# THE EFFECT OF MULTINATIONAL UNDERWRITING FIRMS ON INTELLECTUAL CAPITAL DISCLOCURE IN INDONESIAN IPO PROSPECTUSES

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## Abstract

*The objective of this study was to investigate the effects of multinational underwriters on intellectual capital disclosure in Indonesian IPO prospectuses. Intellectual capital disclosure practices were driven by the advice of underwriters. Multinational underwriters had a greater capacity to produce more relevant information so it reduced the information gap for IPO market participants. The information included IC disclosure practices in IPO prospectuses. This study found that the nationality of underwriting firms positively affected the extent of intellectual capital disclosure in Indonesian IPO prospectuses. Exposure to IPOs in other countries and the ability to combine dispersed knowledge across their international branches seemed to have a positive effect on multi-national underwriting firms in as much as it led to a higher standard of disclosure of intellectual capital than that of local underwriting firms.*

*Key words: intellectual capital disclosure, IPO, prospectus, multinational underwriter*

There have been many studies in the past that have investigated roles of underwriters in dealing with uncertainty and asymmetric information in IPO markets. One of the roles of underwriters in such markets is as information producer for potential investors and issuing firms. This underwriter service reduces the total cost of information production and consequently enhances the efficiency of IPO pricing (Chemmanur & Fulghieri, 1994, 1999). The demand for information on intangible assets such as intellectual capital (IC) is positively related to the level of information asymmetry and uncertainty in IPO markets (Ström, 2006). IC reporting provides information to investors on how a company creates value based on its knowledge resources (Bukh, 2005).

The central objective of this study is to investigate the effects of multinational underwriters on intellectual capital disclosure (ICD) in Indonesian IPO prospectuses. This study argues that in IPO markets intellectual capital disclosure practices are initially driven by the advice of underwriters. More importantly, this study puts forward the argument that multinational underwriters have some advantages over their local counterparts because they have experience from involvement

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with IPOs in many countries. Hsu & Pereira (2008) argue that multi-national firms have more skills to win competitions than local firms do. Multinational firms are able to internalize externalities by putting together knowledge and activities at a cheaper price than markets do and transferring these advantages easily to their branches across the globe (Hakanson & Nobel, 2000, 2001; Park, 2011). Therefore, a multinational underwriter has greater capacity to produce relevant information, and thereby reduce the information gap between IPO market players (issuing firms and potential investors). This information includes ICD practices in IPO prospectuses, and that is vital for the capital market's assessment of the value of an issuing company.

As far as the author knowledge, there are very limited studies on the determinants of intellectual capital disclosures in IPO prospectuses. Currently there are only four studies on the topic. Those studies cover prospectuses in Denmark (Bukh et al., 2005), In Italy (Cordazzo, 2007), In Singapore (Singh & Van der Zahn, 2008), and in Japan (Rimmel et al., 2009). Given the role of underwriter as an information production and an advisor during a firm's IPO process, surprisingly, none of the previous studies evaluates the role of underwriters in the disclosure. This current study, therefore, is the first in the field to do so.

This study finds that the involvement of a multinational underwriter leads to higher intellectual capital disclosure in a prospectus. The exposure to IPOs in other countries and the ability to combine dispersed knowledge across international business units seems to have a positive effect on multi-national underwriting firms inasmuch as it leads to a higher standard of disclosure of intellectual capital than that of local underwriting firms. In addition, among several factors that have been hypothesized in previous studies to affect the disclosure of intellectual capital in IPO prospectuses, only the industry in which an IPO firm operates is significant in explaining the ex-

tent of ICD. To illustrate, firms in high-tech industries have higher ICDs than firms in other, more traditional industries.

The remainder of this paper is organized as follows. Section two contains the hypothesis development. Section three discusses the research methodology. Section four contains the empirical results and discussions. Finally, the last section offers final conclusions on this study.

## HYPOTHESIS DEVELOPMENT

Intellectual capital (IC) refers to a collection of intangible assets that leads to the functioning of an organization, and is considered to be an organization's core competencies (Viedma, 2001). The demand for information on IC has been increasing; especially so when information asymmetry and uncertainty is great such as in IPO markets (Ström, 2006). Contrary to market analysts' opinion on the irrelevance of IC reporting, Bukh (2005) argues that an increasing practice of disclosing IC information in Danish IPO prospectuses shows that both companies and underwriters believe this type of information is important in the capital market's assessment of the values of companies. An IPO prospectus is the only information source allowable by law during an IPO process, and it is designed to mitigate information asymmetry and uncertainty among market participants (Ström, 2006).This implies that IC information is useful for investors to determine how an IPO company creates its value based on its knowledge resources.

One of the prominent roles of underwriters in IPO markets is as an information producer. Researchers have proposed that pricing in IPOs is a function of information produced by underwriters for issuing firms and potential investors (Chemmanur & Fulghieri, 1994, 1999). Firms develop resources to win competitions and to maintain their sources of sustained competitive advantage to ensure the future performance. Underwrit-

ers might encourage firms to reveal firm-specific resources in prospectuses to enhance the attractiveness of the offering to potential investors. To identify firm-specific resources in prospectuses, underwriters must invest to obtain this firm-specific information. Ang & Zhang (2006) contend that an underwriter is willing to invest in information production because such firm-specific information is useful in the current IPO and subsequent deals with the same firm.

These researchers above argue that information produced by underwriters reduces the information gap between issuers and potential investors in IPO markets. This particular role of the underwriter influences the degree of information asymmetry in IPO markets and the deviations of offering prices from "true" prices. With regards to conveying information to potential investors, it implies that the greater the competency of an underwriter, the greater the quality of information it produces, such that the more the firm value relevant information is disclosed in the offering prospectus, the less does the information asymmetry remain in the markets. This reduction in the degree of information asymmetry in the markets will increase the net proceeds from IPO (Ang & Brau, 2002) and will also be reflected positively in the IPO pricing so that there will be less under-pricing (Schrand & Verrecchia, 2004) and higher offering prices (Dally, et al., 2005).

Multinational underwriting firms operating in Indonesia, such as ABN Amro, GK Goh, and DBS Vickers among others, have been involved in IPOs in many countries. They have a number of advantages over their local counterparts. Multinational firms that compete in international markets gain multiple knowledge bases in their operations to learn new skills that enhance their existing capabilities (Hsu & Pereira, 2008). The experiential learning derived from international operations is a source of knowledge and these firms harvest and exploit their diverse knowledge to create competitive advantages.

Multinational firms are able to internalize externalities by putting together all knowledge and activities at a cheaper price than markets do (Hakanson & Nobel, 2000, 2001). It implies that they create added value through combining dispersed knowledge when markets fail or are inefficient in the transfer. Hakanson & Nobel (2000, 2001) also argue that product and service knowledge can be easily transferred inside multinational firms. Knowledge transfer is a process that needs close relationships through which both a transferor and an acquirer share information (Park, 2011). In this vein, a parent and its foreign subsidiaries share information through their regular communication and thus this relationship become an effectual venue to win a learning race against local firms. With this knowledge transfer, a multinational underwriter has a greater capability to produce relevant information in order to reduce the information gap between the IPO market participants. Such information may include IC disclosure practices in IPO prospectuses. Since multinational underwriters have more experience in this practice, they are expected to advise issuers to disclose more IC information in IPO prospectuses. Accordingly, whenever a foreign underwriter is involved in preparing an IPO, greater disclosure of intellectual capital is anticipated. Formally, the hypothesis in this study is stated as follows.

$H_A$: Involvement of multinational underwriting firm(s) in an IPO leads toward higher disclosure of Intellectual capital in the IPO prospectus.

Besides the effect of multinational underwriting firms in ICD, this current study also includes, as control variables, some factors that have been hypothesized in previous studies to have affected the disclosure of intellectual capital in IPO prospectuses. Those factors are age, size, industry, and ownership of pre-IPO firms.

Bukh, et al. (2005), Cordazzo (2007), and Rimmel, et al. (2009) argue that the shorter the

length of time from a firm's establishment as a going concern to its IPO, the more negatively it affects intellectual capital disclosures in its prospectus. More established firms are less risky, in the sense that older firms have had their business models tested in the market place for longer than younger firms (Daily, et al., 2003). With regard to information asymmetry, Rimmel, et al. (2009) contend that younger firms have fewer years of public information and, therefore, greater information asymmetry surrounding their offerings. In addition, they also argue that disclosing non-financial information is of greater importance in the valuation of younger companies. Historical earnings do worse in assessing younger companies than forecasted earnings, which are largely based on non-financial information.

As also found in Bukh, et al. (2005), Cordazzo (2007) and Rimmel, et al. (2009), firm size positively affects intellectual capital disclosure in prospectuses. Larger firms, as compared to smaller firms, present fewer risks because they possess more ways and means to flourish in the market place. Resources to survive and make profit may include the control of intellectual capital by larger firms. With regard to its disclosures, Jensen & Meckling (1976) imply that company size directly influences the magnitude of agency costs in a firm. A more complex organization has more difficulty in monitoring the actions of insiders in running the organization. Therefore, greater disclosure in prospectuses can be used as a tool in reducing the information asymmetry surrounding offerings. In addition, larger firms who have more advanced business information systems are also less likely to have difficulty in producing information.

The next control variable relates degree of disclosure with the industry that a firm operates in. The ability to explain the extent of disclosure is partly due to differences in industry norms (Bukh, et al., 2005; Cordazzo, 2007; Rimmel, et al., 2009). In addition, firms in high-tech industries, such as IT and biotechnology firms, have a tendency toward a high market to book ratio, which implies that the market value of firms in high-tech industries is determined mostly by the value of their opportunities for growth rather than their assets in place (Myers, 1977). This phenomenon causes traditional business reporting, which has biases toward reporting tangible assets, to be inadequate in providing information on the future economic prospects of high-tech firms. Consequently, reporting intangible assets such as intellectual capital is considered more crucial for firms in high-tech industries than for those in manufacturing and commercial industries.

Previous research on the extent of information disclosure reveals the negative impact of insider ownership (a person who assumes the dual roles of owner as well as manager of a firm) on the amount of information being disclosed to the market. The argument stems from an attempt to reduce agency costs through information disclosure. This argument is based on the work of Jensen & Meckling (1976) that predicts a positive relationship between insider ownership and firm value. Furthermore, Demirag, et al. (2000) and O'Sullivan (2000) argue that insider ownership acts as a mechanism for ensuring an alignment between owners and managers. More importantly, a high level of insider ownership is viewed as an indication that the goals of the firms' managers have been effectively aligned with those of potential investors in the IPO firm.

Bukh, et al. (2005), Cordazzo (2007), Singh & Van der Zahn (2008), and Rimmel, et al. (2009) contend that less insider ownership provides motivation for boards of directors to disclose intellectual capital to fulfill a monitoring role by seeing that their supervised firms undergo more intensive scrutiny activities. They, again, argue that the amount of non-financial disclosure varies negatively to the magnitude of insider ownership.

## DATA AND METHODOLOGY

The sample in this study consists of initial public offerings conducted by Indonesian firms at the Indonesia Stock Exchange (IDX) over a 5-year period between 2001 and 2005. An initial list of firms in this study was obtained from the IDX Annual Statistics. This publication allows an initial sample to contain 78 IPOs. IPO prospectuses are the source of required data for this study. The prospectuses were obtained from the IDX Financial Database. The data needed for each firm are as follows: (1) The level of intellectual capital disclosure in the prospectuses; (2) The nationality of underwriters involved in each IPO; (3) The period from its establishment to its IPO year; (4) The latest amount, in Indonesian Rupiah (IDR), of its total assets prior to IPO; (5) The business at which a firm operates and, as in Bukh, et al. (2005), the sample firms classified into four distinctive industry groups: IT & Technology, Pharmaceutical & Research, Production, and Trade & Services; (6) The latest information regarding the ownership of managers prior to IPO. Seventy three IPOs comprise the final sample after five IPOs have been excluded from the study because of missing data requirements. The industry sectors to which these 73 IPO firms belong are found in Table 1.

Table 1 shows that between 2001 and 2005, the IPOs in Indonesia were mostly offered by firms from low-tech industries. Of the 73 IPOs, only 13 IPOs (18%) were from high-tech industries such as IT & Technology and Pharmaceutical & Research. Table 1 also shows that the number of IPOs varied from year to year. The "hot-issue" market was recorded in 2001 when 29 firms (40%) conducted IPOs, while the "cold-issue" market was recorded in 2003 and 2005 when only six firms (8%) floated their shares on the IDX.

As mentioned earlier, the main objective of this study is to investigate the effect of multinational underwriters on intellectual capital disclosure in Indonesian IPO prospectuses. It can be seen in Table 2 that there were seven involvements of international underwriters during the sample period. The highest involvement of international underwriters occurred in 2005 (3 IPOs) and in 2003 (2 IPOs), while 2002 and 2004 witnessed the same number of international underwriter involvements (1 IPO each year) in the IPO market. Both ABN Amro and DBS Vickers administered two IPOs, while CLSA, CIMB, and GK Goh arranged one IPO each during the sample period.

**Table 1. Number of IPOs at The Indonesia Stock Exchange between 2001-2005**

| Year | IT & Technology[a] | Pharmaceutical & Research[b] | Production[c] | Trade & Services[d] | Total |
|------|------|------|------|------|------|
| 2001 | 7 | 4 | 13 | 5 | 29 |
| 2002 | - | - | 9 | 11 | 20 |
| 2003 | - | - | 2 | 4 | 6 |
| 2004 | - | 1 | 5 | 6 | 12 |
| 2005 | 1 | - | 1 | 4 | 6 |
| Total | 8 | 5 | 30 | 30 | 73 |

**Table 2. IPO Firms and Multinational Underwriters Between 2001-2005**

| IPO Firm | Listing Date | Industry Sector | Multinational Underwriter |
|------|------|------|------|
| Surya Citra Media | 07/16/2002 | Production | CLSA |
| Bank Mandiri | 07/14/2003 | Trade & Services | ABN Amro |
| Perusahaan Gas Negara | 12/15/2003 | Natural Resources | ABN Amro |
| Wahana Ottomitra Multiartha | 12/13/2004 | Trade & Services | DBS Vickers |
| Multistrada Arah Sarana | 06/09/2005 | Production | CIMB |
| Arpeni Pratama Ocean Line | 06/22/2005 | Trade & Services | DBS Vickers |
| Excelcomindo Pratama | 09/29/2005 | IT & Technology | GK Goh |

Previous studies conducted by Bukh, et al. (2005), Cordazzo (2007), Singh & Van der Zahn (2008), and Rimmel, et al. (2009) on IC disclosure in prospectuses used IC frameworks that they built themselves in their investigations and discovered mixed results on the determinants of IC disclosures. This current study, on the other hand, utilizes a proven IC framework that was used by Abdolmohammadi (2005) to investigate IC disclosures on annual reports and their market effects. Abdolmohammadi (2005) presented an IC framework consisting of ten categories and 58 components. He noted that his framework was developed based on the earlier works by prominent researchers in the field. A modified version of

Abdolmohammadi's (2005) IC framework was used by Sihotang & Winata (2008) for investigating the disclosure of intellectual capital in annual reports of Indonesian public listed firms. To be consistent with the earlier work, however, this current study uses the original Abdolmohammadi's (2005) IC framework. In estimating the level of disclosure of each prospectus, this current study also uses synonyms in the Indonesian language for each of the 58 IC components. All prospectuses in the sample are written in Indonesian as the use of the language is mandatory for all official and legal matters in Indonesia. The IC categories and components used in this study are listed in Table 3.

**Table 3. Intellectual Capital Framework**

| Category | Component | Synonym in Indonesian |
|---|---|---|
| Brand | Brand | Merek / Merk |
| | Brand Recognition | Identifikasi Merek |
| | Brand Development | Pengembangan Merek |
| | Goodwill | Muhibah, Nama Baik |
| | Trademark | Merek / Cap Dagang |
| Competence | Intelligence | Kecerdasan, Inteligensi |
| | Knowledge | (Ilmu) Pengetahuan |
| | Know-How | Kecakapan Teknik, Keterampilan |
| | Education | Pendidikan |
| | Competence | Kompetensi, Kecakapan, Kemampuan |
| | Motivation | Motivasi, Dorongan |
| | Expertise | Keahlian, Kepakaran |
| | Intangible Skills | Keahlian / Kemampuan Tak Berwujud / Niskala |
| | Brain Power | Tenaga/Daya/Kemampuan Otak, Tenaga Pemikir |
| | Specialist | Spesialis, Ahli |
| | Training | Pelatihan |
| Corporate Culture | Corporate Culture | Kebudayaan Perusahaan |
| | Management Philosophy | Filsafat / Filosofi / Prinsip Manajemen |
| | Leadership | Kepemimpinan |
| | Communication | Komunikasi |
| Customer Satisfaction | Customer Satisfaction | Kepuasan Pelanggan |
| | Customer Recognition | Identifikasi Pelanggan |
| | Customer Loyalty | Kesetiaan / Kepercayaan / Loyalitas Pelanggan |
| | Customer Base | Basis / Utama Pelanggan |
| | Customer Retention | (Hak) Kepemilikan Pelanggan |
| | Customer Service | Pelayanan Pelanggan |
| | Customer Support | Dukungan Pelanggan |
| | Market Share | Pangsa Pasar |
| Information Technology | Information Technology | Teknologi Informasi, Teknik Informatika, Sistem Informasi |
| | Network | Jaringan / Hubungan |
| | Computer Software | Perangkat Lunak Komputer |
| | Operating System | Sistem Operasi |
| | Electronic Data Interchange | Pertukaran Data Elektronik |
| | Telecommunication | Telekomunikasi |
| | Infrastructure | Infrastruktur, Prasarana, Rangka Dasar |

With regard to assessing the disclosure level of the 58 IC components in the IPO prospectuses, this current study uses the disclosure index methodology. The methodology involves assigning 1 (one) if companies disclose each of the IC components and 0 (zero) if they do not disclose any of the components. The disclosure index for each company is measured by the ratio of actual IC component disclosed, divided by the 58 IC components that could have been disclosed. The index value, therefore, ranges from 0 to 1, where the maximum value of the index is 1 if all 58 IC components are disclosed in a particular prospectus. The formula can be expressed formally as follows:

$$ICD = \left( \sum_{i=1}^{N} di \Big/ N \right) ICD = \left( \sum_{i=1}^{N} di \Big/ N \right)$$

Here $d_i$ has the value of 1 if item i, reflecting each of the 58 IC components, is found in the prospectus, and zero if otherwise. This index methodology has been widely used by various studies in the past to quantify a proxy for the quality of disclosure of business reporting for both voluntary and mandatory information (Striukova et al., 2008).

In constructing the index for each prospectus, the author's research assistant reads the prospectuses and records information related to each component on a coding sheet. A second researcher, the author himself, independently confirms the score of each prospectus. Questionable points are discussed and, if necessary, new coding rules are introduced. This process is carried out to ensure the reliability of the indexing as stated in Striukova et al. (2008).

## RESULT

Table 4 below shows that Indonesian IPO prospectuses exhibit the highest disclosures on R&D (0,778) followed by corporate culture (0.590) and proprietary process (0.583). The lowest disclosures are on brand (0.197), intellectual property (0.250) and information technology (0.440). Overall, the data show that Indonesian firms in the sample period have disclosed some of their intellectual capital on IPO prospectuses.

**Table 3. Intellectual Capital Framework (Continued)**

| Category | Component | Synonym in Indonesian |
|---|---|---|
| | Intellectual Property | Hak Milik Intelektual |
| | Patent | Paten |
| | Copyright | Hak Cipta, Hak Mengcopy |
| Intellectual Property | Soft Asset | Aset / Aktiva / Harta / Kekayaan Lunak |
| | Intangibles | Hal Tidak Berwujud / Niskala |
| | Licensing Agreement | Perjanjian Lisensi |
| | Franchising Agreement | Perjanjian Waralaba, Frencais |
| Partnership | Partnership | Perusahaan Persekutuan, Firma |
| | Joint Venture | Usaha Bersama, Patungan |
| | Human Resource | Sumber Daya Manusia |
| | Employee Satisfaction | Kepuasan / Kesejahteraan Karyawan / Pegawai |
| | Personnel | Personalia / Personil |
| Personnel | Employee Retention | (Hak) Kepemilikan Karyawan |
| | Flextime | Waktu Fleksibel |
| | Telecommuting | Telekomutasi, Bekerja Jarak Jauh / Maya |
| | Empowerment | Pemberdayaan, Pemberian Kuasa / Wewenang, Pendelegasian |
| | Innovation | Inovasi, Pembaharuan |
| | Innovative | Inovatif, Baru |
| Proprietary Process | Proprietary Process | Proses Kepemilikan / Permodalan |
| | Trade Secret | Rahasia Dagang |
| | Methodology | Metodologi / Metode |
| | Value Added | Nilai Tambah(an) |
| R&D | Research & Development | Pengembangan Riset / Penelitian |

**Table 4. Average Intellectual Capital Disclosure Per Category N=73**

| Category | Mean | Median | Standard Deviation |
|---|---|---|---|
| Brand (5 components) | 0.197 | 0.200 | 0.252 |
| Competence (11 components) | 0.530 | 0.545 | 0.132 |
| Corporate culture (4 components) | 0.590 | 0.500 | 0.215 |
| Customer Satisfaction (8 components) | 0.472 | 0.500 | 0.208 |
| Information technology (7 components) | 0.440 | 0.429 | 0.196 |
| Intellectual property (7 components) | 0.250 | 0.143 | 0.167 |
| Partnership (2 components) | 0.542 | 0.500 | 0.139 |
| Personnel (7 components) | 0.520 | 0.571 | 0.116 |
| Proprietary process (6 components) | 0.583 | 0.500 | 0.143 |
| R&D (1 component) | 0.778 | 1.000 | 0.419 |
| Total (58 components) | 0.462 | 0.443 | 0.099 |

The disclosure level of each IC category is assessed using the disclosure index methodology. The methodology involves assigning 1 (one) if companies disclose each of the IC components in a certain category and 0 (zero) if they do not disclose it. The disclosure index for each IC category is measured by the ratio of the actual IC component disclosed in a particular category, divided by the number of IC components in that category. The index value, therefore, ranges from 0 to 1, where the maximum value of the index is 1 if all IC components in a particular category are disclosed in the prospectuses.

Table 4 also shows that R&D, Proprietary Process and Corporate Culture ranked high in their disclosures, which is relatively consistent throughout the sample period. Only in 2003 that Partnership and in 2004 that Personnel were disclosed more often than at least one of the top three mentioned earlier. The highest increases in the mean and the median disclosures of IC category were recorded by R&D and Intellectual Properties respectively. In an annual comparison, IPO firms between 2001 and 2005 disclosed their intellectual capitals with a range of mean (median) between 45.8% (42.2%) and 49.7% (49.1%). Again, there is an increasing trend in the mean and the median of the total IC disclosures.

**Table 5. Yearly Mean (Median) of Intellectual Capital Disclosure Index N=73**

| Category | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|
| Brand (5 components) | 0.152 (0.000) | 0.250 (0.200) | 0.233 (0.000) | 0.250 (0.200) | 0.167 (0.200) |
| Competence (11 components) | 0.530 (0.546) | 0.536 (0.546) | 0.561 (0.546) | 0.485 (0.546) | 0.576 (0.591) |
| Corporate culture (4 components) | 0.586 (0.500) | 0.588 (0.500) | 0.583 (0.500) | 0.583 (0.500) | 0.667 (0.625 |
| Customer Satisfaction (8 components) | 0.435 (0.500) | 0.506 (0.625) | 0.500 (0.500) | 0.468 (0.438) | 0.521 (0.500) |
| Information technology (7 components) | 0.453 (0.429) | 0.414 (0.429) | 0.595 (0.643) | 0.393 (0.357) | 0.381 (0.427) |
| Intellectual property (7 components) | 0.271 (0.143) | 0.2071 (0.143) | 0.167 (0.143) | 0.274 (0.143) | 0.333 (0.286) |
| Partnership (2 components) | 0.552 (0.500) | 0.500 (0.500) | 0.667 (0.500) | 0.500 (0.500) | 0.583 (0.500) |
| Personnel (7 components) | 0.503 (0.571) | 0.514 (0.571) | 0.452 (0.429) | 0.583 (0.571) | 0.548 (0.571) |
| Proprietary process (6 components) | 0.603 (0.667) | 0.583 (0.500) | 0.500 (0.500) | 0.569 (0.500) | 0.630 (0.667) |
| R&D (1 component) | 0.828 (1.000) | 0.750 (1.000) | 0.500 (0.500) | 0.750 (1.000) | 1.000 (1.000) |
| Total (58 components) | 0.458 (0.448) | 0.461 (0.474) | 0.465 (0.422) | 0.458 (0.457) | 0.497 (0.491) |

The disclosure level of the 58 IC components in the IPO prospectuses per year is assessed using the disclosure index methodology. The methodology involves assigning 1 (one) if companies in a certain year disclose each of the IC components and zero (0) if they do not disclose it. The disclosure index for each year is measured by the ratio of actual IC component disclosed by all companies in a certain year, divided by the 58 IC components that could have been disclosed. The index value, therefore, ranges from 0 to 1, where the maximum value of the index is 1 if all 58 IC components are disclosed in all prospectuses in a particular year.

Table 6 above shows the descriptive statistics of some variables used in this study. The average age of the sample firms is 16.71 years with maximum and minimum ages of 144 years and 2 years respectively. The average size (total asset value in Indonesian Rupiah-IDR) of the sample firms is IDR 5,148 billion with maximum and minimum sizes of IDR 250,395 billion and IDR 2 billion respectively. With regard to insider ownership, there are seven firms that have zero insider ownership. These seven firms are state-owned enterprises. As mentioned earlier, the average intellectual capital disclosure is around 46.2% with maximum and minimum disclosures of 72.4 % and 25.0% respectively.

There are 73 IPO firms in this study. To check the effect of the multinational factor on the ICD, the sample firms are classified into two sub-groups. The first sub-group (MU) consists of seven observations concerning the disclosure of intellectual capital involving multinational underwriters. On the other hand the second sub-group (LU) accounts for 66 observations of intellectual capital disclosure involving local underwriters. Before any inference is drawn from the data, the *Kolmogorov-Smirnov tests* are utilized to check the normality assumption of the disclosures on the total sample, including the first sub-group (MU) and the second sub-group (LU). The *Kolmogorov-Smirnov statistics* for the first sub-group (MU) and the second sub-group (LU) are 0.718, 0.504, and 0.422 respectively. The *p*-values are 0.681, 0.961, and 0.994 respectively. Therefore, the null hypothesis that the disclosures exhibit normal distribution cannot be rejected. For completeness, however, the results of univariate and bivariate tests of both parametric and non parametric methods are reported below.

It can be seen in e Table VII that both the mean and median values of the multinational underwriter sub-group are higher than those of the local underwriter. More importantly, the results of the tests on the differences in the intellectual capital disclosures of both groups support the argument that the involvement of multinational underwriting firms leads to higher intellectual capital disclosures. The null hypothesis that the observed IPO intellectual capital disclosures in the multinational sub-group are the same as those of the local sub-group is rejected at 1% level by *the 2-independent sample t-test* and at 5% level by its nonparametric counterpart, *the Mann- Whitney U test.*

**Table 7.** Tests of Differences in Intellectual Capital Disclosure Multinational Underwriters (MU) and Local Underwriter (LU) ($N_{MU}$=7, $N_{LU}$=66)

|  | Intellectual capital disclosure | |
| --- | --- | --- |
|  | Multinational underwriter | Local underwriter |
| Mean | .553 | .453 |
| Median | .534 | .448 |
| Standard deviation | .133 | .089 |
| *2-independent sample t-statistics* | 2.662 | |
| (2 tailed p-value) | (.01) | |
| *Mann-Whitney U statistics* | 285.50 | |
| (2 tailed p-value) | (0.04) | |

Table 7 indicates the correlations between variables in this study. *Pearson Correlation Coefficients* and its non-parametric counterpart, *Spearman Rank Correlation Coefficients*, are employed to gauge the bivariate relationships among the variables. The ones within the brackets are the results of evaluation using the *Spearman Rank Correlation Coefficients*, while the ones without the brackets are those of *Pearson Correlation Coefficients*. It can be seen in Table VIII below that there are some significant correla-

**Table 6. Descriptive Statistics**

| Variables | Mean | Min. | Max | Std. Dev. |
| --- | --- | --- | --- | --- |
| Age (year) | 16.71 | 2 | 144 | 22.42 |
| Size (Total Assets) | IDR 5,148 bio | IDR 2 bio | IDR 250,395 bio | IDR 30,808 bio |
| Insider Ownership (%) | 52 | 0 | 100 | 42.64 |
| Disclosure (%) | 46.2 | 25.9 | 72.4 | 9.9 |

tions between some of the independent variables. The size of a firm (TA) is positively related by less than 1% level to the firm's age (AGE). The longer the firm is in business the more likely it is to accumulate resources from their operating, financing, and investing activities. Size, on the other hand, is negatively related at less than 1% level to insider ownership (OWN). This negative relationship reflects the view that bigger firms are more likely to be managed by professional or hired managers than by their owners.

The last significant relationship between the independent variables concerns firm size and the nationality of its underwriter (BANK). The relationship is positive and is significant at less than 1% level by both *Pearson's* and *Spearman's* calculations. Bigger firms are able to attract the interests of a multinational underwriter to provide assis-

tance in their IPOs. The ability to attract a multinational underwriter might involve financial or non-financial reasons, i.e. quality, reputation and prestige.

Table 7 also shows some evidence regarding direct relationships between the dependent variable and two independent variables in this study. The disclosures of intellectual capital on prospectuses are positively related with the industry (high-tech/low-tech) in which an IPO firm operates, and also with the nationality of its underwriter (BANK). These positive relationships are at least significant at 1% levels by using *Pearson* and/or *Spearman Rank Correlation Coefficients.*

The last test on the determinants of intellectual capital disclosure in Indonesian IPO prospectuses involves multiple linear regression analysis. The regression model is as follows:

**Table 8. Correlation Matrix (N=73)**

|  |  | AGE | TA | IND | OWN | ICD | BANK |
|---|---|---|---|---|---|---|---|
| **AGE** | Corr. | 1 | .363** | -.152 | -.115 | -.116 | .165 |
|  |  |  | (.344**) | (-.128) | (-.070) | (-.007) | (.158) |
|  | Sig. | . | .003 | .198 | .334 | .328 | .163 |
|  |  |  | (.003) | (.279) | (.555) | (.952) | (.182) |
| **TA** | Corr. | .363** | 1 | -.109 | -.398** | .085 | .530** |
|  |  | (.344**) |  | (-.131) | (-.342**) | (-.022) | (.446**) |
|  | Sig. | .002 | . | .360 | .000 | .477 | .000 |
|  |  | (.003) |  | (.270) | (.003) | (.856) | (.000) |
| **IND** | Corr. | -.152 | -.109 | 1 | .084 | .314** | .087 |
|  |  | (-.128) | (-.131) |  | (.111) | (.360**) |  |
|  | Sig. | .198 | .360 | . | .481 | .007 | .466 |
|  |  | (.279) | (.270) |  | (.349) | (.002) |  |
| **OWN** | Corr. | -.115 | -.398** | .084 | 1 | -.056 | -.107 |
|  |  | (-.070) | (-.342**) | (.111) |  | (-.019) | (-.115) |
|  | Sig. | .334 | .000 | .481 | . | .640 | .367 |
|  |  | (.555) | (.003) | (.349) |  | (.872) | (.333) |
| **ICD** | Corr. | -.116 | .085 | .314** | -.056 | 1 | .301(**) |
|  |  | (-.007) | (-.022) | (.360**) | (-.019) |  |  |
|  | Sig. | .328 | .477 | .007 | .640 | . | .010 |
|  |  | (.952) | (.856) | (.002) | (.872) |  |  |
| **BANK** | Corr. | .165 | .530** | .087 | -.107 | .301** | 1 |
|  |  | (.158) | (.446**) |  | (-.115) |  |  |
|  | Sig. | .163 | .000 | .466 | .367 | .010 | . |
|  |  | (.182) | (.000) |  | (.333) |  |  |

ICD is intellectual capital disclosure index of IPO Firms, AGE is natural log of IPO firms' age, TA is natural log of total assets of IPO Firms, IND is a dummy variable that takes a value of 1 if an IPO firm is from IT & technology or pharmaceutical & research industry, and zero otherwise, OWN is percentage of insider ownership of IPO firms, and BANK is a dummy variable that takes a value of 1 if an IPO firm uses a multinational underwriter, and zero otherwise

$$ICD_i = b_0 + + b_1 BANK_i + b_2 AGE_i + b_3 TA_i + b_4 IND_i + b_5 OWN_i + e_i$$

Where:

$ICD_i$ = Intellectual capital disclosure index of IPO Firm i.

$BANK_i$ = A dummy variable that takes a value of 1 if IPO firm i uses a multinational underwriter, and zero if otherwise

$AGE_i$ = Natural log of IPO firm i's age.

$TA_i$ = Natural log of total assets of IPO Firm i.

$IND_i$ = A dummy variable that takes a value of 1 if IPO firm i is from IT & technology or pharmaceutical & research industry, and zero if otherwise.

$OWN_i$ = Percentage of insider ownership

$e_i$ = An error term.

Table 9 shows that the adjusted *R-squared* is.156 for the regression model. This means that the model is able to explain 15.6% of the variability of Intellectual capital disclosure on Indonesia IPO prospectuses. The *F-statistic* on the model equals 3.669, which is significant at less than the 1% level. Therefore, there is an assurance that the model has been properly designed so that at least one, if not more, of the coefficients on the independent variables is significantly different from zero.

**Table 9. Results of The Multiple Regression Analysis (N=73)**

| Independent Variable (Expected sign) | Coefficients | t-stat. | p-value |
|---|---|---|---|
| Constant | .556 | 2.595 | .011 |
| BANK (+) | .118 | 2.491 | .015 |
| AGE (-) | -.029 | -0.712 | .479 |
| TA (-) | -.007 | -.340 | .735 |
| IND (+) | .078 | 2.731 | .008 |
| OWN (-) | -.019 | -.664 | .509 |
| N | | | 73 |
| F-stat (p-value) | | | 3.669 (.005) |
| Adjusted $R^2$ | | | 0.156 |

$ICD_i = b_0 + b_1 BANK_i + b_2 AGE_i + b_3 TA_i + b_4 IND_i + b_5 OWN_i + e_i$, $ICD_i$= Intellectual capital disclosure index of IPO Firm.$BANK_i$= A dummy variable that takes a value of 1 if IPO firm i uses a

foreign underwriter, and zero otherwise. $AGE_i$ = Natural log of IPO firm i's age, $TA_i$= Natural log of total assets of IPO Firm i, $IND_i$ = A dummy variable that takes a value of 1 if IPO firm i is from IT & technology or pharmaceutical & research industries, and zero otherwise, $OWN_i$= Percentage of insider ownership, The *t-statistics* use *White's* (1980) heteroskedasticity-consistent standard errors.

Table 9 also shows that the coefficient of each independent variable is shown along with its statistics. Of the five independent variables in the model, only two, BANK and IND, are statistically significant at conventional levels. BANK is a dummy variable that represents the involvement of a multinational underwriting firm in the IPOs of the sample firms. The dummy has the hypothesized sign and is significant at less than 1% level.

IND is a dummy variable that takes a value of 1 if an IPO firm is from IT & Technology or Pharmaceutical & Research Industry, and zero otherwise. IND has the hypothesized sign and it is significant at less than 5% level. Table IX also shows the coefficients and the significance of the three other independent variables: AGE (IPO firm's age), TA (size of IPO firm), and OWN (insider ownership of IPO firm prior to an IPO). Although these three independent variables have the expected signs, none is significant at conventional levels.

## DISCUSSION

The result of the test that the dummy variable that represents the involvement of a multinational underwriting firm in the IPOs of the sample firms (BANK) has the hypothesized sign and is significant at less than 1% level. This finding confirms the hypothesis that when a multinational underwriting firm assists a firm on its IPO, the prospectus has a higher intellectual capital disclosure. The result indicates that exposure to IPOs in various countries have benefited multinational underwriting firms to have more experiences in disclosing intellectual capital, when compared to their local counterparts. Multinational underwrit-

ing firms put together all experiences they learn from exposures to IPOs in different countries and transform this knowledge into standard practices in advising clients during prospectus formulation. With these advantages, multinational underwriters have greater capacity to produce relevant information in order to reduce asymmetric information in the IPO markets. The results of this study in line with that of Daily, et al. (2005) that prospectuses contain firm-specific information on firms' future performance and Chemmanur & Fulghieri's (1994) proposition on the underwriter's credibility and the information production. With its vast experiences, multinational underwriter could produce higher quality information and, therefore, is perceived as a more reputable underwriter. This ability may also reduce additional costs expended by potential investors in evaluating IPO firms as discussed in Chemmanur & Fulghieri (1999).

The dummy that represents companies from IT & Technology or Pharmaceutical & Research Industry (IND) also has the hypothesized sign and it is significant at less than 5% level. This result confirms the hypothesis in this study, which states that firms in high-tech industries have higher Intellectual capital disclosure than firms in other industries. Bukh et al. (2005) and Rimmel et al. (2009) find similar results regarding these industry differences in Danish and Japanese IPO firms respectively. Reporting intellectual capital is considered more crucial for firms in high-tech industries because traditional businesses reporting may not be able to provide adequate information on their intangible assets. Cordazzo (2007), however, finds that the disclosure of intellectual capital on the prospectuses of Italian IPO firms does not depend on the classifications of their industries.

The other independent variables, AGE (IPO firm's age), TA (size of IPO firm), and OWN (insider ownership of IPO firm prior to an IPO), have the expected signs but insignificant at conventional levels. Among those three factors, Cordazzo (2007)

only finds that size does matter in determining the level of the disclosure. In contrast, Rimmel et al. (2009) find that only age matters in explaining the disclosure, while the other two independent variables are irrelevant. Bukh et al. (2005), on the other hand, finds similar results with this current study that IPO firm's age, firm size, and insider ownership cannot explain the extent of intellectual capital disclosures in its prospectus.

With regard the insignificant or conflicting results regarding the roles of age, firm size, and insider ownership in explaining the disclosure of intellectual capital, both Cordazzo (2007) and Bukh, et al. (2005) note that IPO firms are mostly young and small firms and an increase in disclosure generates higher costs and higher valuation risks for these young and small firms. They also argue that underwriters may advice IPO firms to emphasize factors other than intellectual capital in preparing their prospectuses. However, this current study finds that multinational underwriting firms affect positively the disclosure of intellectual capital. It means that not all underwriters may advice IPO firms to emphasize other factors besides intellectual capital in preparing their prospectuses. Multinational underwriting firms are aware the importance of intellectual capital disclosure in reducing information asymmetry and, therefore, advice their clients accordingly.

## CONCLUDING REMARKS

The demand for information on intangible assets such as intellectual capital has been increasing, especially during incidents where asymmetric information is as great as IPOs. The annual reports of publicly listed companies may not be as crucial as IPO prospectuses due to publicly available histories, mass media coverage, and analysts who have followed their performance literally on a daily basis. Firms that conduct IPOs, on the other hand, have no observable market price prior to the offering, and little or no public information

regarding operating history. Prospectuses, therefore, are the only information source allowable by law during an IPO process and, therefore, are designed to mitigate asymmetric information.

The important role of IPO prospectuses, to some extent, is appreciated by Indonesian companies. On prospectuses, they disclose financial information as well as non-financial information. Intellectual capital, R&D, proprietary process and corporate culture are the top three disclosures and their rankings are relatively consistent throughout the sample period of 2001-2005. The highest increases in the mean and median disclosures of IC category for the period are the R&D and Intellectual Properties respectively. In addition, there is an increasing trend in the quantity of the total IC disclosures.

More importantly, this study investigates the effects of the nationality of underwriting firms on the disclosure of intellectual capital on IPO prospectuses in Indonesia. This study finds that the nationality of underwriting firms affects positively to the disclosure. Exposure to IPOs in other countries seems to have positive effects on multinational underwriting firms that lead towards higher standards in the disclosure of intellectual capital than that of local underwriting firms.

The results of this study necessitate the needs for the regulator to standardize the intellectual capital reporting just like in the financial reporting. Previous studies in the field came up with their own frameworks to investigate the ICD. Without any standard in the IC reporting there will be no agreement in evaluating the disclosure and thus hinder the assessment of firms in the markets. This study also emphasizes the role of ICD in reducing information asymmetry. Firms and investors should also be educated to use this tool on the price discovery processes in the capital markets.

The results of this study can at least be extended two ways. The first one is to investigate the effect of intellectual capital on the pricing of IPO shares and their subsequent after market performance both in the short and long runs. The next venue is to investigate the effect of multinational underwriters on the market performance of IPO shares. These two venues will be very fruitful in clarifying some phenomena surrounding IPO processes in Indonesia.

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