

# Do wealthy economies have better accounting quality? International evidence

Erekle Pirveli<sup>1</sup> | Jochen Zimmermann<sup>2</sup>

<sup>1</sup>Business School, Caucasus University,  
Tbilisi, Georgia

<sup>2</sup>Faculty of Business Administration,  
University of Bremen, Bremen, Germany

## Correspondence

Erekle Pirveli, Business School, Caucasus  
University, Saakadze Str. 1, Tbilisi 0102,  
Georgia.

Email: epirveli@cu.edu.ge

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## Abstract

**Purpose:** The purpose of this article is to empirically test whether wealthy economies have better accounting quality (AQ) compared to their “poor” counterparts.

**Design/methodology/approach:** To test the formulated hypothesis, this article examines accounting and market data of 40 countries' capital markets, obtained from Compustat Global and Compustat North America, and spanned throughout the last quarter of century, from 1992 to 2016. Country wealth and controlling- and valuation-usefulness of accounting information are proxied by gross domestic product per capita, conditional accounting conservatism and value relevance of earnings and book values, respectively.

**Findings:** Descriptive analysis, consistent with the prior literature, reveals that controlling-usefulness and valuation-usefulness of accounting information significantly negatively correlate with each other, putting them as alternative (rather than compatible) objectives of the accounting system. The major finding shows that wealthy economies report significantly more controlling-useful but about equally valuation-useful accounting information compared to their poor counterparts.

**Practical implications:** The findings are interesting from investors as well as standard setters' perspective.

**Originality/value:** According to Ball (*Journal of International Accounting Research* (2016), 15(2), 1–6), wealthy economies are likely to invest more in the establishment and development of a country-level reporting infrastructure such as accounting, financial, legal and political systems, which should ultimately lead to better AQ. This article argues that wealthy economies are likely to report more controlling-useful, but not necessarily more valuation-useful accounting information compared to the poor ones. This argument is based on the fact that on the one hand decision makers within the wealthy economies' capital markets are likely to intensively utilize various alternative sources of information, implying a lower demand on accounting information as a source of valuation decisions. On the other hand, demand for controlling-useful accounting information would exist even while utilizing other (external) sources of information as the inside (managerial) information helps the management to efficiently control and plan the firm activities.

**KEYWORDS**

accounting conservatism, accounting quality, country wealth, country-level determinants of financial reporting, earnings quality, financial reporting infrastructure, value relevance of earnings and book values

## 1 | INTRODUCTION

Accounting quality (AQ) shows the extent to which accounting system accomplishes its objective—to help users of accounting information in decision-making (FAS Board, 1978, 2010). AQ embodies the principle that financial statements should be as helpful as possible to investors and other capital providers in making their resource allocation decisions. Starting from 1970s, AQ has been intensively studied in the light of time-series as well as cross-sectional analysis.<sup>1</sup> Recently, globalization and the technological progress have both stimulated a considerable rise in the volume of international studies on AQ (Ball, 2016; Kothari, 2001). International research on AQ is of utmost importance as it helps us to learn the effects of country-level determinants on the international reporting practices (Ball, 2016; Ball et al., 2000). Shortly to summarize international literature in the field, AQ is expected to be higher in countries with internationally accepted accounting rules and sundry accounting professions, strong financial intermediaries, and efficient legal and political systems.<sup>2</sup> First, accounting information is expected to be of less use under accounting regimes which heavily allow corporate managers for the personal judgments (Barth et al., 2008; Levitt, 1998). Second, strong financial systems, reflected into powerful financial intermediaries such as the banks and the stock markets, lead to scrutinized assessment of accounting reports and therefore to a strong demand on accounting information (Ball, 2001; Teoh et al., 1998). This puts the insiders under a concomitantly higher pressure to diligently prepare their accounting reports. Third, operating environments where investors and shareholders feel highly protected due to investor-friendly legal rights and efficient enforcement mechanisms, attracts outsiders, conditions markets' development, and therefore lead to better AQ (Leuz et al., 2003; Watts & Zimmerman, 1986). Finally, highly corrupted operating environments, in the attempt to attain preferential treatments from authorities, incentivize corporate managers to manage earnings for their own benefits (Dechow et al., 2010; Soderstrom & Sun, 2007).

While revealing country-level determinants of AQ, prior literature<sup>3</sup> has almost solely focused on country-group comparisons (e.g., capital market- vs. debt-based economies; common-law vs. code-law legal origin countries; jurisdictions following the locally dictated accounting rules vs. the ones following the internationally recognized standards).

The distinguished country-level determinants of AQ (accounting, financial, legal and political systems) have been able to detect and explain the cross-country differences in AQ across country-groups, but failed to do so in a pooled sample. As group differences could be driven by one (or several) strong player(s) within the group, comparisons across country clusters do not allow us to reveal a holistic/precise picture on the drivers of international AQ.

Ball (2016) argued that country wealth can explain the cross-country differences in AQ at a country level. His argument is based on the fact that wealthy economies would be characterized with better reporting infrastructures such as accounting, financial, legal and political systems which should ultimately condition high quality accounting numbers. Inconsistent to him, this article argues that while associating country wealth and AQ, it is essential to segregate between the two different sets of informational environments such as controlling-usefulness and valuation-usefulness of accounting numbers. This call for the distinction between the two different sets of informational environments is rationalized by the agency theory as well as by the fact that AQ constitutes an allusive concept and the various measurements of it weakly or even negatively correlate with each other. As next, it is argued that wealthy economies are likely to report more controlling-useful but not necessarily more valuation-useful accounting information. This prediction is based on the following logic. The diversity and intensity of the use of alternative sources of information (analyst forecasts, technical/algorithm-based analysis, press releases and conference calls) is likely to be higher within the wealthy economies. In these economies, the competition is fierce and investors attempt to base their investment decisions on all possible sources of information, not solely looking to often times “delayed” financial statements. If country wealth would indicate on a more intensive utilization of other sources of information at the local capital markets, it would imply a lower demand on accounting information as a source of valuation decisions. On contrary, demand for a controlling-useful accounting information would exist even while utilizing other (external) sources of information as the inside (managerial) information helps the management to efficiently control and plan the firm activities and maintain/increase its competitiveness. Overall, a higher demand on a controlling-useful, but not necessarily on a valuation-useful accounting information is hypothesized within the wealthy economies.

To test the developed hypothesis, this article employs the sample of 122,013 firm-year observations of 12,735 firms across 40 countries' *major* capital markets throughout the last quarter of century (1992–2016). *Major* capital market stands for the most represented capital market within a country. Country wealth is measured by gross domestic product (GDP) per capita in current US\$. Controlling-usefulness and valuation-usefulness of accounting information are proxied by conditional accounting conservatism and value relevance of accounting information, respectively (Ball & Brown, 1968; Basu, 1997; Feltham & Ohlson, 1995).

Descriptive analysis reveals a significant negative association between country-level ranking positions of controlling-usefulness and valuation-usefulness. This finding, consistent to the prior literature (Dechow et al., 2010; Gassen, 2008), indicates that controlling-usefulness and valuation-usefulness are two alternative objectives of financial reporting and they might be barely achieved at the same time. The main finding, suggests that wealthy economies report more controlling-useful but about equally valuation-useful accounting information compared to their poor counterparts. This finding opens the way to future research which may aim to understand the reasons why wealthy economies are able to report *only* more controlling-useful accounting information compared to their poor counterparts.

Obtained results could be useful for the scientific field, investors and standard-setters. This study contributes to the existing literature on international differences in AQ (Alford, Jones, Leftwich, & Zmijewski, 1993; Ball et al., 2000; Bandyopadhyay, Hanna, & Richardson, 1994; Barth & Clinch, 1996; Harris, Lang, & Möller, 1994; Jacobson & Aaker, 1993; Joos & Lang, 1994; Pope & Walker, 1999). It is the first study that empirically tests how country wealth relates to country-level AQ; namely, its two dimensions such as controlling- and valuation-usefulness. The provided theoretical argument as well as the consequent findings are new to the field and would help to explain why, for instance, wealthy countries such as Japan and Singapore have “poor” AQ. As poor (emerging) economies took leading seats on global growth, this article also adds to this notion from accounting's perspective and argues that valuation-usefulness of accounting numbers within the poor economies are not less valid compared to the wealthy ones. This finding may promote to increased capital flows toward the poor countries' capital markets. Finally, it is shown that controlling-usefulness and valuation-usefulness are significantly negatively correlated across 40 countries capital markets. This finding may add toward the discussions on formulating the conceptual framework (and the overall objectives) of financial reporting.

The next section supplies a theoretical foundation and develops a hypothesis. The third part offers research design,

including the sampling procedure, methodology and descriptive statistics. The next section stands for empirical results, their implications and limitations of the work. The final part concludes.

## 2 | THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

### 2.1 | Literature review

Ball (2016) suggested a macroeconomic parameter that would potentially lead to better reporting infrastructure (covering accounting, financial, legal and political systems) and therefore explain the international differences in AQ at a country level. Ball (2016) argued that accounting information, as a costly economic good that reflects the devoted resources on this information, should be an increasing function of country wealth. Country wealth—as an indication of a country's level of affordability to “buy” and develop necessary country-level reporting infrastructure (Ball, 2016; Smith & McCulloch, 1838)—has been presumed to be a factor that will lead to a better AQ:

“There are substantial regime-level costs of developing and operating an effective reporting infrastructure, including securities laws, accounting rules, an independent and effective judiciary, an independent and effective audit profession, professional education, regulatory functions, and sundry monitoring institutions (analysts, rating agencies, press, etc.). ... **richer** economies tend to build a high-quality financial reporting infrastructure. ... **poorer** countries cannot be expected to have made the same level of investment in the infrastructure required to achieve high quality reporting” (Ball, 2016, p. 8, emphasis added).<sup>4</sup>

Ball (2016) argues that governments within the wealthy economies possess more valuable sources under their disposal, making them capable of larger government investments. Assuming the governments are prosecutors of a nation's demand, he asserts it is likely that wealthy economies will be capable and willing to invest in the necessary infrastructures. Following the macroeconomic literature on economic growth and development, the existence of country-level financial reporting infrastructures, beyond the reporting goals, serve indeed much broader economic goals such as the overall economic development and the welfare of a state (King & Levine, 1993a; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1998; Levine, 2005). The literature on finance and law<sup>5</sup> further notes a bilateral association

between country wealth and reporting infrastructures; exactly those countries who have built high quality legal and political infrastructures have become the wealthy ones. For example, La Porta et al. (1998) argue that the role of the legal system in creating a growth-promoting financial sector is essential. According to them, finance is a set of contracts, and these contracts are executed by the legal rights as well as enforcement mechanisms. The operating incentives additionally depend on institutional arrangements: on the legal systems that protect investor rights and enforce contracts, and on political systems, constitutional provisions, and the extent of special-interest cartels and/or lobbies. From this perspective, a well-functioning legal system facilitates healthily functioning financial systems and spurs the economic growth. Overall, it is likely that the wealthier countries are the more efficient accounting, financial, legal and political systems would emerge at a place.

Partly inconsistent to Ball (2016), in this article it is argued that the link between country wealth and AQ is not straightforward, rather we need to distinguish between the two objectives of financial reporting: (a) controlling-usefulness and (b) valuation-usefulness. In their recent joint project on developing a common conceptual framework of financial reporting, the Financial Accounting Standards Board and the International Accounting Standards Board (IASB) postulate one general objective of financial accounting: decision usefulness. Decision-useful accounting information is the one “that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions” (FAS Board, 2010, SFAC 1.34). While the overall purpose of the accounting system is to provide decision-useful accounting information to market participants, the usage of this information differs across participants. As such, beyond the general objective, standard setters have also detailed the two sub-objectives of financial reporting:

1. Contracting-usefulness—“information about how management of an enterprise has discharged its stewardship responsibility to owners (stockholders) for the use of enterprise resources entrusted to it” (SFAC 1.50). Controlling-useful accounting information stands for the information that is useful in assessing the management's actions (e.g., how to remunerate the management; whether to replace or reappoint them; how to vote on shareholder proposals about management's policies, etc.).
2. Valuation-usefulness—“information to help [...] users in assessing the amounts, timing, and uncertainty of prospective cash receipts” (SFAC 1.37). Valuation-usefulness of accounting information stands for the power of accounting information to help equity investors

in assessing a *real* firm value. To put it differently, controlling-useful accounting information helps for inside decisions such as controlling and planning, whereas, valuation-useful accounting information helps investors to predict company stock prices (value).

It is expected that firms would balance their accounting choices predominantly depending on the demand for controlling-useful and valuation-useful information by stakeholders. Standard setters' approach to the formulation of conceptual underpinnings and objectives of financial reporting roots back to the agency theory. While centuries ago most of the businesses have been established and led by a sole person, capitalism has contributed to the rise of multi-personal business environments (Fama & Jensen, 1983). This has reflected into the need of segregation of firm ownership and management. The segregation has inevitably led to the misalignment of insiders and outsiders' interests. Consequently, agency theory back in late 1970s, has distinguished two different informational environments (Jensen & Meckling, 1976). While financial reports represent the medium to interact with outsiders such as investors and creditors, managerial reports are used for the inside decision such as controlling and planning. The agency theory predicted that efficient information system used in a controlling (contractual) setting might have different attributes compared to an information system utilized in valuation settings (Jensen & Meckling, 1976; Gjesdal, 1981; Fama & Jensen, 1983; Gassen, 2008). According to the theory, the demand on controlling-useful accounting information raises when the incentives between the management and the stakeholders are misaligned ex ante of the disclosure of financial statements. This is so because management—not adhering to contracts because of existing hidden information—imposes unsystematic risk to stakeholders. Diversification of this unsystematic risk will appear to be costly to stakeholders, reflected in increased transaction costs. As such, stakeholders are likely to find it harder to renegotiate their contract conditions and demand for controlling will be higher for stakeholders facing the increased costs (Jensen & Meckling, 1976).

There has been an intensive debate among accounting scholars whether controlling-usefulness and valuation-usefulness appear as alternative or compatible objectives of financial reporting. Though the findings differ across studies, Gassen (2008) and LaFond and Watts (2008) reveal that controlling-usefulness is becoming more pronounced as the valuation-usefulness of accounting information declines. This indicates that when information asymmetry is high, financial accounting information is less capable of providing valuation-useful information (information that bears new, hard-to-verify and valuable content to the users) and thus, is tailored by its controlling-usefulness role (Christensen &

Demski, 2003; Christensen, Feltham, & Şabac, 2005; Christensen & Feltham, 2006).

Based on the two different sets of informational environments, this article outlines the need for the distinction between controlling- and valuation-useful accounting information while detecting AQ internationally. Beyond the theoretical soundness, the call for the distinction between the two different sets of informational environments is further rationalized by the fact that there is no unique concept of AQ. It rather has an elusive construct and accounting literature has come up to a variety of proxies for measuring AQ. There are various plausible and intuitive measures of accounting system, which tend to capture the same fundamental novel—decision-usefulness. Accounting scholars observe accounting information's ability to (a) explain future accounting data (persistence or reoccurrence), (b) explain future stock prices/returns (value relevance), (c) be free of intentional manipulation (earnings management), and (d) be conservative (higher attention paid to bad news compared to good news). However, as shown by empirical studies, these measures only weakly (and in some instances even negatively) correlate with each other (Dechow et al., 2010; Perotti & Wagenhofer, 2014; Pirveli, 2015). For example, the modified Jones model with operating cash flows is identified as having the strongest association with returns (Kothari et al. 2005). According to Perotti and Wagenhofer (2014), “accruals quality best discriminates between the absolute values of excess returns, with abnormal accruals as second-best measure.... Next best are smoothness measures and the earnings response coefficient, predictability and persistence do significantly less well, and value relevance brings up the rear.” As noted by Dechow et al. (2010), the term AQ alone is meaningless. AQ is rather defined in the context of specific decision-making model. “The correlations between the earnings properties are generally positive and statistically significant but not economically significant. The correlation between timely loss recognition and persistence, for example, is less than 2%. Moreover, smoothness is negatively correlated with the other properties. The low and even negative correlations should come as no surprise. As noted, while the proxies represent properties of the same reported earnings number, the quality proxies measure different attributes of earnings” (Dechow et al., 2010, p. 349). Overall, the allusiveness of AQ further spurs this paper's motivation to differentiate between controlling- and valuation-usefulness of accounting information.

## 2.2 | Hypothesis development

In recent decades, the literature on time-series analysis of AQ agrees upon a decreasing tendency of accounting's ability to supply high quality information to investors.<sup>6</sup> One of

the major reasons of this declining trend is named to be an involvement of other sources of information. It is no surprise that in today's sophisticated capital markets, decision makers have ample alternative sources of information, not just the disclosed financial statements. With high-quality—timelier and in some cases more relevant—substitutes to accounting information, reliance on financial information in the decision-making process loses its importance over simpler investment techniques. As noted by Lev and Gu (2016, p. 41), “accurate reading of financial information usefulness yields a highly surprising, or depressing, result: corporate quarterly and annual reports currently contribute only 5 to 6 percent (!) of the total information used by investors. What a loss for accounting's relevance.”

While still a large number of investors use accounting reports, solid investors, typically, have access to corporate managers and by recruiting expensive research teams can afford the analysis of specific current datasets or held a conference call. Back then in 20th century, accounting information served as “the only game in town as far as investors' information was concerned, whereas today, a large number of buy- and sell-side financial analysts and sophisticated online investor services provide substantial information for securities' valuation” (Lev & Gu, 2016, p. 41). Around half of all trading at the US stock markets are now based on computerized algorithms, not only occurring within the seconds after information release, but also often times preempting the effect of information disclosure before its release (Lo et al. 2000; Bollen et al. 2011). In this rapidly changing environment, it becomes harder to compete with simpler and timelier information sources such as a “news” for example.

Country wealth is likely to hint on efficient trading and information processing infrastructures at the local capital markets (Pirveli, Koiava, & Petriashvili, 2018). The diversity and intensity of the use of alternative sources of information (analyst forecasts, technical/algorithm-based analysis, press releases and conference calls) is likely to be higher within the wealthy economies. In these economies, the competition is fierce and investors attempt to base their investment decisions on all possible sources of information, not solely looking to often times “delayed” financial statements. If country wealth would indicate on a more intensive utilization of other sources of information at the local capital markets, it would imply a lower demand on accounting information as a source of valuation decisions. On contrary, demand for a controlling-useful accounting information would exist even while utilizing other (external) sources of information as the inside (managerial) information helps the management to efficiently control and plan the firm activities and maintain/increase its competitiveness. Overall, a higher demand on a controlling-useful, but not necessarily

on a valuation-useful accounting information is hypothesized within the wealthy economies:

**H1** Wealthy economies are likely to report more controlling-useful but not necessarily more valuation-useful accounting information compared to their poor counterparts.

Whether country wealth can explain cross-country differences in AQ in a pooled sample, whether AQ needs to be distinguished between controlling- and valuation-useful components, and whether wealthy economies are able to report only more controlling-useful accounting information compared to the poorer ones, ultimately constitutes an empirical question. This article serves to fill the space.

### 3 | RESEARCH DESIGN

#### 3.1 | Data and sample selection

Final sample covers accounting and market data of publicly traded companies across 40 countries' *major* stock exchanges throughout the last quarter of century (1992–2016). The *major* stock exchange stands for a stock exchange with the highest number of observations within a given country such as NASDAQ Stock Exchange in the United States and Frankfurt Stock Exchange in Germany. Firm-level accounting and market data are obtained from Compustat Global and Compustat North America databases. To be included in the sample, countries must have at least 300 unique firm-year observations. For each firm, necessary accounting and market data—total assets, book value of equity, net income, stock prices and the number of outstanding shares—should be available for at least five (three) non-consecutive years before (after) the scaling and lagging procedures. Accounting data is from the fiscal year-end of either December 31 or March 31 and the corresponding market data is from either March 31 or June 30, consequently. The methodological part below, sheds the light on rationale behind having a 3-months' time lag between accounting and market data.

While basing on the years of 1992–2016, it needs to be noted that after the filtrations, the overwhelming majority of the kept observations are concentrated within the 21st century as only a minor systematic information is available till then. For the descriptive analysis, firm total assets for all countries are converted into and displayed in current US\$. The conversion rate is an average of the exchange rates throughout the observing period (1992–2016). The currency rates are based on the information of US Treasury Currency Statistics. To avoid the effects of outliers and maintain the sample comparable across countries, this article excludes the two extreme percentiles of each regression variables in

the pooled sample and additionally within each country. This approach helps to get rid of the outliers' effects, and makes the sample more comparable at a country level. To maintain stock prices homogeneous, firms trading at more than one-stock exchange within a country are excluded. This article, additionally, gets rid of the international companies trading at a foreign stock market. This is because for international companies, corporate choices might be a result of foreign market's institutional settings which by the used research design will be falsely attributed to the influence of domestic settings. Due to high (more than 10%) average annual inflation rates throughout the observing period, Brazil, Croatia, Nigeria and Turkey are further left out of the analysis. Finally, firms operating within the financial sector (SIC codes between 6,000 and 7,000) due to different structures of financial statements and regulations, are dropped from the analysis. These filtrations yield a cross-sectional sample of 122,013 unique firm-year observations of 12,758 firms across 40 countries.

#### 3.2 | Methodology

To empirically address the research question on the relatedness of country wealth and AQ, empirically traceable measurements for country wealth, and controlling- and valuation-usefulness of accounting information are required.

##### 3.2.1 | Country wealth

Country wealth stands for the net value of all worthy assets owned by a nation. Wealth is measured by taking the market value of all tangible and intangible assets minus the debts owned. The concept of wealth is relative and not only varies between countries, but also across time. Given the trend of human development, it is likely that the standard of living, that the wealthiest enjoy today, will be considered impoverished by future generations. A country is considered to be a wealthy one, if it has accumulated substantial wealth relative to other countries. At a national level, wealth is normally measured by GDP, or in a more accurate way by GDP per capita.<sup>7</sup> Consistent to the prior literature (King & Levine, 1993b; Demirgüç-Kunt & Levine, 1996; La Porta et al., 1997), GDP per capita in current US\$ serves to proxy for a country wealth. The Macroeconomic data is based on the World Bank database.

##### 3.2.2 | Controlling-usefulness

While the definition of controlling (stewardship) has remained largely disputable along the years, accounting literature has developed an empirical proxy to measure cautionary attitude of insiders in the reporting process. Conditional

accounting conservatism (or asymmetric timeliness) stands as a supply-side proxy for the demand for controlling-useful accounting information (Basu, 1997; Watts, 2003; Zhang, 2008; Chen, Hope, Li, & Wang, 2011). As controlling-useful accounting information requires a higher degree of verifiability for a given signal when insiders' and outsiders' interests are a priori aligned, requiring a higher degree of verification for gains compared to losses constitutes a rational approach for controlling-useful information (Basu, 1997; Gassen, 2008). Following the prevalently utilized model of conditional accounting conservatism of Basu (1997), this article observes the ratio of the slope coefficient of the interaction term between stock returns and dummy variable on negative stock returns divided by the slope coefficient of total stock returns (Basu, 1997) to proxy for the controlling-usefulness of accounting information.

This study aims to explain the existing AQ differences at a country level. Therefore, it targets to banish all other possible effects which may influence the international differences in AQ. There is a long line of literature which theoretically and empirically shows that firm-specific factors such as size, profitability, financial leverage, growth rate and market to book value, as well as yearly and industry effects may substantially drive the reporting practices at a firm and industry levels.<sup>8</sup> Therefore, while observing the country-level effects, the employed OLS regressions will control for these firm-specific factors as well as yearly and industry fixed effects.<sup>9</sup> Ultimately, the following model is estimated:

$$\begin{aligned} \text{EPS}_t = & \gamma_0 + \gamma_1 \text{RET}_t + \gamma_2 \text{D\_RET}_t + \gamma_3 \text{INTER\_RET}_t \\ & + \gamma_4 \text{SIZE}_{t-1} + \gamma_5 \text{PROF}_t + \gamma_6 \text{LEVERAGE}_t \\ & + \gamma_7 \text{MTB}_t + \gamma_8 \text{GROWTH}_t + \sum \gamma_9 \text{FE\_YEAR}_t \\ & + \sum \gamma_{10} \text{FE\_INDUSTRY}_t + \varepsilon_t \end{aligned} \quad (1a)$$

where  $\text{EPS}_t$  = earnings per share in year  $t$  (scaled by the beginning-year's price);  $\text{RET}_t$  = return for 9 months before fiscal year-end to 3 months after fiscal year-end in year  $t$ ;  $\text{D\_RET}_t$  = dummy variable in year  $t$  set to 1 if return  $< 0$  and 0 otherwise;  $\text{INTER\_RET}_t$  = interaction term between  $\text{D\_RET}_t$  and  $\text{RET}_t$ ;  $\text{SIZE}_{t-1}$  = beginning year's total assets in year  $t$ ;  $\text{PROF}_t$  = firm profitability (earnings under beginning year's total assets) in year  $t$ ;  $\text{LEVERAGE}_t$  = financial leverage (total liabilities under the book value of equity) in year  $t$ ;  $\text{MTB}_t$  = market to book value in year  $t$ ;  $\text{GROWTH}_t$  = earnings' growth rate in year  $t$ ;  $\text{FE\_YEAR}_t$  = yearly fixed effects;  $\text{FE\_INDUSTRY}_t$  = industry fixed effects.

Along this model it is assumed that the supply of and demand for the controlling-useful accounting information is in equilibrium (balance). Based on this assumption, this article proxies the demand side for controlling-useful accounting

information by the supply side of controlling-useful accounting information. The utilized model brings two deviations from the Basu's original model. First, the employed stock returns are *mere* changes in stock prices, not adjusted by the dividends. This is because dividend's data is unavailable for many (particularly for poor) economies. Unreported robust analysis, based on a smaller number of observations but utilizing the dividend-adjusted stock returns, has not revealed any significant deviations from the findings reached in this article. Second, in this article, the slope coefficient of interaction term ( $\gamma_3$ ) is not scaled by the slope coefficient of positive returns ( $\gamma_1$ ), rather by the slope coefficient of total returns ( $\beta_1$ ) from a separate, *simple* regression of earnings and returns (without the segregation of returns into positive and negative returns):

$$\begin{aligned} \text{EPS}_t = & \beta_0 + \beta_1 \text{RET}_t + \beta_2 \text{SIZE} + \beta_3 \text{PROF} \\ & + \beta_4 \text{LEVERAGE} + \beta_5 \text{MTB} + \beta_6 \text{GROWTH} \\ & + \sum \beta_7 \text{FE\_YEAR}_t + \sum \beta_8 \text{FE\_INDUSTRY}_t + \varepsilon_t \end{aligned} \quad (1b)$$

Thus, accounting conservatism is detected by the ratio—( $\gamma_3/\beta_1$ ). The scaling factor is changed since its' economic as well as statistical value (sign and the significance) are inconsistent across the sample in the original model [Model (1a)]. Such an inconsistency biases and misleads the results of comparative tests on conditional accounting conservatism. On contrary, the slope coefficient of total returns in Model (1b) is positive across all countries and should serve appropriately for the scaling purposes. From econometrics point of view, there should not be a material difference among the two denominators. Robust analysis has shown that the change in the scaling does not materially influence the outcomes and conclusions of the article.

### 3.2.3 | Valuation-usefulness

As for the valuation-usefulness, this article utilizes post market reactions to financial information announcement (Ball & Brown, 1968). The existing literature conceptually assumes that valuation decisions are traced back to the arrival of financial numbers and thus capital markets are at least partly efficient (Fama, 1970). To increase the validity of this assumption, this article focuses on capital markets as, conceptually, equity values are more linked to the firm fundamentals compared to the debt markets. More to this, equity markets enjoy high levels of data availability.

Prior literature often bases on a short-window (3 days) capital market reactions on the release of accounting data, however it should be noted that a large portion of these studies are conducted for the US context where equity markets are the most liquid. Value relevance examination in its

conceptual understanding assumes that markets are (at least partly) efficient. While covering many of the underdeveloped economies, including the ones from relatively underdeveloped economies and therefore with a lower liquidity/efficiency, this article gives a 3-month window to allow markets to adequately perceive the released financial information and therefore to adequately identify valuation-useful decisions by the arrival of new financial data.

Whether financial figures are useful information for equity investors is examined in empirical accounting research via Value Relevance *Price* model (Ball & Brown, 1968; Beaver, Lambert, & Morse, 1980; Feltham & Ohlson, 1995; Ohlson, 1995; Ball et al., 2000; Barth, Beaver, & Landsman, 2001; Holthausen & Watts, 2001). Again, to control for firm-specific, yearly and industry fixed effects, this article extends the original *Price* model in the following way:

$$P_t = \gamma_0 + \gamma_1 \text{EPS}_t + \gamma_2 \text{BVPS}_t + \gamma_4 \text{SIZE}_{t-1} + \gamma_5 \text{PROF}_t + \gamma_6 \text{LEVERAGE}_t + \gamma_7 \text{MTB}_t + \gamma_8 \text{GROWTH}_t + \sum \gamma_9 \text{FE\_YEAR}_t + \sum \gamma_{10} \text{FE\_INDUSTRY}_t + \varepsilon_t \quad (2)$$

where  $P_t$  = company share price available 3 months after fiscal year-end;  $\text{BVPS}_t$  = book value of equity per share in year  $t$ ;  $\text{EPS}_t$  = earnings per share in year  $t$ .

This article focuses on the adjusted  $R$ -squared from the Model (2). All variables are scaled by the beginning year's stock prices ( $P_{t-1}$ ). The metric of the value relevance includes explanatory powers of net income and equity book values for stock prices and returns, where high sensitivity between financial information and market prices (i.e., high value relevance) provides a positive signal for investors, and refers to usefulness of financial information (Easton, Harris, & Ohlson, 1992; Barth et al., 2001). We need to bear in mind that value-relevance does not uniquely identify the valuation-usefulness. Asset pricing depends not only on accounting, but also on non-accounting information. That is why value relevance of accounting information does not have a one to one match to the valuation usefulness and this point needs to be given its weight. If accounting information plays a confirmatory role (and, thus, it ex ante perfectly mimics/echoes the asset price returns), this information is deemed to be of a perfect quality from the contractual point of view. However, the same information is of low quality from the valuation perspective as we learn nothing new from this information. Therefore, market actors do not anticipate the released numbers into their valuation analyses and thus it is not value-relevant (valuation-useful).

After detecting country wealth, accounting conservatism and value relevance of accounting information for each

country, a country ranking positions (varying from 1 to 40) are generated according to these three measurements. At a final stage, country ranking positions due to country wealth are separately correlated on a country ranking positions of accounting conservatism and value relevance of accounting information.

### 3.3 | Descriptive statistics

Exhibit 1 stands for the descriptive analysis. It has two parts: Panel (a) provides descriptive statistics for the examined sample and Panel (b) provides piecewise correlation results for the descriptive variables. Descriptive variables include firm-, industry-, yearly- and country-level characteristics. Firm-level characteristics are: size, profitability, financial leverage, growth rate and Tobin's  $Q$ . All firm-level characteristics are given for a median firm. Industry-level characteristic shows the share of firms operating within the manufacturing industry (SIC codes between 2,000 and 3,999) in all countries. Year-specific characteristic reveals the number of available yearly observations for a median firm in all countries. Finally, country-level characteristics cover: the number of firm-year observations, GDP, GDP Per Capita and the inflation rate for the given countries. The macroeconomic parameters (GDP, GDP per capita and the inflation rate) are averaged throughout 1992–2016.

Due to data availability, and also due to differences in the capital market development levels, this article detects a considerable variation in the number of available firm-year observations across the countries. Least data (hardly above 300 firm-year observations) is given for Bangladesh, Oman, and Jordan, while Japan, the United States, and China are the most prevalently represented ones. The country with the largest sample size is Japan. This may come as surprise as the United States has the largest stock market, and this article employs Compustat Global and Compustat North America databases, but we need to bear in mind that only the major stock exchanges from each country is examined. From 40 countries, one half has more than 1,000 firm-year observations and another half counts the number of firm-year observations between 300 and 1,000.

To allow direct firm size comparisons across countries, the median firm's logarithmic total assets in current US\$ is reported for each country. Median firm is smallest in India, Australia and Sri Lanka, and largest in Mexico, Spain and Saudi Arabia. Since considerable differences are detected in the median firm size across countries, all utilized financial variables (used in the statistical analysis) are scaled by the lagged total assets. A median firm is the most profitable in Oman, South Africa, and Pakistan, and least in Australia (the only country with a negative value), Greece and Italy. Most leveraged firms are found in Italy, Spain and Israel,



**EXHIBIT 1** Descriptive statistics

**Panel (a): Firm-, industry-, year- and country-level characteristics**

Country	# OBS.	SIZE Log in US\$	PROF. Median %	LEVER. Median	GROWTH Median %	TOBIN'S Q	MANUF. %	YEARS Median	GDP Bln US\$	GDP P. C. Bln US\$	INFL. %
Argentina	320	19.65	4.9%	1.20	-1.4%	1.17	51.3%	8	319	8,139	7.7%
Australia	7,712	17.53	-1.5%	0.46	-6.7%	1.53	23.2%	6	747	35,339	2.5%
Bangladesh	306	18.11	5.6%	0.72	5.7%	1.92	72.2%	4	80	558	6.2%
Belgium	559	19.76	3.7%	1.45	-0.6%	1.43	61.5%	9	365	34,371	1.9%
Canada	634	18.59	3.6%	0.73	-15.4%	1.38	29.0%	4	1,099	33,586	1.8%
Chile	463	20.21	4.6%	0.98	1.0%	1.26	40.2%	7	135	8,241	5.0%
China	8,568	19.60	3.7%	0.71	4.0%	3.24	73.8%	5	3,560	2,675	4.4%
Denmark	517	18.77	2.6%	0.93	-9.8%	1.58	54.0%	7	244	44,843	1.9%
Finland	866	19.32	4.6%	1.24	-8.6%	1.78	54.3%	10	187	35,453	1.6%
Germany	2,044	18.23	2.7%	0.98	-16.2%	1.46	48.3%	7	2,819	34,508	1.7%
Greece	1,176	18.78	0.8%	1.41	-17.2%	0.62	49.1%	7	206	18,882	4.3%
Hong Kong	5,514	19.20	3.4%	0.56	-8.5%	0.97	45.6%	8	194	28,540	2.9%
India	4,139	17.29	3.1%	1.18	-5.3%	0.92	78.4%	4	942	799	7.4%
Indonesia	1,477	19.06	4.8%	0.96	4.3%	1.27	53.6%	6	405	1,730	10.0%
Israel	754	18.73	3.6%	1.53	-6.9%	1.16	42.4%	5	165	23,536	4.2%
Italy	1,206	20.05	2.0%	1.74	-7.0%	1.31	55.5%	8	1,658	28,430	2.4%
Japan	22,708	20.18	2.2%	1.10	-3.9%	0.93	62.1%	13	4,815	37,930	0.2%
Jordan	317	17.71	4.0%	0.44	-5.5%	1.09	52.7%	4	16	2,707	3.4%
Korea, Rep.	7,574	19.38	2.6%	1.03	-15.1%	0.88	77.3%	6	812	16,804	3.4%
Kuwait	413	19.34	4.3%	0.57	-0.2%	0.98	26.4%	5	78	31,556	2.8%
Malaysia	6,996	18.35	3.6%	0.63	-8.9%	0.87	56.2%	9	163	6,208	2.7%
Mexico	454	21.10	4.6%	0.91	3.3%	1.48	36.8%	8	805	7,253	9.3%
Netherlands	648	19.94	5.4%	1.17	2.9%	1.88	44.6%	9	620	38,093	2.0%
New Zealand	525	18.99	5.3%	0.85	-1.7%	1.57	33.3%	8	104	24,973	2.0%
Norway	731	19.49	3.5%	1.19	-16.6%	1.74	46.5%	6	290	60,930	2.1%
Oman	313	18.64	7.5%	0.69	-1.3%	1.61	50.8%	7	36	12,436	2.6%
Pakistan	1,211	18.50	7.4%	1.11	3.9%	1.23	82.8%	6	123	777	8.5%
Philippines	758	19.26	4.5%	0.83	5.9%	1.34	19.8%	7	134	1,533	5.2%
Poland	1,897	18.30	3.8%	0.86	-9.6%	1.19	50.8%	6	302	7,912	9.7%
Saudi Arabia	420	20.34	5.7%	0.72	-0.1%	1.83	66.2%	4.5	348	13,435	2.1%
Singapore	3,399	18.59	4.0%	0.74	-7.5%	0.96	39.9%	8	153	33,133	1.7%
South Africa	1,296	19.80	7.4%	0.91	6.9%	1.63	32.5%	8	231	4,794	6.7%

(Continues)

**EXHIBIT 1** (Continued)

**Panel (a): Firm-, industry-, year- and country-level characteristics**

Country	# OBS.	SIZE Log in US\$	PROF. Median %	LEVER. Median	GROWTH Median %	TOBIN'S Q	MANUF. %	YEARS Median	GDP Bln US\$	GDP P. C. Bln US\$	INFL. %
Spain	527	20.64	3.0%	1.62	-3.7%	1.50	59.8%	7	996	22,693	2.7%
Sri Lanka	943	17.64	5.3%	0.76	-0.7%	1.08	52.6%	6	33	1,656	8.9%
Sweden	2,017	18.24	5.2%	1.03	-3.2%	2.31	49.3%	7	376	40,999	1.3%
Taiwan	7,804	19.30	4.2%	0.76	-5.8%	1.24	83.6%	11	N/A	N/A	N/A
Thailand	3,526	18.20	5.8%	0.79	-4.8%	1.28	56.8%	9	225	3,471	3.0%
United Kingdom	6,770	19.13	4.8%	1.04	0.5%	1.88	39.9%	7	2,087	34,180	2.1%
United States	13,680	19.19	3.1%	0.57	-7.8%	2.18	52.2%	8	12,035	40,767	2.3%
Vietnam	821	18.04	6.5%	0.94	2.0%	0.98	52.7%	5	72	846	6.8%
Mean	3,050	19.03	4.1%	0.95	-4.0%	1.42	51.4%	7	974	20,121	4.0%
Median	1,060	19.09	4.1%	0.92	-3.8%	1.32	51.7%	7	290	18,882	2.8%
Min	306	17.29	-1.5%	0.44	-17.2%	0.62	19.8%	4	16	558	0.2%
Max	22,708	21.10	7.5%	1.74	6.9%	3.24	83.6%	13	12,035	60,930	10.0%

**Panel (b): Pearson correlations of descriptive variables**

# OBS.	SIZE	PROF.	LEVER.	GROWTH	TOBIN'S Q	MANUF.	YEARS	GDP	GDP P.C.	INFL.
# OBS. SIZE	-0.339 **									
PROF.	-0.116	-0.028								
LEVER.	-0.397 **	0.447 ***	-0.117							
GROWTH	-0.202	0.248	0.624 ***	-0.003						
TOBIN'S Q	-0.171	0.354 **	0.403 ***	0.078	0.355 **					
MANUF.	0.358 **	-0.007	-0.095	0.298 *	-0.017	-0.017				
YEARS	0.287 *	0.368 **	0.174	0.069	0.129	0.241	0.186			
GDP	0.387 **	0.244	-0.273 *	0.115	0.402 **	0.409 ***	0.423 ***	0.368 **		
GDP P.C.	0.019	0.275 *	-0.238	0.174	0.276 *	-0.064	0.423 ***	0.368 **		
INFL.	-0.036	-0.126	0.162	-0.072	-0.247	-0.009	-0.438 ***	-0.264	-0.834 ***	

*Note.* This exhibit stands for the descriptive statistics. Panel (a) reports the descriptive statistics of firm-, industry-, yearly-, and country-level characteristics. Panel (b) reports the Pearson correlation results for these descriptive variables. The full sample consists of 122,013 firm-year observations of 12,758 firms for the fiscal years from 1992 to 2016 across 40 countries' major capital markets. Firm-level financial and capital market information is obtained from May 2017 version of Compustat Global and Compustat North America. To be included in the sample, countries must have at least 300 firm-year observations. For each firm, the necessary financial and market information—total assets, book values of equity, net income, stock prices and the number of outstanding shares—should be available at least for 5 years. Due to high (more than 10%) average inflation rates, Turkey, Brazil, Nigeria and Croatia are left out of the analysis. Firm size is measured as logarithmic total assets (in current US\$); profitability—earnings under beginning year's total assets; financial leverage—book value under total liabilities; growth rate—change in earnings divided on one-year lagged earnings; Tobin's Q—market to book value; The fraction of industrial firms—the percentage of firm-year observations with SIC from 2,000 to 3,999. Median firm-year shows the number of years with the information available for a median firm; GDP and GDP per capita are given in Bln US\$ and are averaged across 1992–2016; inflation rate is measured as the average percentage change in consumer prices from 1992 to 2016.

\*\*\*, \*\*, and \* stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

and there is an opposite picture in Jordan, Australia and Hong Kong. The growth rates are highest in Saudi Arabia, Philippines and Bangladesh, and lowest in Greece, Norway and Germany. China, Sweden and the United States lead in terms of market to book value (Tobin's Q), while Greece Malaysia and Korea have the lowest shares of market to book values.

The manufacturing (industrial) sector is the most widely represented in Taiwan, Pakistan and India (more than 78% of all firms), and most narrowly (below 27%) in Philippines, Australia and Kuwait. The median firm has the longest available yearly information in Japan (13 years), Taiwan (11 years) and Finland (10 years) and shortest (4 years) in Jordan, India, Canada and Bangladesh.

The United States, Japan and China are the largest economies while Jordan, Sri Lanka and Oman are the smallest ones. All three Scandinavian countries (Norway, Denmark and Sweden) unequivocally lead in terms of country wealth, and Bangladesh, Pakistan and India are on the opposite side of the rank. The average inflation rate has been highest in Indonesia, Poland and Mexico (between 9% and 10%), and lowest in Japan, Sweden and Finland (below 1.7%).

Overall, a substantial cross-country variation can be noticed due to firm-specific, industry and yearly variables. Therefore, while observing the country-level effects of country wealth on AQ, the OLS regressions will control for firm-specific factors as well as industry and yearly fixed effects.

As revealed in Panel (b) of Exhibit 1, GDP is positively correlated with the number of observations: large countries are more widely represented. Country wealth (GDP per capita) positively links to firm size, number of years available for a median firm and GDP and negatively to profitability, growth rate and the share of manufacturing firms. The final link may indicate that country wealth is better ensured with those industries out of the manufacturing sector. The negative link between country wealth and a median firm's profitability and growth rate, may indicate that in wealthy economies firms are already well-developed and therefore the current rates of profitability and growth are lower compared to less wealthy economies where firms record relatively higher rates as they position relatively behind and have higher margins of profitability and growth.

Exhibit 2 provides descriptive statistics of AQ for 40 countries' major capital markets. AQ is measured by accounting conservatism (which stands for controlling-usefulness of accounting information) on Panel (a) and value relevance (which stands for valuation-usefulness of accounting information) on Panel (b). For each of the measurements, the exhibit reports the major coefficients, their significance, adjusted *R*-squares and the consequent country ranking positions. The exhibit is sorted in an alphabetic order of country names.

Overall, countries exhibit noticeable differences across the measurements, but the outcomes are well comparable in regards of their relative magnitudes. This article starts the review with Panel (a)—accounting conservatism. The coefficient of returns (RET) is taken from Model (2). This approach helped the coefficient to be positive and significant for all 40 countries and therefore it works as a more homogenous denominator to derive the conservatism measurement. The interaction term (INTER) is insignificant for eight countries out of 40. These countries are: Argentina, Greece, Israel, Mexico, Oman, Philippines, Saudi Arabia and Sri Lanka. They also witness low results in terms of accounting conservatism. The adjusted *R*-squares vary from the lowest 11% to highest 40%. Explanatory power of the model, however, is not the major determinant of accounting conservatism. The extent of conservatism practices is detected by the ratio of RET under the INTER. Based on this ratio, this article derives the rank of accounting conservatism (Column 5, *Rank*). The rank is led by the United States and followed by Australia, Norway, Germany, New Zealand and Denmark. Argentina, Greece, Israel, Oman and Sri Lanka witness the least conservative reporting practices within the sample. These results raise an expectation that wealthy economies perform better than the poor ones in terms of controlling-usefulness of accounting information.

On Panel (b), it is shown that book values per share are highly significantly ( $p$ -value  $<0.01$ ) linked to stock price variations across all 40 countries. As for the earnings per share, except of in Germany, Norway and Spain, the variable is a significant (either  $p$ -value  $<0.01$  or  $p$ -value  $<0.05$ ) driver of stock prices changes in all other countries. This is consistent to prior literature (Harris et al., 1994; Goncharov, Werner, & Zimmermann, 2006; Ernstberger, 2008), that finds that in Germany book values, compared to earnings, are more tightly linked to stock prices. Low relevance of earnings and stock prices, however, does not automatically indicate low value relevance of accounting information in these countries. Spain, Norway and Germany, at the expense of book values' power of driving the stock price variations, position on 9th, 21st and 32nd places, consequently. For the measurement of value relevance, this article observes the adjusted *R*-squares in the model. Based on adjusted *R*-squares, this article constructs a country-level ranking positions (Column 4, *Rank*). On this panel, it is detected that some of the "poor" economies such as Vietnam, Sri Lanka, or Chile position among the 10 most value relevant countries. On the other hand, the wealthy economies of the United States, Denmark, Australia, Sweden and the United Kingdom position well-after the median country in the rank. These results raise an expectation that wealthy economies are not likely to produce more price-variation-linked accounting numbers.

**EXHIBIT 2** Accounting quality**Panel (a): Accounting conservatism**

Accounting conservatism is detected by the ratio  $(\gamma_3/\beta_1)$ , where  $\gamma_3$  is the slope coefficient of the interaction term in Basu (1997) model expanded by the firm-specific characteristics and yearly and industry fixed effects:

$$\text{EPS}_t = \gamma_0 + \gamma_1 \text{RET}_t + \gamma_2 \text{D\_RET}_t + \gamma_3 \text{INTER\_RET}_t + \gamma_4 \text{SIZE}_t + \gamma_5 \text{PROF}_t + \gamma_6 \text{LEVERAGE}_t + \gamma_7 \text{MTB}_t + \gamma_8 \text{GROWTH}_t + \sum \gamma_9 \text{FE\_YEAR}_t + \sum \gamma_{10} \text{FE\_INDUSTRY}_t + \varepsilon_t$$

and  $\beta_1$  is the slope coefficient of total returns in the same earnings-returns regression but without the segregation of positive and negative returns:

$$\text{EPS}_t = \beta_0 + \beta_1 \text{RET}_t + \beta_2 \text{SIZE}_t + \beta_3 \text{PROF}_t + \beta_4 \text{LEVERAGE}_t + \beta_5 \text{MTB}_t + \beta_6 \text{GROWTH}_t + \sum \beta_7 \text{FE\_YEAR}_t + \sum \beta_8 \text{FE\_INDUSTRY}_t + \varepsilon_t$$

where  $\text{EPS}_t$  = earnings per share in year  $t$  (scaled by the beginning-year's price);  $\text{RET}_t$  = return for 9 months before fiscal year-end to 3 months after fiscal year-end in year  $t$ ;  $\text{D\_RET}_t$  = dummy variable in year  $t$  set to 1 if return  $< 0$  and 0 otherwise;  $\text{INTER\_RET}_t$  = interaction term between  $\text{D\_RET}_t$  and  $\text{RET}_t$ ;  $\text{SIZE}_{t-1}$  = beginning year's total assets in year  $t$ ;  $\text{PROF}_t$  = firm profitability (earnings under beginning year's total assets) in year  $t$ ;  $\text{LEVERAGE}_t$  = financial leverage (total liabilities under the book value of equity) in year  $t$ ;  $\text{MTB}_t$  = market to book value in year  $t$ ;  $\text{GROWTH}_t$  = earnings' growth rate in year  $t$ ;  $\text{FE\_YEAR}_t$  = yearly fixed effects;  $\text{FE\_INDUSTRY}_t$  = industry fixed effects.

Country	Accounting conservatism				
	RETURN $\beta_1$	INTER. $\gamma_3$	R_sq Adj. %	CONSERV. Slope ( $\gamma_3/\beta_1$ )	CONSERV. Rank
Argentina	0.095***	-0.009	16%	-0.091	40
Australia	0.033***	0.114***	28%	3.490	2
Bangladesh	0.031***	0.043***	36%	1.390	22
Belgium	0.128***	0.132**	23%	1.034	28
Canada	0.067***	0.123**	16%	1.832	12
Chile	0.075***	0.086**	39%	1.134	26
China	0.013***	0.017***	40%	1.331	23
Denmark	0.085***	0.259***	18%	3.058	6
Finland	0.069***	0.102***	25%	1.486	17
Germany	0.072***	0.244***	18%	3.369	4
Greece	0.075***	0.004	22%	0.058	39
Hong Kong	0.049***	0.137***	19%	2.785	7
India	0.083***	0.094***	18%	1.139	25
Indonesia	0.062***	0.052**	20%	0.836	31
Israel	0.136***	0.022	28%	0.163	38
Italy	0.084***	0.094**	16%	1.115	27
Japan	0.058***	0.033***	24%	0.570	33
Jordan	0.084***	0.133*	11%	1.590	15
Korea, Rep.	0.076***	0.136***	24%	1.792	13
Kuwait	0.063***	0.123**	14%	1.969	9
Malaysia	0.072***	0.047***	20%	0.644	32
Mexico	0.063***	0.103	31%	1.629	14
Netherlands	0.062***	0.093***	14%	1.514	16
New Zealand	0.090***	0.277***	24%	3.080	5
Norway	0.038***	0.131***	23%	3.414	3
Oman	0.123***	0.026	37%	0.210	37
Pakistan	0.091***	0.092**	27%	1.010	29
Philippines	0.046***	0.015	21%	0.332	35
Poland	0.082***	0.097***	20%	1.184	24

(Continues)

## EXHIBIT 2 (Continued)

Country	Accounting conservatism				
	RETURN $\beta_1$	INTER. $\gamma_3$	R_sq Adj. %	CONSERV. Slope ( $\gamma_3/\beta_1$ )	CONSERV. Rank
Saudi Arabia	0.049***	0.022	40%	0.444	34
Singapore	0.074***	0.104***	22%	1.418	20
South Africa	0.088***	0.129***	26%	1.466	19
Spain	0.058***	0.143***	13%	2.455	8
Sri Lanka	0.099***	0.032	30%	0.322	36
Sweden	0.075***	0.112***	22%	1.485	18
Taiwan	0.074***	0.070***	25%	0.945	30
Thailand	0.054***	0.103***	23%	1.911	10
United Kingdom	0.062***	0.118***	19%	1.901	11
United States	0.027***	0.153***	16%	5.728	1
Vietnam	0.100***	0.139***	31%	1.393	21
Mean	0.072	0.099	23%	1.563	20.5
Median	0.073	0.102	22%	1.406	20.5
Min	0.013	-0.009	11%	-0.091	1
Max	0.136	0.277	40%	5.728	40

## Panel (b): Value relevance

Value relevance is detected by the adjusted *R*-squares from earnings and book values regressed on 3 months after fiscal year-end stock prices:

$$P_t = \gamma_0 + \gamma_1 \text{EPS}_t + \gamma_2 \text{BVPS}_t + \gamma_4 \text{SIZE}_{t-1} + \gamma_5 \text{PROF}_t + \gamma_6 \text{LEVERAGE}_t + \gamma_7 \text{MTB}_t + \gamma_8 \text{GROWTH}_t + \sum \gamma_9 \text{FE\_YEAR}_t + a\gamma_{10} \text{FE\_INDUSTRY}_t + \varepsilon_t$$

where  $P_t$  = company share price available 3 months after fiscal year-end;  $\text{BVPS}_t$  = book value of equity per share in year  $t$ ;  $\text{EPS}_t$  = earnings per share in year  $t$ ;  $\text{SIZE}_{t-1}$  = beginning year's total assets in year  $t$ ;  $\text{PROF}_t$  = firm profitability (earnings under beginning year's total assets) in year  $t$ ;  $\text{LEVERAGE}_t$  = financial leverage (total liabilities under the book value of equity) in year  $t$ ;  $\text{MTB}_t$  = market to book value in year  $t$ ;  $\text{GROWTH}_t$  = earnings' growth rate in year  $t$ ;  $\text{FE\_YEAR}_t$  = yearly fixed effects;  $\text{FE\_INDUSTRY}_t$  = industry fixed effects.

Country	Value relevance			
	EPS $\gamma_1$	BVPS $\gamma_2$	VR R_sq Adj.	VR Rank
Argentina	0.610**	0.255***	59%	12
Australia	0.170***	0.550***	47%	29
Bangladesh	5.245***	0.313***	48%	27
Belgium	1.655***	0.277***	54%	18
Canada	0.870***	0.505***	49%	23
Chile	1.917***	0.323***	62%	8
China	4.265***	1.500***	71%	3
Denmark	0.351**	0.372***	47%	28
Finland	0.658***	0.502***	59%	10
Germany	0.065	0.377***	43%	32
Greece	0.170***	0.193***	58%	13
Hong Kong	0.188***	0.348***	40%	36
India	0.693***	0.219***	42%	33
Indonesia	1.732***	0.314***	45%	31
Israel	1.062***	0.242***	55%	17
Italy	0.679***	0.252***	57%	15

(Continues)

## EXHIBIT 2 (Continued)

Country	Value relevance			
	EPS $\gamma_1$	BVPS $\gamma_2$	VR R_sq Adj.	VR Rank
Japan	0.887***	0.292***	54%	19
Jordan	1.822***	0.390***	58%	14
Korea, Rep.	0.521***	0.251***	40%	35
Kuwait	0.717***	0.436***	59%	11
Malaysia	0.723***	0.292***	49%	25
Mexico	0.673**	0.258***	39%	39
Netherlands	0.929***	0.634***	65%	5
New Zealand	0.925***	0.328***	37%	40
Norway	0.398	0.705***	52%	21
Oman	2.317***	0.127***	63%	7
Pakistan	1.027***	0.157***	41%	34
Philippines	1.001***	0.171***	40%	37
Poland	0.974***	0.304***	56%	16
Saudi Arabia	1.786***	0.678***	69%	4
Singapore	0.960***	0.399***	50%	22
South Africa	0.880***	0.390***	49%	26
Spain	0.328	0.302***	60%	9
Sri Lanka	1.591***	0.331***	64%	6
Sweden	0.969***	0.476***	46%	30
Taiwan	1.193***	0.374***	53%	20
Thailand	1.884***	0.627***	71%	2
United Kingdom	0.566***	0.462***	40%	38
United States	0.207***	0.754***	49%	24
Vietnam	1.547***	0.442***	73%	1
Mean	1.129	0.403	53%	20.5
Median	0.906	0.340	53%	20.5
Min	0.065	0.127	37%	1
Max	5.245	1.500	73%	40

Note. This exhibit provides descriptive statistics of accounting quality for 40 countries' major capital markets. Accounting quality is given by accounting conservatism on Panel (a) and by value relevance on Panel (b). For each of the measurement, the exhibit reports the major coefficients, their significance, adjusted *R*-squares and the consequent country ranking positions according to a given measurement. The exhibits are sorted by countries' alphabetic order.

\*\*\*, \*\*, and \* stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

Unreported result witnesses a significant ( $p$ -value = 0.064) negative correlation between the two measurements of AQ: country-level ranking position of accounting conservatism and country-level ranking position of value relevance. This result bears an important message for accounting standard setters, who are currently involved in the debates of defining the objective of financial reporting. The results (consistent to the findings of prior literature: Leuz et al., 2003, Gassen, 2008, Dechow et al., 2010) indicate that controlling-usefulness and valuation-usefulness are

two alternative objectives of financial reporting which can be hardly achieved simultaneously. For example, the United States positions as number 1 regarding providing controlling-useful accounting information and positions as number 24th regarding providing valuation-useful accounting information. These results may well hint on the reasons why the supporters of the accounting system's objectives (Ball et al., 2000; Ball, 2001; Barth et al., 2008) do often assess healthiness of accounting system in the United States in terms of accounting conservatism, while the critics of the

current objectives of the accounting system (Lev & Zarowin, 1999; Lev & Gu, 2016) draw the picture in terms of the value relevance of accounting information in the United States.

Unreported results have also revealed that country-level AQ considerably varies across the stock exchanges within the same countries. AQ has been detected to be significantly different across the *first* and *second* most represented stock exchanges in China, Germany, India, Japan, Taiwan and the United States. For example, in the context of the United States, NASDAQ Stock Market and the NYSE reveal considerably different outputs of AQ and its two measurements: accounting conservatism and value relevance. This may indicate that beyond the firm-level and country-level determinants of AQ, the final is further importantly driven by the specific capital-market regulations and market characteristics such as trading intensity and more.

## 4 | EMPIRICAL EVIDENCE

### 4.1 | Results

This section addresses the core question of this work: do wealthy economies have better AQ compared to poor economies? Figure 1 exhibits such a relation. Panel (a) shows the relation between country wealth and accounting conservatism and Panel (b) shows the relation between country wealth and value relevance of accounting information. The utilized analysis is univariate: this article correlates country-level ranking positions of wealth (varying from 1 to 40) and country-level ranking positions of AQ either due to accounting conservatism or value relevance (also varying from 1 to 40).

This article observes that the relation between country wealth and AQ markedly differs according to the measurement of AQ. On the one hand [Panel (a)], country wealth is significantly positively correlated with conditional accounting conservatism and thus to a more controlling-useful accounting information. The slope is upward-looking: on average, countries with leading ranking positions in terms of country wealth, also experience leading ranking positions in terms of accounting conservatism. The piecewise correlation stands at (0.522), significant at 1%. The top wealthy economies of Norway, Denmark and the United States reveal 3rd, 6th and 1st most conservative accounting practices among the sample countries, consequently. The poor economies of Bangladesh, Pakistan, India, and Vietnam witness lowly conservative approaches of reporting. Japan, a wealthy country with lowly conservative accounting, stands as an outlier in the sample. Overall, the figure indicates that wealthy economies tend to have higher demand on a controlling-useful accounting information and, consequently, financial

reports tend to appear more sensitive to “bad” news compared to “good” news. This result suggests financial reports of wealthier economies to be more controlling-useful and thus of a higher utilization in managerial decisions.

On the other hand [Panel (b)], it is difficult to note any significant relation between country wealth and value relevance of accounting numbers across the given 40 countries. The countries are positioned “all around” the “best fitting” (OLS) line in a way that no significant pattern can be noticed. The correlation stands at (−0.041) with insignificant *p*-value (0.804). Wealthy economies of Norway, Denmark, Sweden and the US report, on average, the same value-relevant accounting information as the poor economies of Bangladesh, Sri Lanka and Jordan. This graph indicates that country wealth does not condition higher demand on value-relevant accounting information and, consequently, financial reports tend to appear about equally value-relevant across wealthy and poor economies. To summarize, country wealth significantly positively links with accounting conservatism, but no significant linkage is detected with the value relevance of accounting information based on the given 40 countries.

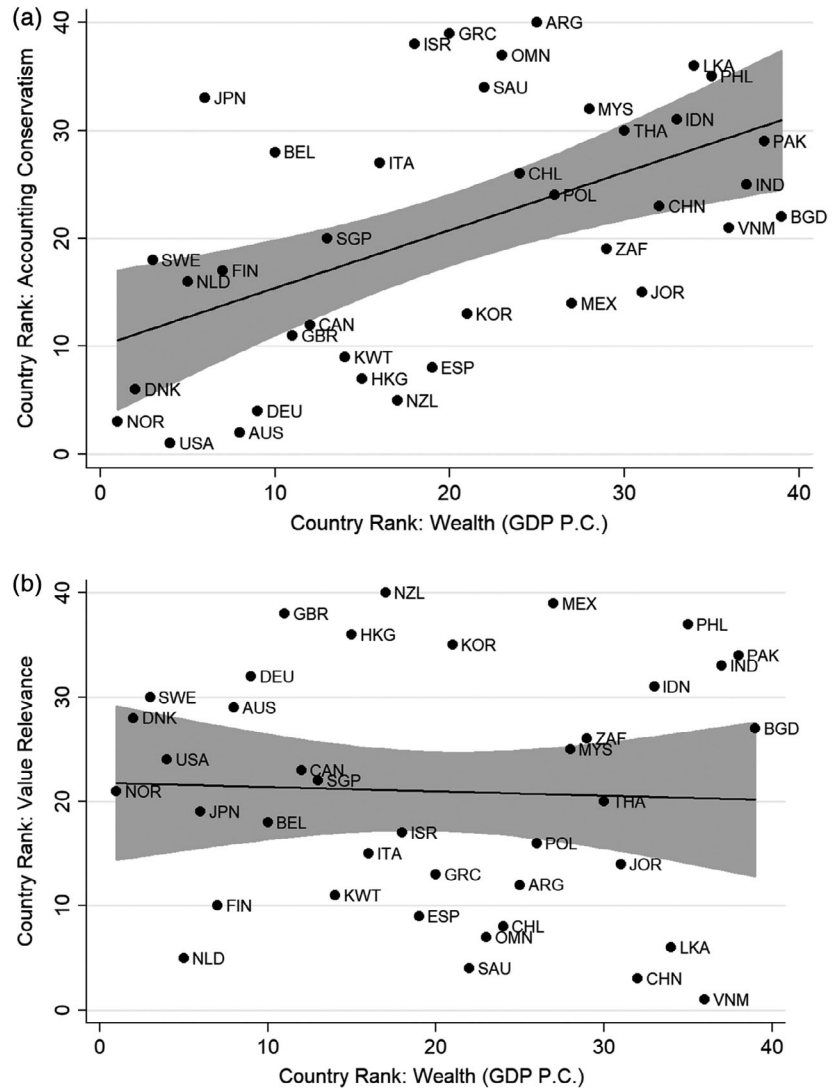
### 4.2 | Implications of the results

The findings are consistent with the formulated hypothesis. Obtained results could be a subject of interest for the scientific field itself, but also for investors and standard-setters. The field gains new insights on AQ across 40 countries' capital markets, and how AQ (and its two measurements) relates to country wealth.

Investors may become aware that financial reports are not unequivocally less reliable within the poor economies. This may promote increased capital flows toward the poor countries' capital markets, by inspiring investors to look beyond the “traditional” markets. The obtained findings are consistent to recent developments worldwide; global growth is today driven primarily by developments in poor economies, not the United States or the European Union. Countries such as China, India and Brazil contribute around half of global economic growth in recent years. Despite of facing higher risks, in recent years expansion of the business in poor (emerging) economies is no longer viewed as a speculative investment, but an essential strategy to grow business. As emerging economies took leading seats on global growth, this article adds to this notion from accounting's perspective and argues that valuation-usefulness of accounting numbers within the poor economies are not less valid compared to the wealthy ones.

For the standard-makers, the work provides an empirical evidence based on a broad sample that controlling-usefulness and valuation-usefulness are significantly negatively correlated—indicating these are two alternative (rather

**FIGURE 1** Correlation between country wealth and accounting quality. This figure shows a piecewise correlation between the country-level ranking positions of country wealth and accounting quality. It has two panels. On Panel (a), accounting quality is expressed by conditional accounting conservatism and on Panel (b), it is expressed by value relevance of accounting information. Conditional accounting conservatism is proxied by the asymmetric timeliness of earnings with respect to good versus bad news (Basu, 1997). Country wealth is given by GDP per capita in current US\$. Value relevance of accounting information is given by the joint explanatory power of earnings and book values in driving 3 months ahead stock price variations (Beaver et al., 1980; Feltham & Ohlson, 1995). Country wealth, accounting conservatism and value relevance of accounting information at a country level are shown by their country-level ranking positions varying from 1 to 40. Country names are abbreviated by their three-digit codes. Panel (a): Country wealth and accounting conservatism. \*\*\*, \*\*, and \* stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests. Panel (b): Country wealth and value relevance. \*\*\*, \*\*, and \* stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests



than complementary) sub-objectives of financial reporting. This may add toward the discussions on formulating the conceptual framework of financial reporting.

### 4.3 | Limitations of the work

Provided analysis is subject to several concerns. First, the used methodology is based on the premise that conditional accounting conservatism and the value relevance of earnings and book values accurately proxy controlling- and valuation-usefulness of financial information. In the application of the accounting conservatism, this article assumes that the supply and demand sides of conservative accounting information are in equilibrium. The herein employed accounting conservatism model is slightly different from the Basu's original model. As for the application of the value-relevance methodology, it is assumed that the examined capital markets are at least “partly” efficient (thus there is a linkage between the arrival of accounting information and the market reactions). While these assumptions are majorly based on the existing theories

of the prior literature, if they do not hold, then the derived results are invalid. Second, the determinant models have utilized firm-level control variables as well as industry and yearly fixed effects as additional factors that may potentially affect the constructs of country-level AQ. Despite of it, if the used models fail to include additional variables that are causally related to the dependent constructs of interest, while being correlated with the independent variables, an omitted variables problem would question the findings' biasness. Third, the examined sample on a larger extent consists of wealthy (as opposed to poor) economies. This is because the data availability, typically, significantly positively correlates with the level of country wealth. Therefore, even though the examined sample is quite representative, it is hard to generalize the findings across the world. Finally, while this article examines the data from the last quarter of century, the final sample observations, because of the data availability reasons, are overwhelmingly concentrated in the 21st century. The question may remain whether the results of this article could be generalized across other time periods.



## 5 | CONCLUSION

This article empirically tests whether country wealth is significantly correlated with the existing international differences in AQ across 40 countries' capital markets. Country wealth is expressed by the GDP per capita and AQ is measured by conditional accounting conservatism and value relevance of earnings and book values. This article finds that while examining the relation between country wealth and AQ, it is important to distinguish between controlling-useful and valuation-useful accounting information. The results show that wealthy economies have more controlling-useful, but about equally valuation-useful accounting information compared to their poor counterparts. Such a distraction between the different measurements of AQ is in line with the existing literature and shows that controlling-usefulness and valuation-usefulness appear as two alternative (sub) objectives of decision-usefulness.

This study contributes to the existing literature on international differences in AQ (Alford et al., 1993; Jacobson & Aaker, 1993; Bandyopadhyay et al., 1994; Harris et al., 1994; Joos & Lang, 1994; Barth & Clinch, 1996; Pope & Walker, 1999; Ball et al., 2000). This is the first empirical study that tests the association between country wealth and AQ. Derived results are interesting for investors interested to increase their capital flows toward the poor (emerging) economies. The findings may also be useful for standard-setters and contribute to the development of the joint conceptual framework while formulating the overall objective of financial reporting.

There is still a lot of work remained for the upcoming research. A promising area of research is to transpose the hereby drawn associations toward the causality linkages. Future research may go further into details and detect and address the reasons why country wealth is associated to more controlling-useful but not to more valuation-useful accounting information. This may require to separately test the links of country wealth and financial reporting infrastructure, and the financial reporting infrastructure and AQ.

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## ENDNOTES

- <sup>1</sup> See Ball and Brown (1968), Beaver (1968), Ball and Watts (1972), Collins and Kothari (1989), Dechow, Sloan, and Sweeney (1995), Ball, Kothari, and Robin (2000), Holthausen and Watts (2001), Leuz, Nanda, and Wysocki (2003), Barth, Landsman, and Lang (2008), and Dechow, Ge, and Schrand (2010).
- <sup>2</sup> See Watts and Zimmerman (1986), Teoh, Welch, and Wong (1998), Ball et al. (2000), and Leuz et al. (2003).
- <sup>3</sup> See La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), Ball et al. (2000), Leuz et al. (2003), and Ball, Robin, and Sadka (2008).
- <sup>4</sup> This article uses the term “wealthy” economies to denote “rich” economies as meant by Ball (2016), and the term “poor” economies to denote the opposite meaning of “rich” economies.
- <sup>5</sup> See Schumpeter (1939), King and Levine (1993a, 1993b); Demirgüç-Kunt and Levine (1996), La Porta et al. (1997), La Porta et al. (1998), Levine (1997), Levine and Zervos (1999), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000), Levine, Loayza, and Beck (2000), Levine (2005), and Schumpeter (2017).
- <sup>6</sup> See Lev (1983), Collins, Maydew, and Weiss (1997), Francis and Schipper (1999), Lev and Zarowin (1999), Core, Guay, and Buskirk (2003), Balachandran and Mohanram (2011), and Lev and Gu (2016).
- <sup>7</sup> We need to bear in mind that GDP and GDP per capita reflect different perspectives of the economy. The first hints the scale of the economy and the later tells us the “quality” per person. This article relies on GDP per capita in the analysis and intentionally ignore GDP.
- <sup>8</sup> See Holthausen (1981), Zmijewski and Hagerman (1981), Watts and Zimmerman (1986), Moses (1987), Scholes, Wilson, and Wolfson (1992), Ashari, Koh, Tan, and Wong (1994), Fama and French (1995), Penman and Zhang (2002), Dechow and Schrand (2004), Ashbaugh-Skaife, Collins, and Kinney Jr (2007), and Frankel and Litov (2009).
- <sup>9</sup> Unreported results show that exclusion of the firm-specific variables from the models does not significantly affect the conclusions reached in this article.

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