Original Article

COUNTRY, COMPANY, AND CASH: A MULTILEVEL EXPLORATION OF FINANCIAL DYNAMICS

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Abstract: The objective of this study is to demonstrate the relative importance of both firm-level and country-level on financial performance. In addition, to explore the influence of firm-level variables (Accounting standards, firm age, firm size, liquidity) together with country-level variables (GDP per capita, inflation rate, development status, human development index, country openness to trade) on financial performance. Financial performance is measured in this study by Return on Assets. Hierarchical Linear Modeling is employed to identify the components of firm performance variability. This study employs a sample of 4095 publicly listed industrial firms from 54 countries listed on stock exchange covering the period from 2014 to 2016.The results show that both firm and country-level performance variations are significant. However, financial performance is explained better by firm-level performance variation that contributes up to 92.8% to variance in financial performance. Moreover, in terms of country-level variables, the results show that country openness to trade and human development indexare significantly affecting firm performance. Moreover, in term of firm-level variables, the results show that firm age is negatively related to firm financial performance and firms adopting IFRS are more likely to have higher financial performance than firms adopting local GAAP.This study contributes to the literature by employing Hierarchical Linear Modeling to integrate both firm-level and country-levelvariables into one cross-sectional analysis. It provides an insight to analysts and stakeholders to consider multi-level characteristics when examining financial performance.

Keywords financial performance, Hierarchical Linear Modeling, ROA, Multilevel.

1. Introduction

There is a growing interest by international accounting researchers to discover the effect of firm and country-level characteristics on financial performance and the relative importance of each level. The interest is in the decomposition of the variance in firm performance across several hierarchical levels and the explanation of this variance with variables specified at each level. Previous empirical research shows a plausible but mixed

Original Article

relationship between country-level characteristics and firm performance. Hence, the outcomes are uncertain and require more empirical research to resolve the conflicting results. Some studies identify significant differences between countries (Eggertsson et al., 1990, Ghemawat, 2003, Hawawini et al., 2004, Doidge et al., 2007, Goldszmidt et al., 2011). Others have found an insignificant influence (Cool and Schendel, 1987, Fiegenbaum and Thomas, 1990, Zúñiga-Vicente et al., 2004). Moreover, there is also mixed results with regard to performance differences among firms within the same country. Some studies have found significant performance differences within the same country (Brito, 2006, Hough, 2006, Pereira_Moliner et al., 2011). Whereas others have found no conclusive results.

Previous studiesexamined the firm effects onthe performance of domestic firms. However, both theoretical and empirical investigations remain limited in investigating the influence of country-level on firm performance (Makino et al., 2004, Goldszmidt et al., 2011, Zouaghi et al., 2017). In addition, these few studies employ the traditional methods of analysis as OLS regression and one-way analysis of variance (ANOVA) test. These methods overlooked the hierarchical structure of the data. HierarchicalLinear Modeling (HLM) is applied widely in social sciences, medicine, healthcare, and economics research. However, it is relatively new to accounting research (Brito, 2006). This statistical technique is powerful for analyzing hierarchical data in which observations are clustered into higher-level organizations as countries. It explicitly accounts for the Independence of errorsassumption that may be violated when usingtraditional methods. It enables researchers to examine hierarchical data in a single comprehensive model and allows the measurement of variables and variances at different organizational levels (Dong and Stettler, 2011). It is more flexible in thedata that can be used in the analysis andcan use a singleyear of data or a single firm within a country, while othermethods require balanced data. In addition, it allows for the estimationof both random and fixed effects.

According to McGahan and Porter (2002), the time has come to discover new analytical methods due to the inability of the traditional methods to incorporate the relationships that exist between multi-levels effects. Similarly, Hough (2006) states that HLM offers statistical advantages over ANOVA and OLS Regression. Dong and Stettler (2011) mentionthat accounting research continues to use the traditional methods in analyzing clustered data to test predicted relations at cross-level settings without considering the methodological restrictions ingrained in the aggregation and disaggregation method. In this way, the current study fills this gap and aims to answer an important question of whether the financial performance of the firms varies across firms and countries and their relative importance. Hence, the objectives of this study are twofold. The first objective is to provide an assessment of the long-running debate as to the relative importance of firm and country-levels effects on firm performance in a manner which more fully includes the non-independence between levels effects than traditional methods. The second is to empirically investigate more deeply the effect of structural variables at each level of analysis on financial performance using HLM.The motivation of this study is to reconcile the inconsistent research findings, draw stronger inferences on the relative importance of firm and country-level effects on firm performance and move beyond simple models of variance decomposition toward complex models that incorporate structuralvariables at each level of a data hierarchy.

The study is derived from a sample of 4095 publicly listed industrial firms from 54 countries covering the period from 2014 to 2016. The findings of this study show that both firm and country-levels significantly affect firm performance, however, firm-level variances are by far of the greatest relative importance to financial performance than country-level variances. Moreover, firm age and accounting standards applied significantly explain variance in performance across firms. In addition, country openness to trade and human development index significantly explains variance in performance across countries. The results of this research have practical implications for managers and analysts. First, it may help managers to identify the most influential factors that contribute to firm performance and thus focus their energy mainly on these factors. Second, it may direct managersand analysts

Original Article

when evaluating firm performance to focus on firm and country characteristicswhich significantlyaffect the variance in performance and not only financial measures.

This study contributes to the literature in several ways. First, it employs an empirical contribution by using the HLM to integrate both firm and country-level variables into one cross-sectional analysis. The firms in the same country share similar socioeconomic status. Consequently, using traditional methods in the analysis lead to underestimating standard errors which cause false significant estimates of model parameters. In addition, it violates the basic assumptions of Ordinary Least Squares regression regarding the independence between observations causing heteroscedasticity. The use of HLM can solve this problema due to their greater accuracy in calculating standard errors associated with parameter estimates (Heck et al., 2013). Second, previous research focuses on the relationship between performance and firm-level variables while adding more levels to the analysis receive far less attention (Leask and Parker, 2007, Pereira_Moliner et al., 2011). This study aims to fill this gap by shedding the light on the relationship between financial performances and both firm and country-levelcharacteristics by comparing differences in performance between countries with differences in performance between firms within each country to determine the differences that better explain financial performance. Finally, the majority of studies that employ multilevel analysis focus on the relative influence of industry, strategic group and corporate characteristics on firm performance(Hough, 2006, Brito, 2006, Misangyi et al., 2006, Dong and Stettler, 2011, Pereira_Moliner et al., 2011).

This study aims to complement existing literature by moving beyond the descriptive nature of explained variance between levels and incorporate structural variables at country-levelto the analysisthat influence financial performance.The paper proceeds as follows. Section 2 presents the literature review and hypothesis development. Section 3 offers the data used and the research design, followed in Section 4 by the discussion of empirical findings. Section 5 concludes the study.

2. Literature review and hypothesis development

There is a debate in the literature about the degree to which financial performance varies across firms, industries, and countries. The market-based view is an extension of the classical perspective which assumes that structural industry characteristics are the most influential driver of firm performance although firms can affect those characteristics and thus the degree of competition through strategic manner(Misangyi et al., 2006, Zouaghi et al., 2017).On the other hand, the resource-based view suggests that the variability in firm performance is not solely a feature of the structural industry characteristics, but stresses that firm characteristics are the most influential to firm performance(Adner and Helfat, 2003, Schmalensee, 1985).

Previous research shows that firm performance can vary systematically across firms. They argue that firms are the major sources of the performance variation due to firm's unique resources that create value and the competitive barriers it operates within that cannot be easily imitated by its competitors (Makino et al., 2004). According to Barney (1991), firms own valuable and rare resources have sustained competitive advantage which supports the resource based view. As a result, firm-level characteristics should have a major effect on firm financial performance. Using a multilevel analysis, Brito (2006) investigates the relationship between size and firm financial performance. The results show a significant positive relationship between size and profitability in which size was able to explain more than 18.5% of the performance variance at firm-level. Using a variance decomposition analysis, Goddard et al. (2009) investigate the relative importance of the firm, industry, and corporate level effects on financial performance using a sample of manufacturing firms located in 11 European Union (EU) member countries. The results indicate that the firm-level effects are the most important level in explaining performance variation.

On the contrary, Chen (2010) investigate industry and firm effects on firm performance in IT sectors in Taiwan and South Korea. He employs both the HLM and the variance components approach (VCA). The results reveal that industry effects on performance of the IT sectors in Taiwan and South Korea dominate firm effects. Using a

Original Article

sample of 10,000 firms from 62 countries, McGahan and Victer (2010) investigate the relative importance of firm, industry, and country characteristics on firm financial performance with different degrees of multi-nationality. The results show that country and industry effects are significantly affecting domestic firm performance than multinationals. However, the country-level variables significantly affect firms with high degrees of multi-nationality. These variables, namely, quality of governance, openness to trade, wealth, growth rate, uncertainty avoidance, and individualism collectively explain 10 percent of performance variation. Raza et al. (2011) investigate firm and industry effect on financial performance for firms listed on the Karachi Stock Exchange. The resultsshow that both firm and industry variables significantly influence firm performance.Using a sample of Central American firms, Ketelhöhn and Quintanilla (2012) investigate the country, industry and firm effects on financial performance. The results show that firm effects dominate in explaining performance variation ranging between45% and 50%, followed by industry effects between 10% and 17%, and country effects between 5% and 8% of performance variance.

Schiefer et al. (2013) argue that firm characteristics are more important to firm profitability than industry structure. In particular, firm size is the driver of performance while firm risk, age and, market share have a negative influence. Similarly, the findings of Hirsch et al. (2014) show that firm effects are much more important than industry effects in determining food industry profitability in EU countries. They find that firm size and industry concentration are important determinants to performance while firm age, risk and, industry growth have a negative effect. Using a multilevel approach, Elango and Wieland (2015) argue that performance differences exist both within and between strategic groups which provide a more realistic picture of firm performance. Using a sample of 103 firms from emerging market, Borda et al. (2017) examine how business groups diversification and internationalization affect financial performance.

The results show that there is a significant positive relationship between business group diversification and performance. Moreover, the positive effects of business group diversification on performance are more important for service firms than for manufacturing firms. Besides variation across firms, firm performance can also vary systematically across countries. The attributes of each country might affect firm financial performance. Previous research tries to investigate the potential influence of the characteristics of countries in developed and developing countries. For instance, La Porta et al. (2000) investigate the effect of legal enforcement across countries on the development of the financial market. They identify better performance in countries with greater political and macroeconomic stability.Hawawini et al. (2004) explore the impact of home country effects on firm performance. They find that countries factors, namely, social systems, incomes, consumer tastes, and regulations may influence firm performance. Doidge et al. (2007) investigate the influence of country-level characteristics on governance rating. The results show that country characteristics ratings (ranging from 39% to 73%) is much more important than firm-level characteristic (ranging from 4% to 22%) in explaining the variance in governance. Moreover, firm characteristics have no effect on governance rating variation in developing countries.

Using a cross-classified 3-level HLM, Goldszmidt et al. (2011)investigate the effect of country, industry,and country–industry interaction effects on firm performance. The results indicate significant country and country–industry effects on firm performance. The relative importance of the 3-levels is similar, around 10% each. Using a sample of 4,000 firms,Lasagni et al. (2015) find that macroeconomic factors of regions such as the quality of local institutionsaffect significantly firm productivity in Italy. On the contrary,Hawawini et al. (2004)investigate the country effect of 1305 firms in six countries on financial performance and find aninsignificantcountry effect less than 1% of total variance. Moreover, Hirsch and Hartmann (2014) find that firm performance is derived primarily by firm and industry characteristics with below 2.0% weak country contribution.The results on the effect of firm and country effects on financial performance presentedabove vary and are sometimes conflicting.These significant differences may possibly due to the difference in the analysis method used or the sample selection.

Original Article

This study adds to the literature by its large sample size and the use of HLMand providesa detailed investigation regarding the effect of firm and country characteristicson financial performance. Thus the following hypothesisis formulated:

H1. Firm performance varies significantly across countries

H2. The firm-level effects explain the variation in performance better than the country-level effects.

H3. There is a significant relationship between firm-level characteristics and firm financial performance.

H4. There is a significant relationship between country-level characteristics and firm financial performance.

3. Data and Methodology

3.1 The sample

A sample of 40,000 publicly listed industrial firms from 54 countries is used in this study. Table 1 displays countries breakdown. Data is obtained from Thomson Reuters Eikon, Thomson Reuters DataStream, the World Bank and United Nations Development Programme (UNDP) covering the period from 2014 to 2016. The measures for each variable in the study are developed in this section.

3.2 Study variables

3.2.1 Firm performance

Previous studiesusedifferent measures of financial performance. One of the most commonly used measure in multilevel research is the ROA(Brito, 2006, da Silva et al., 2013). It is well known in the accounting literature and computed as net profit before interest and taxes divided by total assets. It represents the operational return provided by all the assets of the firm. Table 1 demonstrates the descriptive statistics of the dependent variable ROA for the full sample by country. It demonstrates the mean and standard deviation of financial performance, as measured by ROA, among 54 different countries. As it is shown, Switzerland, Japan, South Africa, and Bangladesh have the highest average financial performance ranged from 0.247 to 0.446 while Greece, Australia, Croatia, and Serbia have the lowest. Although the high financial performance help firms to attract investors and maintain a healthy financial position, however, low financial performance does not necessarily mean that a country has a low level of industrial development(De Zoysa et al., 2009).

Although manufacturing firms in Australia have low financial performance, it exhibits high levels of industrial development. A closer look at the variability of the ROA between the different countries also reveals that Japan industrial firms have the lowest variability while America, Pakistan and Canada industrial firms have the highest. To solve the problem of non-normality of continuous data, a two-step approach to normalize the variables introduced by Templeton (2011) is employed. The HLM analysis is carried before and after data normalization and the results were nearly the same.

Table 1: Descriptive Statistics

Country	ROA		
	Numberof Firms	Mean	Standard Deviation
Australia	2310	-.4500	1.23066
Austria	257	.0237	.83423
Bangladesh	211	.2775	.71792
Belgium	305	-.2650	.90707
Bosnia and Herzegovina	306	-.3834	.87016
Brazil	861	-.2715	.96606
Bulgaria	521	-.1776	1.07011
Canada	2551	-.6327	1.41308
Chile	552	.0434	1.11338

Original Article

China	16391	.1886	.78980
Croatia	360	-.6801	.82787
Denmark	467	.0456	1.11052
Egypt	532	.2970	1.12114
Finland	700	.1512	.91199
France	1812	-.1082	.86478
Germany	1853	.0399	.94818
Greece	930	-.8217	.80144
Hong Kong	3210	-.1195	1.19277
India	8532	-.0413	.96877
Indonesia	1295	-.0161	1.03113
Italy	960	-.2108	.74167
Japan	17454	.2477	.67344
Jordan	390	-.4535	.68633
Korea; Republic (S. Korea)	6438	-.1631	.86101
Kuwait	414	-.2913	.76320
Malaysia	3690	.0909	.94338
Mexico	288	.1797	1.15259
Morocco	216	.2418	.84013
Netherlands	432	.1264	.81501
New Zealand	360	.0375	1.26898
Nigeria	216	-.0797	1.07179
Norway	594	-.1770	.90848
Oman	234	-.0929	1.00701
Pakistan	234	.2757	1.47344
Philippines	360	.2682	.78515
Poland	1962	-.0673	.87447
Republic of Serbia	324	-.6191	.68926
Romania	558	-.4503	.79974
Table 1 Continued ...			
Russia	2988	-.0583	1.09289
Saudi Arabia	431	.1750	.96129
Singapore	3030	-.1464	1.03000
South Africa	792	.2997	.86916
Spain	606	-.2223	.89726
Sri Lanka	432	.0101	.88803
Sweden	1872	.0614	1.25149
Switzerland	900	.4468	.89439
Taiwan	6642	.0822	.88319
Thailand	2052	.1987	1.01755
Turkey	810	.1328	.97803
Ukraine	306	-.4135	1.17835
United Arab Emirates	231	-.1411	.80285
United Kingdom	4014	-.0360	1.11349

Original Article

United States of America	11411	-.2019	1.34307
Vietnam	4428	.0791	.96864
Total	120025	.0000	.99972

3.2.2 Firm-level Variables

This study uses two firm-level key independent variables; firm age and accounting standards that have most frequently been used as determinants of financial performance in previous research.Previous studiesshow that firm age is an important factor of firm growth and younger firms may grow faster than older firms(Coad and Halvarsson, 2014). It is defined as the observation year minus the year of incorporation. The accounting standards adopted by firms are classified into two categories. The first one includes the International Financial Reporting Standards (IFRS) and takes the value 1. The second includes local GAAP and takes the value 0. Further, two more control variable; liquidity and firm size are also used in this study. Liquidity measures the firm's ability to pay off its short-term debt obligations. It is calculated by deducting inventory from current assets then divide the results by current liabilities. The higher the liquidity ratio, the better the firm in meeting its short-term financial obligations. While, firm size is calculated asthe natural logarithm of total assets. Table 2 demonstrates the descriptive statistics of these variables.

Table 2: Firm-level Variables Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Liquidity	119933	-.0013	.99438	.000	.007	-.090	.014
Age	119065	.0001	.99486	.001	.007	-.087	.014
Size	119995	8.2136	.95163	-.066	.007	.223	.014
ROA	120025	.0000	.99972	.000	.007	-.010	.014
Valid N (listwise)	118868						

Accounting-Standard	Frequency	Percent	Valid Percen t	Cumulative Percent
Local GAAP	60948	50.8	50.8	50.8
IFRS	59130	49.2	49.2	100.0
Total	120078	100.0	100.0	

3.2.3 Country-level variables

Previous studies investigated the influence of country socioeconomic system on financial performance. This study uses five country-level variables to identify variation between countries in financial performance. The variables are based on the Country of Origin (COE). According to Sethi and Elango (1999), A county's cultural/institutional, industrial/ economic and national factors contribute to the competitive advantage of firms from a certain country. This combination of factors comprises the COE. This study employs variables relevant to each factor of the COE as follows: For cultural/institutional factors, Human Development Index (HDI) is used, for industrial/economic factors, GDP per capita and inflation rate are used and for national factors, countries openness to trade is used.

In addition, Development status is used where developed countries take value 1 and 0 otherwise. These variables are in line with previous literature discussed earlier and are explained below. Inflation rate. It is a measure of the

Original Article

national inflation level.It is the most widely used measure of inflation and is sometimes viewed as an indicator of the effectiveness of government economic policy.Gross Domestic Product per Capita (GDP). Economic development is measured by economic wealth. GDP per capita is considered one of the most widely used measure of economic wealth(Salter, 1998). It represents a country's standard of living. The higher the GDP per capita, the wealthier the market. Therefore, the wealthier market can optimize the firm performance just as periods of the recessionin the market can reduce Performance. Boththe inflation rate and GDP per capita data are obtained from Thomson Reuter DataStream standardized economic indicators.

Human Development Index (HDI). It is a measure of human development that is published by the United Nations Development Programme (UNDP). It is considered a summary measure of average achievement in key dimensions of human development.Salter (1998) states that a country's economic development cannot be measured by economic wealth only as it is also a process of social change. Therefore, HDI is used as a measurement of socioeconomic development. Country openness to trade (Trade). Country's openness to international competition will induce firms to increase competition between firms in the local market, reduce their prices toward more competitive levels and have an effect on their performance (Geroski and Jacquemin, 2013). A country's openness to trade is measured by the percentage contribution of trade to a country's economic activity (Elango and Sethi, 2007). Table 3demonstrates the descriptive statistics of these variables.

Table 3: Country-level variables descriptive statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
HDI	120078	.0005	.99552	.008	.007	-.061	.014
Inflation	120078	.0001	.99660	.001	.007	-.058	.014
GDP	120078	.0007	.99486	.012	.007	-.075	.014
Trade	120078	.0008	.99279	.003	.007	-.128	.014
Valid (listwise)	120078						

Developed

	Frequency	Percent	Valid Perce nt	Cumulative Percent
Developing	54198	45.1	45.1	45.1
Developed	65880	54.9	54.9	100.0
Total	120078	100.0	100.0	

3.3 Methodology

HLM is applied widely in social sciences, medicine, healthcare, and economics research. However, it is relatively new to accounting research(Brito, 2006). This statistical technique is powerful for analyzing hierarchical data in which observations are clustered into higher-level organizations as countries. It explicitly accounts for the independence of errors assumption that may be violated when using traditional methods. It enables researchers to examine hierarchical data in a single comprehensive model and allows the measurement of variables and variances at different organizational levels (Dong and Stettler, 2011). This research employs HLM and both the MLwiN and SPSS are used to analyze the data. The dependent variable is always at the lowest level of analysis. Two-level modelswere used wherein the levels of analysis are firms nested within countries. A comparison between each model is carriedout to assess the explanatory power of each added independent variable. The first model is called the empty model. It allows the mean for country j to depart randomly from the overall mean of

Original Article

financial performance by an amountμ_0. It allows to determine how much of the variance in firm performance lies between countries. The null model for firm i in country j is represented as:

$Yij = \beta_{0j} + r_ij$

$\beta_{0j} = \gamma_{00} + \mu_{0j}$ (1)

The first equation represents the first level (firm-level). The indices i, and j denote firm and country, respectively.The variable Y_{ij} is Return on Assetsof the i^{th}firm in the j^{th} country which represents the firm performance. The variable β_{0j} is the fixed effect of the intercept which represents the average of financial performance of country j.

The random variable r_{ij} is the residual for firm i within group j and has a variance σ_{rij} representing the variance associated with the firm-level. The second equation represents the second level (country-level). The β_{0j} is simultaneously modeled as an outcome varying randomly around countries mean. The value of the variable $\gamma_{00}$is the same as the value of β_{0j} .The random variable μ_{0j} is the error which represents the country performance differences and $\sigma_{\mu 0j}$ is the variance at the country-level.

The second modelinvolves incorporating firm-level independent variables but allowing the intercepts to vary across countries as shown in model 2 below:

$Y_{ij} = \beta_{0j} + \beta_1 Age_{ij} + \beta_2 Standard_{ij} + \beta_3 Size_{ij} + \beta_4 Liquidity_{ij} + r_{ij}$

$\beta_{0j} = \gamma_{00} + \mu_{0j}$ (2)

Where γ_{00} is the fixed intercept; β_1, β_2, β_3,and β_4 are the fixed slopes which represent the average effect of the variables Age, Standard, Size and Liquidity respectively on the financial performance across the sample of firms; The variabler_{ij} , or its variance σ_{rij} represent the residual variance, not explained by the three firm-level independent variables added to the empty model.

A comparison of the value of -2*log-likelihood in this model and in the empty model helps in evaluating the explanatory power of the introduction of Age, Standard, Size and Liquidity in the model. -2*log-likelihood represents the unexplained variation in financial performance. A chi-squared test is used to test whether the variance differences between the two models is statistically significant or not.The third model involves incorporating the betweencountries independent variables to predict between-countries variation in the intercepts. Country-level predictive modelexplains how differences in country variables may influence firm financial performance within each country.

$Yi_j = \beta_{0j} + \beta_1 Age_{ij} + \beta_2 Standard_{ij} + \beta_3 Size_{ij} + \beta_4 Liquidity_{ij} + r_{ij}$

$\beta_{0j} = \gamma_{00} + \gamma_{01} GDP_j + \gamma_{02} Inflation_j + \gamma_{03} Developed_j + \gamma_{04} HDI_j + \gamma_{05} Trade_j + \mu_{0j}$

Where $\gamma_{01,02,}\gamma_{03,}\gamma_{04} and \gamma_{05}$ are the regression coefficients for the country-level independent variables. Again a comparison of the value -2 of*log-likelihood in this model and in model 2 helps in evaluating the explanatory power of the introduction of the between-countries independent variables in the model.

4. Empirical Results and Analysis

The results of the HLM is displayed in this section. Three main tests are conducted. The first is the empty model to compute the ICC, the within-country analysis as firm-level (level 1) and the between-country analysis as country-level (level 2). The variation of the study variables is decomposed into level 1 and level 2.

4.1Two- level random intercept null model (model 1)

Table 4reports -2 Log Likelihood which enables the comparison between two successive models to assess the explanatory power of each added independent variable. The unexplained variation in performance in model 1(empty model) equals 334654.978 while in model 2equals313171.014 reduced by 21483. The chi-square test shows that this difference is statistically significant at 0.01 level. This means that there is a

Original Article

significantimprovement of model fit after incorporating firm-level variables. Moreover, the unexplained variation in the model 3 is 313040.410, reduced by 130.604. The chi-square test shows that this difference is significant at 0.01 level. This means that there is a significantimprovementof model fit after incorporating country-level variables.

Table 5 reports the fixed effect estimates in the model. The average firm performance in 54 countries is estimated as -.069889. It is significant at 0.1 level.

Table 4: Information Criteria

	Model 1	**Model 2**	**Model 3**
-2 Log Likelihood	334654.978	313171.014	313040.410
Akaike's Information Criterion (AIC)	334660.978	313185.014	313064.410
$\chi 2$	CPROBABILITY	Sig.	
Difference between Model 1 and 2	21483.964	0.00000	
Difference between Model 2 and 3	130.604	$3.0227e^{-030}$	

Table 5: Estimates of Fixed Effects

Parameter	Estimate	Std. Error
ntercept	-.069889*	.037342

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

Table 6 reports the variance composition. The total variance equals 1.023, the variation of the residual in level 1 that lies between firms ($\sigma^2_{r_{ij}}$) is .949695and that lies between countries ($\sigma^2_{\mu_{0j}}$) equal .073650. Both parameters are significant which means that there is a significant variation in performance across both firms and counties. The Intraclass correlation coefficient (ICC) is used to determine whether there is a significant clustering of observations within countries. It helps in determining whether the financial performance variability is explained more by the country or firm-level performance variations. It can be stated as the ratio of variance that exists between countries to total variance. The higher the ICC, the higher the variability in firm performance between countries. The level of the ICC is preferred to be greater than 0.05 or there would be little benefit from conducting HLM (Heck et al., 2013).

$$\rho = \frac{\sigma^2_{\mu_{0j}}}{\sigma^2_{r_{ij}} + \sigma^2_{\mu_{0j}}} = \frac{.073650}{.949695 + .073650} = .072$$

This means that 7.2% of the total variation in firm performance lies between countries (level 2). In other words, there may be countries-related variables that help to explain variation between countries in the performance of firms. In addition, the proportion of firm performance variance explained by level 1 is greater than that explained by level 2. This finding indicates the existence of firm and country-level effects and supports the first and second hypothesis which state that firm performance varies significantly across countries and that firm-level effects explain the variation in performance better than the country-level effects. Previous studiesshow that firm effects are dominant (Brito, 2006, Pereira Moliner et al., 2011, Ketelhöhn and Quintanilla, 2012, Hirsch and Hartmann, 2014).

Original Article

This study provides reasonable agreement with the resource-basedview which is supported bySchiefer et al. (2013) and Hirsch et al. (2014). Our results are different from the ones obtained by Hawawini et al. (2004),Chen (2010) and Goldszmidt et al. (2011) who find that country effect is dominant. Such differences may be due to different sample and statistical method.

Table 6: Estimates of Covariance Parameters

Parameter		Estimate	Std. Error
Residual		.949695*	.003878
Intercept [subject = Country]	Variance	.073650*	.014518

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

4.2 Firm-level random intercept multilevel model (model 2)

The second model involves incorporating level 1 variables but allowing the intercepts to vary across countries. Table 7 showsthe estimates of the fixed-effects coefficients. The regression coefficient for Age indicates a negative and significant predictive relationship between firm age and performance within countries. This can be interpreted as, for every one standard deviation increase on firm age, there is a predicted decrease of 0.049 points on financial performance assuming other variables are held constant. Additionally, accounting standards adopted by firms significantly affect their performance. The change from local GAAP to IFRS increases financial performance while holding all other variables constant. The firm size and liquidity positively affect firm performance.These results support the third hypothesis of this study that there is a significant relationship between firm-level characteristics and financial performance.This result is in line with the results of many studies such asYazdanfar and Öhman (2014) who find that firm performance is lower for older firms compared to their younger counterparts. Moreover, Hirsch et al. (2014) explain that older firms exhibit slower growth and outdated assets.Similarly,other studiesfind that firm size significantly affect financial performance(Misangyi et al., 2006, Chaddad and Mondelli, 2013). According to Zouaghi et al. (2017),firm size significantly affectperformanceas larger firms have astronger bargaining power over suppliers and have more market.

Table 7: Estimates of Fixed Effects

Parameter	Estimate	Std. Error	df
Intercept	-1.926694*	.045042	123.255
Age	-.049217*	.003239	118629.488
[Standard=0]	-.048845*	.011592	83289.079
[Standard=1]	0[b]	0	.
Size	.236525*	.003174	118471.273
Liquidity	.342081*	.002738	118867.964

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

Table 8 shows that the variation of the residuals in the firm-level ($\sigma^2_{r_{ij}}$) decreases from 0.949695in the empty model to 0.814426 in firm-level model. This suggests that firm-level independent variables accounts for about 14.2% ((.949695 -.814426)/ .949695) of the between firms variability in financial performance. However, firm-level variation is still significant, which means that although the independent variables used in this study have explained part of the variation, but there are more variables still needed to explain more variation.

Table 8: Estimates of Covariance Parameters

Original Article

Parameter		Estimate	Std. Error
Residual		.814426*	.003341
Intercept [subject = Country]	Variance	.070328*	.013938

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

4.3 Country-level random intercept multilevel model (model 3)

The third model involves incorporating level 2 independent variables to account for the variation between countries. Firm attributesaffect performance to a greater magnitude than country. However, country effects are large enough that they should not beignored and account for nearly 7.2% of the variation in ROA. Thus, animportant implication of this study is that managers, analysts, and researchers should furtherexamine the country effects on financial performance. Table 9 displays the results for the country-levelmodel with country-specific variables (GDP per capita, inflation rate, development status, human development index, and country openness to trade). The intercept is significant and can be interpreted as the average firm performance in countries adopting IFRS (since the reference is IFRS and coded 1) is -1.932317. Regarding the country-level independent variables, controlling for the other independent variables in the model, it is found that country development status, GDP per capita and inflation rate do not affect firm performance. This shows that the economic and development status of any country does not affect the firm financial performance within this country. On the other hand, the regression coefficient for HDI indicates a negative and significant predictive relationship between HDI and performance. This can be interpreted as for every one standard deviation increase on country HDI, there is a predicted decrease of -.150636units on firm performance.

This shows that firms in the countries that have the least human development have the opportunity to achieve higher gains. Moreover, there is a positive and significant predictive relationship between country openness to trade and financial performance. This means that the more the country relies on international trade, the higher the firm financial performance within this country. The results provide evidence that country social and national status affect the firm performance which supports the fourth hypothesis of this study that thereis a significant relationship between country-level characteristics and firm financial performance. It is consistent with McGahan and Victer (2010) study who find that home-country and industry effects are significantly affecting domestic firm performance. They find that country openness to trade and social variables such as uncertainty avoidance and individualism significantly affect performance variation.Moreover,Hawawini et al. (2004) find that countries social systems may influencefirmperformance.

Table 9: Estimates of Fixed Effects

Parameter	Estimate	Std. Error
Intercept	-1.932317*	.059694
Age	-.047465*	.003240
[Standard=0]	-.050152*	.011584
[Standard=1]	0[b]	0
Size	.236708*	.003172
Liquidity	.342515*	.002737

Original Article

GDP	.011920	.016434
Inflation	-.005044	.006504
[Developed=0]	-.065694	.078897
[Developed=1]	0[b]	0
HDI	-.150636*	.023746
Trade	.054642*	.013572

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

Table 10 shows that the variation of the residuals in the country-level ($\sigma_{\mu}{}^{2}{}_{0}$) decreases from .073650 in the empty model to .060973 in country-level model. This suggests that country-level independent variables accounts for about 17.2% ((.073650 -.060973)/ .073650) of the between countries variability in financial performance. However, country-level variation is still significant, which means that although the independent variables used in this study have explained part of the variation, but there are more variables still needed to explain more variation.The result is consistent with previous findings since firm variance continue to be the dominant (Brito, 2006, McGahan and Porter, 2002, Misangyi et al., 2006).

Table 10: Estimates of Covariance Parameters

Parameter	Estimate	Std. Error
Residual	.813583*	.003338
Intercept [subject = Country] Variance	.060973*	.012183

*The symbols * indicates a significant difference from 0 at the 0.01 level.*

5. Conclusion

This study extends the literature that focuses on of firm performance by investigating firm and country effects across 54 countries. Previous research results have been criticized by conflicting results and characteristics of the statistical methods previously used, and thus new methods have been sought. HLM is employed as an alternative assessment to examine the relative importance of firm and country-level characteristics and the explanation of performance variance with variables specified at each level. The results of this study support the resource-based view logic. With regard to the assessment of the relative importance of firm and country-level characteristics, the results suggest that the relative importance of firm-level characteristics far outweighs those of country-level and that both levels significantly affect firm performance. Therefore, the study sheds the light on the need for industrial managers to recognize, compile and strength the internal resources andcapabilities of their firms to enhance their performance levels and competitiveness. Additionally, firm size, liquidity, firm age and accounting standards applied significantly explain variance in performance across firms while human development index and country openness to trade significantly explain variance in performance across countries.

Given the consistency of the results with previous studies, and because they recognize the cross-nested nature of performance variance, the results of this study complement previous studies and contribute to bringing some closure to the ongoing debate. The results also focus attention on the importance of the total variance in firm performance which occurs across different levels and thus may be explained by determinants that vary over time. In addition, the results also show that the choice of host country is essential in determining firm performance. Several limitations of this study must be pointed. The firstrelates to the economic sector, only the industrial sector is studied, further studies could explore new economic sectors.

The secondrelates to the countries, only 54 countries are studied, further studies could explore other countries. The thirdrelates to the levels, only two levels are studied, more levels could be includedin the HLM as industry.

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Finally, additional variables could be introduced to explain more firm and country-level variation and thus detect what drives firm performance.

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