assets and firm performance, using four alternating performance measures (ROA, ROE Net Income and Profit Margin). The findings show that all four measures of performance (ROA, ROE, Net Income and Profit Margin) have significant positive association with intangible assets. This finding suggests hidden intangible resources enhance the financial performance of companies. The results, which are in line with several prior studies (e.g., Chen et al., 2005; Clarke et al., 2011), are consistent with our second research hypothesis (H2).

TABLE VII

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[3] Only in the case of profit margin do the results show insignificant difference between the two groups albeit still firms with positive hidden values outperform than the comparison group.

The findings presented in Table VIII show the relationship between corporate performance and *intangible liabilities*. The results reveal a significant negative association between all four financial performance measures and our measure of intangible liabilities. Hence, the findings provide support to research hypothesis three (H3). These findings suggest that intangible assets drive financial performance of a company (H2), whereas intangible liabilities have a contrasting negative influence on corporate financial performance (H3).

TABLE VIII

Performance and hidden Value: Direct relationship with following year performance
We examined whether the observed link between performance and intangible assets/ liabilities has a time lag, that is, the impact of last year's intangible assets/ liabilities on current year's financial performance. We have specified additional models to capture the lagged effects of the independent variables. We first show in Table IX the impact of lagged intangible assets on subsequent year's financial performance. The results indicate that last year's intangible assets have a strong significant positive impact on all four performance measures in the current year. The results, which are consistent with our research hypothesis (H4), are in line with several prior studies that have observed a significant positive association between prior year's IC resources and subsequent firm performance (e.g., Chen et al., 2005; Shiu et al., 2006; Clarke et al., 2011).

TABLE IX

The results in Table X show the impact of lagged intangible liabilities for subsequent year's performance. The results show that a prior year's intangible liabilities have a significant negative impact on current year's performance. The results provide support to our last research hypothesis (H5). Due to the absence of a prior study which examined the role of intangible liabilities in firm performance, we provide initial evidence pertaining the role of intangible assets in firm performance.

TABLE X

16

DISCUSSION AND CONCLUSION

The literature and commentary discussions on intangibles were described as "one-sided", focusing only on intangible assets, and failing to consider intangible liabilities (Gowthorpe, 2009; Stam, 2009). We find that the existing research on intangible liabilities as highly normative, with little or no concrete empirical evidence (De Santis and Giuliani, 2013). There, there still remain questions on whether there is such thing as 'intangible liabilities' (Caddy, 2000; Stam, 2009), and in particular, the role of intangible liabilities in firm performance. The purpose of this study is to explore the existence of 'intangible liabilities' and provide initial empirical account toward the roles of intangible assets and liabilities in firm performance. Following prior studies (e.g., Harvey and Lusch, 1999; Wrigley, 2008; De Santis and Giuliani, 2013), we use sustained positive/ negative hidden values to measure intangible assets and liabilities.

We find a significant number of our sample companies, between 34% and 59.33% from the largest 300 companies in Malaysia, have substantial amount of unrecorded intangible liabilities over the six-year period. The research results also show that a significant number of top 300 companies (50 firms) had *sustained* intangible liabilities throughout the sample period. Contrary to expectations, the findings reveal that the occurrence of 'negative hidden values', or hidden values altogether, is not a random, industry specific or smaller-size syndrome phenomena. Quite contrary, the existence of hidden values goes beyond specific industries, reforms in corporate governance, reporting and macroeconomics conditions.

The empirical findings also reveal firms with 'positive hidden values', a reflection of intangible assets, significantly outperform financially a control group of firms with 'negative hidden values'. In addition, we find that intangible assets have a significant positive impact on firm performance whereas intangible liabilities have contrasting negative impact on both current and subsequent financial performance of the sample companies. Based on the research findings, we argue that the inclusion of information on intangible assets and liabilities in corporate reports, regardless of the structure of such disclosures, would allow investors to make an informed decision (Wrigley, 2008; Lev et al., 2009; Bloom, 2009). Perhaps the integrated reporting agenda, which aims to accommodate "multiple capitals" and their increases, decreases, and transformations, represents an opportunity to report intangible assets and corresponding liabilities.

The research findings have several important theoretical as well as policy implications. First, the findings are consistent with the resource-based view that firm performance is a function of organizational resources, both physical and intangible resources. We extend this theoretical notion to the intangible asset-liability mix, affirming the crucial role of intangible assets in corporate performance whilst introducing the unfavorable role of intangible liabilities in corporate financial performance. Second, the research findings provide initial empirical input to emerging calls for considering broader and different perspectives of intangibles (Caddy, 2000; Gowthorpe, 2009; Stam, 2009), and therefore belong to an emerging (shifting) paradigm toward the nature of intangibles. Third, from a policy perspective, the findings show a significant number of large firms have substantial amount of intangible liabilities. Given the current relegation of intangibles from existing financial accounting standards, our call is not only one for consideration of intangibles in terms of capitalization and disclosure (Lev, 2008; Lev et al., 2009), but one which emphasizes the broader perspective of intangibles and the necessary inclusion of intangible *liabilities* in the ongoing discussions pertaining intangible accounting (Skinner, 2008a). Finally, our findings have important implications for the auditing profession in assessing going concern of listed firms. We suggest that the auditors should become alert toward the presence of significant amount of intangible liabilities in making going concern assessments.

These findings should be interpreted within the context of several limitations. First, this study has only relied on a single measure of intangible liabilities. Albeit this measure is straightforward and more objective (Harvey and Lusch, 1999; Wrigley, 2008; De Santis and Giuliani, 2013), there could be other measures to capture intangible liabilities. One way to address this is to collect intangible liabilities data from companies through surveys. Second, the study did not consider audit reports of firms having negative hidden values. Future research should study audit reports to see if auditors have any reservation in going concern statements for companies with negative hidden values. Third, the evidence is drawn from a single country and could be influenced by country specific micro and macro level conditions. Studies incorporating several countries should extend the findings asserted in this study to provide further insights. Finally, this study has only examined a limited number of factors influencing the interplay between hidden values and firm performance. For instance, corporate governance could play an important role in the creation (mitigation) of intangible assets (liabilities). This can be the focus of future research.

REFERENCES

Abdullah, M., Evans, L., Fraser, I. and Tsalavoutas, I. (2015), "IFRS Mandatory disclosures in Malaysia: the influence of family control and the value (ir)relevance of compliance levels", *Accounting Forum*, Vol. 39 No. 4, pp. 328–348.

Ahmed Haji, A. (2016), "Trend of hidden values and use of intellectual capital information: Evidence from Malaysia", *Accounting Research Journal*, Vol. 29 No. 1, pp.81–105.

Barney, J.B. (1986), "Organisational culture: can it be a source of sustained competitive advantage?", *The Academy of Management Review*, Vol. 11 No. 3, pp. 656–665.

Barney, J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99–120.

Basu, S. and Waymire, G. (2008), "Has the importance of intangibles really grown? And if so, why?", *Accounting and Business Research*, Vol. 38 No. 3, pp. 171–190.

Bloom, M. (2009), "Accounting for goodwill", *Abacus*, Vol. 45 No. 3, pp. 379–389.

Brennan, N. (2001), "Reporting intellectual capital in annual reports: evidence from Ireland", *Accounting, Auditing & Accountability Journal*, Vol. 14 No. 4, pp. 423–36.

Caddy, I. (2000), "Intellectual capital: recognizing both assets and liabilities", *Journal of Intellectual Capital*, Vol. 1 No. 2, pp. 129-146.

Chen, M.C., Cheng, S.J. and Hwang, Y. (2005), "An empirical investigation of the relationshipbetween intellectual capital and firms market value and financial performance", *Journal of Intellectual Capital*, Vol. 6 No. 2, pp. 159–76.

Clarke, M., Seng, D. and Whiting, R.H. (2011), "Intellectual capital and firm performance in Australia*", Journal of Intellectual Capital*, Vol. 12 No. 4, pp.505–530.

CNN News (2015). Volkswagen has plunged 50%. Will it ever recover? Available at: http://money.cnn.com/2015/09/24/investing/volkswagen-vw-emissions-scandal-stock/

Collins, J. and Porras, J.I. (2002). *Built To Last: Successful Habits of Visionary Companies*. HarperCollins Publishers.

Collins, J. and Hansen, M.T. (2011), *Great by Choice: Uncertainty, Chaos, and Luck – Why Some Thrive Despite Them All*, HarperBusiness, New York, NY.

De Santis, F. and Giuliani, M. (2013) "A look on the other side: investigating intellectual liabilities", *Journal of Intellectual Capital*, Vol. 14 No. 2, pp. 212–26.

Dumay, J. (2012), "Grand theories as barriers to using IC concepts", *Journal of Intellectual Capital*, Vol. 13 No 1, pp. 4-15.

Edvinsson, L. (2013), "IC 21 – reflections from 21 years of IC practice and theory", *Journal of Intellectual Capital*, Vol. 14 No. 1, pp. 163–72.

Edvinsson, L. and Malone, M. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*, Harper Collins, New York, NY.

Elwin, P. (2008), "Discussion of 'Accounting for intangibles – a critical review of policy recommendations", *Accounting and Business Research*, Vol. 38 No. 3, pp. 205–207

Firer, S. and Williams, S.M. (2003), "Intellectual capital and traditional measures of corporate performance", *Journal of Intellectual Capital*, Vol. 4 No. 3, pp. 348-60.

Galbraeth, J. (2005), "Which resources matter most to firm success? An exploratory study of resource based theory", *Technovision*, Vol. 25 No. 9, pp. 979-87.

Garcia-Parra, M., Simo, P., Sallan, J.M. and Mundet, J. (2009), "Intangible liabilities: beyond models of intellectual assets", *Management Decision*, Vol. 47 No. 5, pp. 819-830.

Giuliani, M. (2013), "Not all sunshine and roses: discovering intellectual liabilities "in action"", *Journal of Intellectual Capital*, Vol. 14 No 1, pp. 127–44.

Gowthorpe, C. (2009), "Wider still and wider? A critical discussion of intellectual capital recognition, measurement and control in a boundary theoretical context" *Critical Perspectives on Accounting*, Vol. 20 No. 7, pp. 823–834.

Gujarati, D.N. and Porter, D.C. (2009), *Basic Econometrics*, 5th ed., McGraw-Hill, New York, NY.

Hall, R.E. (2001), "Struggling to understand the stock market", *American Economic Review*, Vol. 91 No. 2, pp. 1–11.

Harvey, M.G. and Lusch, R.F. (1999), "Balancing the intellectual capital books: intangible liabilities", *European Management Journal*, Vol. 17 No. 1, pp. 85-92.

Kweh , Q.L., Chan, Y.C. and Ting, I.W.K. (2013), "Measuring intellectual capital efficiency in the Malaysian software sector", *Journal of Intellectual Capital*, Vol. 14 No. 2, pp. 310–24.

Lee, S. (2009). Corporate Governance and Firm Performance. PhD thesis, The University of Utah, Utah, (unpublished).

Lev, B. (2001), *Intangibles: Management, Measurement, and Reporting*, Brookings Institution Press, Washington, DC.

Lev, B. (2008), "A rejoinder to Douglas Skinner's 'Accounting for intangibles – a critical review of policy recommendations", *Accounting and Business Research*, Vol. 38 No. 3, pp. 209–213.

Lev, B., Radhakrishnan, S. and Zhang, W. (2009), "Organization capital", *Abacus*, Vol. 45 No. 3, pp. 275–298.

Lonergan, W. (2009), "Discussion of Bloom", *Abacus*, Vol. 45 No. 3, pp. 390–396.

Maditinos, D., Chatzoudes, D., Tsairidis, C. and Theriou, G. (2011) "The impact of intellectual capital on firms' market value and financial performance", *Journal of Intellectual Capital*, Vol. 12 No. 1, pp.132–51.

Marzo, G. (2014), "Improving internal consistency in IC research and practice: IC and the theory of the firm", *Journal of Intellectual Capital*, Vol. 15 No. 1, pp. 38–64.

Merkley, K.J. (2014), "Narrative disclosure and earnings performance: evidence from R&D disclosures", *The Accounting Review*, Vol. 89 No. 2, pp. 725–57.

Penman, S.H. (2009), "Accounting for intangible assets: there is also an income statement", *Abacus*, Vol. 45 No. 3, pp. 358–371.

Reuters, 2015. Apple $1 trillion stock market value could be years away. Available at: http://www.reuters.com/article/2015/02/13/us-apple-marketcap-idUSKBN0LH05E20150213.

Salamudin, N., Bakar, R., Ibrahim, M.K. and Hassan, F.H. (2010), "Intangible assets valuation in the Malaysian capital market", *Journal of Intellectual Capital*, Vol. 11 No. 3, pp. 391–405.

Shiu, H. J. (2006), "The application of the value added intellectual coefficient to measure corporate performance: evidence from technological firms", *International Journal of Management*, Vol. 23 No. 2, pp. 356–365.

Skinner, D.J. (2008a), "Accounting for intangibles – a critical review of policy recommendations", *Accounting and Business Research*, Vol. 38 No. 3, pp. 191-204.

Skinner, D.J. (2008b), "A reply to Lev's rejoinder to 'Accounting for intangibles – a critical review of policy recommendations", *Accounting and Business Research*, Vol. 38 No. 3, pp. 215–216.

Stam, C.D. (2009), "Intellectual liabilities: lessons from the decline and fall of the Roman empire", *VINE: The Journal of Information and Knowledge Management Systems*, Vol. 39 No. 1, pp. 92-104.

Walker, R.G. (2009), "Discussion of Lev, Radhakrishnan and Zhang", *Abacus*, Vol. 45 No. 3, pp. 299–311.

Wernerfelt, B. (1984), "A resource-based view of the firm", *Strategic Management Journal*, Vol. 5 No. 2, pp. 171-180.

Whiting, R.H. and Miller, J.C. (2008), "Voluntary disclosure of intellectual capital in New Zealand annual reports and the 'hidden value", *Journal of Human Resource Costing & Accounting*, Vol. 12 No. 1, pp. 26–50.

Wrigley, J. (2008), "Discussion of 'What financial and non-financial information on intangibles is value-relevant? A review of the evidence", *Accounting and Business Research*, Vol. 38 No. 3, pp. 257–260.

21

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TABLES

Table I:

Occurrence of Positive and Negative Hidden Values over time

	Number of firms with positive hidden value						Number of firms with negative hidden value					
Years	2008	2009	2010	2011	2012	2013	2008	2009	2010	2011	2012	2013
Number of firms	122	164	176	171	170	198	178	136	124	129	130	102
% of top 300	40.67	54.67	58.67	57.00	56.67	66.00	59.33	45.33	41.33	43.00	43.33	34.00
Same firms in all years	71						50					
Firm-year observations	426 (71 x 6 years = 426)						300 (50 x 6 years = 300)					

Table II:

Measurement of research variables

Acronym	Definition	Type	Operationalization	Source of Data
IA	Intangible Assets	Dependent / Independent Variable	Difference between market value and book value	Osiris Data stream
IL	Intangible Liabilities	Dependent / Independent Variable	Difference between market value and book value	Osiris Data stream
ROA	Return on Assets	Dependent / Independent Variable	Net Income to Total assets	Osiris Data stream
ROE	Return on Equity	Dependent / Independent Variable	Net Income to Total Equity	Osiris Data stream
NIncome	Net Income	Dependent / Independent Variable	Net Profit for the year	Osiris Data stream
PMargin	Profit Margin	Dependent / Independent Variable	Percentage of Profit Margin for the year	Net Profit to Total Sales
Size	Firm Size	Control Variable	Total Assets (Log of Total Assets)	Osiris Data stream
Age	Firm Age	Control Variable	Date of Incorporation: Number of years incorporated	EMIS Securities Database
Industry	Industry	Control Variable	Dummy variable of 1 for IC Intensive firms, 0 otherwise	Bursa Malaysia
Lev	Leverage	Control Variable	Total Debt to Total Assets	Osiris Data stream

Table III Panel A:

Descriptive results for Intangible Assets

Years	N	Min (%)	Max (%)	Mean	Std. Dev.	Skewness	Kurtosis
2008	71	3,332	37,335,866	2,429,911	6,381,031	4.39	20.53
2009	71	1,438	22,701,168	2,884,125	5,063,847	2.70	6.89
2010	71	7,846	38,875,384	4,137,099	7,152,095	2.94	9.49
2011	71	34,778	31,437,048	4,698,264	7,701,512	2.30	4.59
2012	71	14,751	40,868,429	5,172,465	9,016,544	2.46	5.55
2013	71	74,617	40,346,462	5,484,713	9,560,894	2.46	5.34

Table III Panel B:

Descriptive results for Intangible Liabilities

Years	N	Min (%)	Max (%)	Mean	Std. Dev.	Skewness	Kurtosis
2008	50	-2,826,810	-25,555	-497,308	507,561	-2.95	10.16
2009	50	-2,337,181	-11,755	-453,635	449,354	-2.60	7.48
2010	50	-2,030,143	-30,876	-374,356	367,773	-2.71	9.26
2011	50	-2,899,446	-25,791	-479,622	541,288	-2.90	9.52
2012	50	-3,463,220	-46,630	-566,554	596,420	-3.09	11.82
2013	50	-3,730,889	-37,389	-503,338	668,473	-3.37	13.03

Table IV Panel A:

Descriptive Results of Independent Variables: Firms with Intangible Assets

	Observations	Mean	Max	Min	Std. Dev.	Skewness	Kurtosis
ROA (%)	426	12.91	57.04	-42.71	10.91	0.31	5.19
ROE (%)	426	23.66	608.81	-241.04	40.79	6.92	113.79
NINCOME	426	433,533	6,771,300	-2,523,988	856,645	3.38	18.91
PMARGIN (%)	426	20.94	88.76	-87.19	17.20	-0.25	7.69
SIZE	426	18,164,955	560,000,000	58,017	63,102,484	5.41	35.44
AGE	426	28.12	103	0	20.12	1.40	5.43
INDUSTRY	426	0.37	1	0	0.48	0.55	1.31
LEVERAGE (%)	426	43.64	94.87	2.08	23.79	0.46	2.29

Table IV Panel B:

Descriptive Results of Independent Variables: Firms with Intangible Liabilities

	Observations	Mean	Max	Min	Std. Dev.	Skewness	Kurtosis
ROA (%)	300	5.45	21.4	-20.3	5.26	-0.17	4.93
ROE (%)	300	8.75	49.3	-53.34	9.34	-0.99	11.13
NINCOME	300	66,429	1,596,920	-474,963	154,153	4.50	39.25
PMARGIN* (%)	299	17.18	68.39	-77.43	18.88	-0.28	5.40
SIZE	300	3,080,172	59,951,600	438,246	8,145,335	5.12	29.33
AGE	300	29.66	89	4	15.62	0.80	4.54
INDUSTRY	300	0.24	1	0	0.43	1.22	2.48
LEVERAGE (%)	300	39.55	89.58	7.54	19.18	0.62	2.84

*The reduced number of observations for PMARGIN is due to missing value of this particular variable.

Table V.
One-Way Repeated Measures ANOVA: Trend of Hidden Values over time (2008 – 2013)

Dimension	2008	2009	2010	2011	2012	2013	p-value
Positive Hidden							**0.001***
Values	2,429,911	2,884,125	4,137,099	4,698,264	5,172,465	5,484,713	
Negative							**0.001***
Hidden Values	-497,308	-453,635	-374,356	-479,622	-566,554	-503,338	

***Significant at the 1% level

Table VI:
Independent samples t-test: Comparing the performance of matched-paired of companies

	ROA											
	2008		2009		2010		2011		2012		2013	
	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL
N Value	71	50	71	50	71	50	71	50	71	50	71	50
Mean Score	12.23	5.23	12.11	4.42	13.58	5.68	13.26	5.93	13.15	5.26	13.10	6.18
	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig
2 Groups	4.397	**0.000****	6.135	**0.000****	5.540	**0.000****	5.024	**0.000****	5.032	**0.000****	4.170	**0.000****
	ROE											
	2008		2009		2010		2011		2012		2013	
	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL
N Value	71	50	71	50	71	50	71	50	71	50	71	50
Mean Score	19.13	8.73	22.14	7.37	24.19	8.66	20.55	9.56	30.37	8.11	25.57	10.11
	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig
2 Groups	2.178	**0.031***	6.205	**0.000****	5.360	**0.000****	2.080	**0.040***	2.162	**0.033***	3.032	**0.003****
	Profit Margin											
	2008		2009		2010		2011		2012		2013	
	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL
N Value	71	50	71	50	71	49	71	50	71	50	71	50
Mean Score	19.31	11.84	21.25	14.67	22.44	19.07	21.50	19.09	21.04	18.27	20.11	20.17
	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig
2 Groups	2.120	**0.036***	2.458	**0.015***	1.159	0.249	0.722	0.472	0.728	0.468	-0.018	0.986
	Net Income											
	2008		2009		2010		2011		2012		2013	
	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL	IA	IL
N Value	71	50	71	50	71	50	71	50	71	50	71	50
Mean Score	339152	64254	321739	41502	427583	60186	432801	90617	537833	56167	542,091	85,848
	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig	t-value	Sig
2 Groups	3.295	**0.001****	4.430	**0.000****	4.140	**0.000****	3.130	**0.002****	3.835	**0.000****	3.361	**0.001****

**Significant at the 0.01 level (2-tailed).
*Significant at the 0.05 level (2-tailed).

Table VII

Panel Regression: Performance and Intangible Assets (IA) – Using current year Intangible Assets

	IA and ROA (Model 1)			IA and ROE (Model 2)			IA and Net Income (Model 3)			IA and Profit Margin (Model 4)	
Total Panel Observations: 426											
Variables	**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**
IA	2.147	**0.000*****		9.089	**0.000*****		0.184	**0.000*****		1.73	**0.0106****
Size	-3.200	**0.000*****		-11.448	**0.000*****		0.383	**0.000*****		2.704	**0.0009*****
Age	0.703	0.3978		1.994	0.5469		-0.079	**0.0904***		-3.314	**0.0004*****
Industry	-0.747	0.6447		-2.987	0.6344		-0.043	0.6234		6.152	**0.0004*****
Lev	-0.137	**0.000*****		0.391	**0.0043*****		-0.013	**0.000*****		-0.295	**0.000*****
R-square (%)	20.93			6.91			54.99			16.67	
Adjusted R^2 (%)	19.99			5.80			54.45			14.66	
F-statistic	22.232			6.235			102.63			8.301	
Prob. (F-statistic)	0.000			0.000			0.000			0.000	

IA = Intangible Assets; Size = Firm Size using log of total assets; Age = number of years incorporated; Industry = Dummy variable of 1 for intangible intensive firms, 0 otherwise; Lev = Leverage using percentage of total debt to total assets.

***Significant at the 1% level

**Significant at the 5% level

*Significant at the 10% level

Table VIII:

Performance and Intangible Liabilities (IL) - Using current year Intangible Liabilities

	IL and ROA (Model 1)			IL and ROE (Model 2)			IL and Net Income (Model 3)			IL and Profit Margin (Model 4)	
Total Panel Observations: 300											
Variables	**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**
IL	-3.279	**0.000***		-6.297	**0.000***		-0.610	**0.000***		-11.397	**0.000***
Size	2.005	**0.001***		5.194	**0.000***		1.1953	**0.000***		15.171	**0.000***
Age	0.053	0.8548		-0.125	0.8238		-0.062	0.2563		-0.457	0.6826
Industry	-0.366	0.5753		-1.307	0.302		-0.214	**0.083***		-8.895	**0.0004***
Leverage	-0.150	**0.000***		-0.169	**0.0001***		-0.032	**0.000***		-0.597	**0.000***
R-square (%)	31.13			18.18			30.34			22.32	
Adjusted R^2 (%)	28.75			15.35			27.93			19.63	
F-statistic	13.066			6.422			12.591			8.305	
Prob. (F-statistic)	0.000			0.000			0.000			0.000	

IL = Intangible Liabilities; Size = Firm Size using log of total assets; Age = number of years incorporated; Industry = Dummy variable of for intangible intensive firms, 0 otherwise; Lev = Leverage using percentage of total debt to total assets.

***Significant at the 1% level

**Significant at the 5% level

*Significant at the 10% level

Table IX:

Performance and Intangible Assets (Lagging Effect) - Using last year Intangible Assets (IA)

Variables	IA and ROA (Model 1)			IA and ROE (Model 2)			IA and Net Income (Model 3)			IA and Profit Margin (Model 4)	
	Coefficient	Sig		Coefficient	Sig		Coefficient	Sig		Coefficient	Sig
	Total Panel Observations: 426										
	Coefficient	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**
IA_{t-1}	4.088	**0.000***		13.234	**0.000***		0.206	**0.000***		1.576	**0.0296***
$Size_{t-1}$	-4.957	**0.000***		-13.794	**0.000***		0.354	**0.000***		2.444	**0.0064***
Age_{t-1}	0.159	0.7661		-1.053	0.6716		-0.077	**0.0143***		-3.858	**0.0001***
$Industry_{t-1}$	-0.981	0.3279		-5.161	0.2682		-0.056	0.341		5.409	**0.0036***
$Leverage_{t-1}$	-0.028	0.2727		0.495	**0.000***		-0.009	**0.000***		-0.237	**0.000***
R-square (%)	40.00			16.42			74.94			14.24	
Adjusted R^2 (%)	38.43			14.24			74.29			12.00	
F-statistic	25.55			7.529			114.64			6.368	
Prob. (F-statistic)	0.000			0.000			0.000			0.000	

IA = Intangible Assets; Size = Firm Size using log of total assets; Age = number of years incorporated; Industry = Dummy variable of 1 fo intangible intensive firms, 0 otherwise; Lev = Leverage using percentage of total debt to total assets.

***Significant at the 1% level

**Significant at the 5% level

Table X:

Performance and Intangible Liabilities (IL) - Using last year Intangible Liabilities

	IL and ROA (Model 1)			IL and ROE (Model 2)			IL and Net Income (Model 3)			IL and Profit Margin (Model 4)	
	Total Panel Observations: 300										
Variables	**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**		**Coefficient**	**Sig**
IL_{t-1}	-2.507	**0.000***		-5.083	**0.000***		-0.533	**0.000***		-9.272	**0.000***
$Size_{t-1}$	0.463	0.5146		2.750	**0.045****		0.970	**0.000***		11.369	**0.0001****
Age_{t-1}	0.125	0.7029		0.063	0.9197		-0.023	0.7166		-0.271	0.835
$Industry_{t-1}$	-0.713	0.3382		-2.148	0.1335		-0.315	**0.0287****		-9.145	**0.0021****
$Leverage_{t-1}$	-0.092	**0.0003***		-0.075	0.1174		-0.024	**0.000***		-0.447	**0.000***
R-square (%)	26.54			14.03			20.03			13.57	
Adjusted R^2 (%)	23.78			10.81			17.03			10.33	
F-statistic	9.634			4.352			6.677			4.187	
Prob. (F-statistic)	0.000			0.000			0.000			0.000	

IL = Intangible Liabilities; Size = Firm Size using log of total assets; Age = number of years incorporated; Industry = Dummy variable of for intangible intensive firms, 0 otherwise; Lev = Leverage using percentage of total debt to total assets.

***Significant at the 1% level

**Significant at the 5% level

*Significant at the 10% level