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ARTICLE

Decomposing Firm Performance in Emerging Markets: The Difference Between Growth and Profit

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Abstract
This study adopts the resource-based view (RBV) to explain the difference in firm profit and growth determinants. We argue that profit is driven more by valuable, rare, inimitable, and non-substitutable (VRIN) resources, and growth is driven more by versatile resources. Since some versatile resources, such as cash, are less firm-specific, the firm effect is more critical in determining profit than growth. We also expect that emerging market firms are more capable of utilizing versatile resources than developed market firms, and developed market firms are more capable of utilizing VRIN resources than emerging market firms. As a result, the determinants of firm performance also differ between emerging and developed markets. The study employs multilevel mixed models to decompose firm performance in US, Chinese, and global samples. The findings confirm that the firm effect is more important in influencing profit than growth, persisting across all three samples. The firm effect is also more important in influencing performance in developed countries than in emerging markets.

摘要
本研究采用资源基础观（RBV）来解释企业利润和增长决定因素的差异。我们认为，利润更多地由有价值的、稀有的、不可模仿的和不可替代的（VRIN）资源驱动，而增长更多地由多功能通用资源驱动。由于一些多功能通用资源，如现金，并不是企业所特有的，因此企业效应在决定利润方面比决定增长方面更为关键。我们还预计，新兴市场国家企业比发达国家企业更有能力利用多功能通用资源，而发达国家企业比新兴市场国家企业更能利用VRIN资源。因此，新兴市场国家和发达国家企业业绩的决定因素也有所不同。本研究运用多级混合模型来分解美国、中国和全球样本的企业绩效。研究结果证实，企业效应在影响利润方面比影响增长方面更为重要，这一结论在三个不同样本中都存在。企业效应对新兴市场国家企业业绩的影响，比对发达国家企业业绩的影响更为重要。

Keywords: emerging markets; firm performance; RBV; variance decomposition; versatile resources

摘要: 关键词; 企业绩效; 方差分解; 新兴市场; 资源基础观; 多功能通用资源

Introduction

Understanding the determinants of firm performance has been a central theme in strategy research, and scholars have applied various factors and methods to decompose its variance across firms. Following Schmalensee's (1985) seminal work, many studies have examined the relative importance of business unit, corporate, and industry effects on firm profits (Guo, 2017; Hough, 2006; McGahan & Porter, 1997; Rumelt, 1991). Based on decades of empirical findings, there is a consensus that the business unit explains the most profit variance, while corporate, industry, and year effects are relatively minor (Vanneste, 2017). Scholars relate these results to the significance of resources and capabilities in determining firm profits, which aligns with the resource-based view (RBV) (Barney, 1991; Montgomery & Wernerfelt, 1988).

There are three shortcomings in this literature. First, strategy scholars seem to treat firm growth and profit as interchangeable performance goals in studying the determinants of firm performance (McGahan & Porter, 1997; Rumelt, 1991). One implicit assumption in this stream of literature is that the determinants of firm profit and other performance measures are the same. Thus, previous studies considered a single performance measure of profitability (Guo, 2017; Misangyi, Elms, Greckhamer, & Lepine, 2006; Rumelt, 1991; Wang, 2023) and rarely examined alternative performance measures, including firm growth. However, firm profitability and growth are different strategic orientations, and pursuing one would not guarantee the other (Zhou & Park, 2020). Profit and growth would be positively related if their determinants were the same. But research exploring the relationship between growth and profit shows that their relationship is often equivocal and complex. While some studies found a positive relationship (Brush, Bromiley, & Hendrickx, 2000), others found a negative relationship (Reid, 1995). Others still found a nonlinear relationship (Serrasqueiro, Macas Nunes, & Neves Sequeira, 2007) or a random relationship (Geroski, Machin, & Walters, 1997). The complexity of the relationship suggests that the determinants of firm growth may differ from those of firm profit. Meanwhile, growth is an important strategic goal, especially in emerging markets, broadly defined as 'countries undergoing fast-paced turbulent changes as a result of economic liberalization, rapid industrialization, and increased integration into the global economy' (Marquis & Raynard, 2015: 293). Fast growth is one of the defining characteristics of emerging markets. Numerous market opportunities create an underlying imperative for firms to pursue growth or risk losing out to other faster-growing firms in attractive critical external resources (Chen, Zou, & Wang, 2009). Thus, it is imperative to understand the determinants of firm growth, especially in an emerging market context.

Second, scholars overlooked the difference between Barney's and Penrose's arguments about firm resources. While Barney (1991) emphasized the role of valuable, rare, inimitable, and non-substitutable (VRIN) resources, Penrose (1959) focused on the role of versatile resources to explain firm growth. Versatile resources refer to resources that offer a broad range of potential services (Penrose, 1959). The current research on the RBV primarily focused on VRIN resources and assumed that growth and competitive advantages are concomitant (Nason & Wiklund, 2018), leaving versatile resources less examined. However, their impact on firm performance is different. Compared to VRIN resources, versatile resources could explain a broader range of growth and are less directly related to profits. In a meta-analysis, Nason and Wiklund (2018) found that versatile resources are associated with higher growth, but VRIN resources are not. Consistent with RBV, which primarily focused on VRIN resources, the literature on decomposing firm performance has not fully considered the differences between these two types of resources and how they influence firm performance differently.

Third, despite the vast literature on decomposing firm performance, there is still little understanding of the determinants of performance in emerging markets. Most studies focused on US firms, utilizing US Compustat data (Guo, 2017; McGahan & Porter, 1997; Schmalensee, 1985; Wang, 2023). Although some studies applied data from multiple countries, they emphasized that country matters in determining firm profitability (Makino, Isobe, & Chan, 2004; McGahan & Victer, 2010) and not necessarily exploring the peculiarities of emerging markets. There remains an empirical question of whether the US-based findings would hold in emerging markets (Hoskisson, Eden, Lau, & Wright, 2000).

In this study, we address these shortcomings and explain how the determinants of growth differ from those of profit. While VRIN resources determine competitive advantages and thus are more related to firm profit than growth, versatile resources are more related to firm growth than profit (Nason & Wiklund, 2018). Since some versatile resources, such as cash, are less firm-specific (Kim & Bettis, 2014), firm-level factors play a less critical role in determining firm growth than profit. Moreover, we explore the relative importance of different components of firm performance in emerging markets and compare the results with those in developed markets. In particular, we argue that the firm effect is more important in developed countries than in emerging markets since firms in developed countries are more capable of utilizing VRIN resources, and firms in emerging markets are more capable of utilizing versatile resources (Luo & Child, 2015; Peng, Lebedev, Vlas, Wang, & Shay, 2018).

We conducted our analyses in three stages. In Stage 1, we used the same research design and sample (US firms from 1981 to 1994) as McGahan and Porter (1997). Then, we changed the variance

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component analysis method, considered firm growth as the performance measure, and extended the period to 1995–2012. In Stage 2, we first replaced the US sample with a sample of 523,172 Chinese firms from 1995 to 2012. Then, we added ownership identity and region as determinants to reflect the characteristics of emerging markets. In Stage 3, we used a sample of 39,264 global firms from both emerging and developed markets for 1995–2012 and compared the determinants of firm performance between emerging markets and developed countries. The findings show that the firm effect is more critical in determining profit than growth and influencing firm performance in developed countries than in emerging markets.

This study thus tries to make three contributions to the literature on decomposing firm performance. First, the study advances our understanding of the determinants of firm growth. It explains how and why firm growth and profit have different determinants, which questions the conventional practice of treating them as substitutes for firm performance. Pursuing profits would not automatically lead to firm growth and vice versa. Firms thus need to carefully balance the pursuit of growth and profit to ensure sustainable growth in the long run (Zhou & Park, 2020). Second, by focusing on the difference between VRIN and versatile resources, we advance our understanding of how different types of resources influence important performance goals such as firm profit and growth. Previous studies rarely distinguished between Penrose's and Barney's arguments on firm performance (Nason & Wiklund, 2018). Our study verified the different impacts of versatile and VRIN resources on firm growth and profits by comparing the relative importance of the firm effect. Third, our study empirically validates that firm performance determinants differ in developed countries and emerging markets. While previous studies primarily focused on firms from developed countries, this study considers the unique characteristics of emerging markets that affect firm strategy and performance. Our findings caution against blindly applying business practices between developed and emerging markets.

Decomposing Firm Performance

There is an ongoing debate in the literature concerning the extent to which business, corporate, and industry factors explain variance in firm performance (Karniouchina, Carson, Short, & Ketchen, 2013; McGahan & Porter, 1997; Roquebert, Phillips, & Westfall, 1996; Rumelt, 1991). Industrial organization (I.O.) theorists argue that a firm's performance is determined mainly by the industry in which it operates (Hall & Weiss, 1967; Porter, 1980; Scherer & Ross, 1990), with the industry being the primary source of performance variance. Alternatively, the RBV suggests that diversity in firms' resources and capabilities determines firm performance (Barney, 1991; Montgomery & Wernerfelt, 1988; Wernerfelt, 1984), which supports the business unit as the primary source of performance variance.

Several studies have endeavored to delineate the relative importance of business, corporate, and industry factors in determining firm performance (see Vanneste (2017) for a detailed review). Previous studies show that industry effect ranges from 1 to 20% of the variance in firm performance, while business unit effect ranges from 20 to 40%. For example, McGahan and Porter (1997) found that business and industry factors accounted for 32 and 19% of the total variance, respectively. Other studies replicated similar results, leading to a consensus that business is a more significant factor than the industry in explaining performance variance. In a meta-analysis using 18 samples from 16 studies, Vanneste (2017) found that industry accounts for 8%, corporate accounts for 14%, and business accounts for 36% of the total variance.

Besides industry, corporate, and business segment effects, scholars also examined other factors that explain firm performance, including ownership form (Fitza & Tihanyi, 2017; Xia & Walker, 2015), CEO or board membership (Krause, Li, Ma, & Bruton, 2019; Quigley & Hambrick, 2015), business group (Chang & Hong, 2002; Sharapov, Kattuman, Rodriguez, & Velazquez, 2021), country (Hermelo & Vassolo, 2012; McGahan & Victer, 2010; Tong, Alessandri, Reuer, & Chintakananda, 2008), and alliance network (Kumar, Liu, & Zaheer, 2022). Previous studies focused mainly on US firms and utilized the Compustat data, while some have considered other countries, including Korea (Chang & Hong, 2002), Japan (Makino et al., 2004), and Sweden (Short, McKelvie, Ketchen, & Chandler, 2009). The discrepancy in results is minimal across different country samples. Few studies have focused on emerging

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markets to explore the determinants of performance variance. One exception is Xia and Walker (2015), which found that ownership type significantly impacts firm performance and interacts with geography and time in a sample of Chinese manufacturing firms from 1998 to 2007.

In previous studies, firm profits, namely return on assets (ROA), has been the primary performance measure. However, ROA faces its limitations (Hawawini, Subramanian, & Verdin, 2003). For example, it does not account for the cost of capital and fails to adequately explain the value created in a firm. Some studies applied alternative performance measures, including Tobin's Q (Wernerfelt & Montgomery, 1988), market share (Chang & Singh, 2000), return on sales (Makino et al., 2004), growth option value (Tong et al., 2008), economic profit, and book-to-market value (Hawawini et al., 2003), to overcome the limitations of ROA. However, given similar results across different performance measures, the field has adopted ROA as a gold-standard performance measure in decomposing performance variance. Studies have hardly considered growth as a performance measure, except for Short et al. (2009), who used growth to examine the performance of new ventures in Sweden. Using hierarchical linear modeling, they found that firm factors are much more important than industry factors in explaining growth variance in new ventures and established firms.

There has also been a debate on how to conduct the analysis or what method to use to decompose performance variance. Studies have adopted different parametric approaches, starting with the analysis of variance (ANOVA) (Rumelt, 1991; Schmalensee, 1985) and component-of-variance (COV) analysis (Makino, Lau, & Yeh, 2002; McGahan & Porter, 1997). Although these methods exhibit desirable strengths, such as showing the relative importance of different factors, they suffer from critical limitations; for example, they are limited in handling random year and interaction effects (Guo, 2017). Later studies (Guo, 2017; Hough, 2006; Misangyi et al., 2006) have applied multilevel modeling (MLM) to overcome these limitations. MLM can better handle cross-classified factors and interactions, estimate unbalanced data efficiently, and allow for categorical and continuous variables.

In sum, previous studies generally present consistent findings on different determinants of firm performance, regardless of research method, sample, country, and modeling. While the findings remain consistent across different performance measures, there is still a lack of understanding of the determinants of growth variance across firms. Moreover, revisiting these issues in emerging market contexts is necessary while incorporating their unique characteristics. This would lead to new insights into firm performance and improve the overall understanding of the determinants of performance variance.

Firm Resource and Performance

The RBV is a dominant theory explaining firm profits and growth (Barney, 1991; Penrose, 1959). Although both Penrose (1959) and Barney (1991) highlighted the role of firm resources in determining growth, they focus on different types of resources. Penrose (1959) argued that excess and versatile resources lead to firm growth. Versatile resources refer to resources that offer a broad range of potential services (Penrose, 1959). As Penrose (1955: 539) posits, 'It becomes clear that the flexibility and versatility of its resources are the important factors governing the possibilities of its expansion. As long as profitable production opportunities are available anywhere in the economy, a firm can take advantage of them if its resources are versatile'. The redeployment of versatile resources enables firms to pursue new applications for the resources, thus pushing for growth.

Barney (1991) argued that VRIN resources lead to sustained competitive advantage and, thus, long-term above-average returns. VRIN resource is directly related to firm competitiveness and thus profitability. VRIN resources could also explain firm growth because firms could exploit VRIN resources in related areas and thus achieve growth consistent with the logic of related diversification (Markides & Williamson, 1994).

Comparing VRIN resources and versatile resources, we can see that there are overlaps between the two. There are two types of versatile resources: tradable between firms and deployable within a firm (Nason & Wiklund, 2018). The former includes cash, commodities, and generic human resources (Kim & Bettis, 2014; Mishina, Pollock, & Porac, 2004). The latter includes uniquely developed resources with a broader range of use, such as brands and technologies (Anand & Delios, 2002; Danneels, 2002). While the latter type of versatile resources is similar to VRIN resources, the former

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type is not. Meanwhile, not all VRIN resources can be applied to a broad range of areas, such as specific technical knowledge of employees. The combination of versatile and VRIN resources could help a firm achieve sustained high performance.

This study focuses on the difference between VRIN and versatile resources. In particular, their impact on firm performance is different. Versatile resources can explain a broader range of growth than VRIN resources. Versatile resources that are easily tradable among firms, such as cash, could drive firm growth by offering a wide range of potential use in related and unrelated areas. Moreover, since versatile resources have lower transaction costs than VRIN resources, they enable firms to quickly shift their growth strategy to pursue opportunities in external environments (Nason & Wiklund, 2018). On the contrary, VRIN resources only explain a small range of growth paths a firm could pursue (exploiting VRIN resources in current and related areas) (Barney, 1991). As a result, versatile resources are more relevant than VRIN resources in explaining firm growth. In a meta-analysis of 113 studies from 1987 to 2011, Nason and Wiklund (2018) found that versatile resources considerably impact firm growth more than non-versatile resources, but it does not matter for growth whether a resource is VRIN or not.

While versatile resources are more relevant in influencing firm growth, VRIN resources are more relevant in influencing firm profit. The core argument of RBV is that VRIN resources create competitive advantages and, thus, above-average returns (Barney, 1991; Wernerfelt, 1984). Versatile resources, especially those tradeable among firms, do not necessarily generate competitive advantages and are thus weakly related to firm profit. Compared to VRIN resources, versatile resources, especially those tradeable among firms, such as cash, are less firm-specific. Therefore, we expect the firm effect to influence firm profit than growth substantially.

Firm Growth in Emerging Markets

The Importance of Growth as a Performance Measure

There are several reasons why growth serves as an essential measure of firm performance in emerging markets. First, fast macroeconomic growth induces firms to chase growth, and emerging markets exhibit fast economic growth in a short time. Accordingly, firms tend to pay more attention to growth in this economic condition (Zhou, Park, & Ungson, 2013). Given the short history of market reform, many emerging market firms are at the growth stage of their life cycle. Similarly, high economic growth unleashes pent-up market demands, new consumers, and evolving market segments in emerging markets. Much like the treatises of growth in developed economies, the larger size implies market power (Knickerbocker, 1973). As a result, firms face pressure to chase growth, e.g., chasing the 'Red Queen'. Those that fall behind are likely to fall out of the competition.

Second, institutional voids allow firms in emerging markets to grow through product diversification. Filling the institutional voids in market transactions and the labor and capital markets (Khanna & Palepu, 1997), companies act as institutional intermediaries, which justifies pursuing fast, often unrelated, product diversification. Unlike in developed markets, empirical evidence supports benefits from unrelated diversification in emerging markets (Li & Wong, 2003; Ramachandran, Manikandan, & Pant, 2013).

Third, given the early stage of economic growth, emerging markets are underdeveloped and highly fragmented (Poncet, 2005), which presents opportunities for growth through consolidation or integration (Batson, 2007). Markets remain fragmented due to the geographic scope, as in Russia (Berkowitz & DeJong, 2001), or to language and cultural barriers, as in India (Studer, 2008). Studies show that market liberalization, fast economic growth, and improving infrastructure have lifted such intra-country trade barriers and facilitated the development of integrated national markets in Russia (Berkowitz & DeJong, 2003), China (Li, 2010), and India (Nayar, 2010). Emerging market firms face growth opportunities as the fragmented market consolidates and integrates.

Growth is an essential strategic dimension in emerging markets, and firms often prioritize growth over profitability in emerging markets (Park, Zhou, & Ungson, 2013). It is thus imperative that we consider growth, along with profitability, to understand the structure of firm performance in emerging

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markets. Since the three reasons mentioned above that drive growth in emerging markets are not firm-specific but primarily external, we further argue that the determinants of growth in emerging markets should be driven more by external industry effect than internal firm effect.

Comparing Firm Performance in Emerging Markets and Developed Countries

Compared to developed countries, firms in emerging markets still lack VRIN resources. Due to fast growth and the early growth stage, emerging market firms mostly thrive because of country-specific advantages such as low-cost labor rather than firm-specific advantages such as VRIN resources (Bhaumik, Driffield, & Ying, 2016). As a result, they remain weak regarding VRIN resources such as technology (Lu, Huang, Lu, & Zhou, 2007; Luo & Zhang, 2016). Although they have tried hard to climb up the value chain to catch up with developed market firms (Chen, Guo, Guo, & Li, 2022; Jing, Dong, & Shapiro, 2010), they still lack VRIN resources when compared to their developed country counterparts (Rui & Yip, 2008; Zhou, 2022).

On the contrary, firms in emerging markets can utilize versatile resources better than developed countries. Scholars identified that emerging market firms possess 'compositional capabilities' (Luo & Child, 2015; Peng et al., 2018). Composition means 'creatively assembling and integrating the open and generic resources emerging market firms possess or purchase' (Luo & Child, 2015: 389). Compositional capabilities refer to 'the extent to which a firm can synthesize and integrate disparate resources, including the open resources available' (Luo & Child, 2015: 389). Firms from emerging markets are good at creatively combining resources that cannot create competitive advantages when used alone. For example, firms could integrate different resources to cater to differentiated local demands or fill institutional voids in emerging markets (Khanna & Palepu, 1997, 2000). The notion of compositional capabilities is in line with versatile resources, and the usage of versatile resources is broader in emerging markets (Li & Fleury, 2020). The same resources may become more versatile in emerging markets than in developed countries, thus reducing the stickiness of versatile resources to a specific firm in emerging markets (Bhaumik et al., 2016). Compositional capabilities enable firms to combine versatile resources creatively to create value and generate growth in emerging markets (Luo & Zhang, 2016).

To summarize, the impact of VRIN resources in determining firm performance is weaker for firms in emerging markets. In comparison, the impact of versatile resources in determining firm performance is more substantial for firms in emerging markets. Since VRIN resources are more firm-specific than versatile resources, we expect that the firm effect is weaker in explaining performance variance in emerging markets than in developed countries.

Stage 1: Comparing Firm Profit and Growth in the US

This stage examines the determinants of firm profit and growth in one of the largest developed countries, the US. We start by using McGahan and Porter's (1997) study design. This study is influential within this stream of literature, with more than 2,800 Google Scholar citations by November 2022. Many subsequent studies were anchored by this study (Chang & Singh, 2000; Fitza & Tihanyi, 2017; Guo, 2017). We use their sample and method to show the difference in firm performance between profit and growth in the US when we adopt the sample and method used by most prior studies on decomposing firm performance.

Sample and Measures

Like McGahan and Porter (1997), we collected data from the Compustat Business Segment database. We screened the raw data (367,885 observations) according to several exclusion criteria: financial institutions, firms that were the only ones in their industry in a given year, segments with only one year of observations or with assets and sales less than $10 million, and firms with a missing primary SIC code and missing profit data. We also excluded the first year of observations since we applied lagged performance data. The final US sample included 69,483 segments from 13,992 firms from 1981 to 1994. Table 1 presents the screening process and the summary statistics of the data. Although our sample is slightly larger than

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Table 1. Screening and summary statistics of US samples

	McGahan and Porter (1997)		US Sample (1981–1994)		US Sample (1995–2012)	
	Observation dropped	Total observation	Observation dropped	Total observation	Observation dropped	Total observation
Screening process						
Before screening		151,929		367,885		295,996
With missing primary SIC	24,784	127,145	211,846	156,039	5,870	290,126
Financial institutions	15,689	111,456	18,623	137,416	47,728	242,398
Missing profit	0	111,456	3,084	134,332	52,052	190,346
Only firm in an industry	2,529	108,927	2,086	132,246	338	190,008
Segment only one year data	1,433	107,494	4,482	127,764	0	190,008
Sales <10 million	29,077	78,417	35,314	92,450	59,674	130,334
Asset < 10 million	5,675	72,742	6,988	85,462	6,305	124,029
Exclude first year data	14,610	58,132	15,979	69,483	28,497	95,532
Summary statistics						
Segment number	12,296		13,992		15,683	
Industry number	628		831		793	
Corporation number	7,003		7,574		10,161	
Diversified firm number	1,791		2,754		3,281	
Average year per segment	5.7		8.8		10.3	
Mean profit (percent)	9.3		10.1		7.9	
Variance (percent)	248.0		249.3		252.74	

that of McGahan and Porter (1997), the two samples have similar levels of profit and variance. We measured profit as the ratio of operating income to identifiable assets as a percentage.

Following McGahan and Porter (1997), we first reproduced similar results by estimating equation (1) using the COV estimation method

$$\sigma_R^2 = (1+\rho^2)\sigma_r^2 + (1-\rho^2)(\sigma_\alpha^2 + \sigma_\beta^2 + \sigma_\emptyset^2) + 2(1-\rho^2)C_{\alpha\beta} + \sigma_\omega^2, \quad (1)$$

where σ_R^2 is the variance of profit, ρ is the rate of persistence, σ_r^2 is the population variance of year, σ_α^2 is the variance of industry, σ_β^2 is the variance of corporate parents, $\sigma_\emptyset^2$ is the variance of the segment, $2C_{\alpha\beta}$ is the population covariance between industry and corporate effects, and σ_ω^2 is the variance of error. Equation (2) generates t rate of persistence ρ as follows:

$$r_{i,k,t} = \rho r_{i,k,t-1} + (1-\rho)\mu + \gamma_t - (1-\rho)\gamma_{t-1} + (1-\rho)\alpha_i + (1-\rho)\beta_k + (1-\rho)\emptyset_{i,k} + \omega_{i,k,t}, \quad (2)$$

where $r_{i,k,t}$ is the accounting profit in year t of the corporate parent k's business in industry i, μ is the average profit over the entire period for all business segments, γ_t is the difference between μ and the average profit of all business segments in year t, α_i is the increment to profit associated with participation in industry i, β_k is the increment to profit due to membership in a diversified corporate parent k, $\emptyset_{i,k}$ is the increment to profit associated with the specific situation of the corporate parent k's business segment i given other factors, and $\omega_{i,k,t}$ is the error term.

Results

The results are summarized in Table 2. Model 1 shows McGahan and Porter's (1997) original results, broadly consistent with our results of replication (Model 2). In Model 3, we applied MLM estimation instead of COV. We used the lmer function in the lme4 package for R, which provides various functions to fit and analyze linear mixed models, generalized linear mixed models, and nonlinear mixed models (Bates, Machler, Bolker, & Walker, 2014). The model estimation followed the restricted maximum likelihood method. Model 3 explains almost 80% of the total variance, compared to around 50% in Model 1. Accordingly, all factors except the segment explained more variance than before, with the industry effect increasing from 18.68 to 29.07%, corporate effect from 4.33 to 11.44%, and year effect from 2.39 to 9.21%. Segment, however, decreased slightly from 31.71 to 27.46%. The increase in the year effect is consistent with the findings of Guo (2017), which showed that the year effect increases in the MLM estimation.

Next, we added industry interactions with year and corporate parent. The results of Model 4 in Table 2 show an interaction effect only between year and industry, at 11.38%. Compared with the results in Model 1, the significant differences were the increase in year effect (from 2.39 to 12.68%) and the interaction between industry and year. Comparison with the results of Model 3 implies a potential dynamic effect, the changing roles of industry over time.

We then extended McGahan and Porter (1997) by changing the dependent variable to sales growth (Models 5–7 of Table 2). We first used COV and the independent variables McGahan and Porter (1997) used, with the results summarized in Model 5 of Table 2. Compared with Model 2, the corporate effect was larger (4.90 vs. 9.45%), while the business segment effect (30.89 vs. 28.55%) was smaller.

Next, we used MLM to estimate the same model; the results are summarized by Model 6 of Table 2. Compared with the results of Model 3, the segment effect decreased from 27.46 to 18.68%. Following Quigley and Hambrick (2015), we conducted Fisher's Z-test to test the variance difference (Fisher, 1915). The tests suggest significant differences in the segment effect between Model 3 and Model 6 (P-value < 0.000). The differences suggest that firm-specific factors are less critical in driving sales growth than profitability for US firms.

Finally, we added the year's interaction terms with industry and corporate parent. The results are shown in Model 7 of Table 2. Similar to the results of Model 4, only the interaction between industry and year was substantive, at 11.36%. Compared with the results of Model 4, we found a consistent result that the segment played a less critical role in driving growth (23.92%) than profit did (28.48%) ($p < 0.000$).

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Table 2. Results using US samples

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Sample	McGahan and Porter (1997)	US Sample (1981–1994)						US Sample (1995–2012)	
Dependent variable	ROA	ROA	ROA	ROA	Sales growth	Sales growth	Sales growth	ROA	Sales growth
Method	COV	COV	MLM	MLM	COV	MLM	MLM	MLM	MLM
Variance components (Percent of total variance)									
Year	2.39	2.58	9.21	12.68	3.17	18.73	14.92	11.05	11.37
Industry	18.68	19.21	29.07	17.41	19.01	20.66	15.31	9.38	10.54
Corporate parent	4.33	4.90	11.44	11.52	9.45	20.82	16.18	18.41	20.38
Segment specific	31.71	30.89	27.46	28.48	28.55	18.68	23.92	33.67	27.70
Corporate parent-industry covariance	−5.51	−4.72	0.00	0.06	0.01	0.00	0.02	0.08	0.07
Industry-year	/			11.38			11.36	12.01	11.98
Corporate parent-year	/			0.06			0.29	0.05	0.21
Error	48.4	47.14	22.82	17.67	39.81	21.11	18.00	15.35	17.75
Total	100	100	100	100	100	100	100	100	100

In the next stage, we also analyze data from 1995 to 2012 for the same period for the US and Chinese samples. The results are summarized in Models 8 and 9 of Table 2. We find a consistent difference in the role of the segment in determining growth (27.70%) and profit (33.67%) ($p < 0.000$).

To summarize, the analyses using the US sample highlight a few points. First, even for the US sample, the determinants of profit and sales growth differ: segment or firm effect is more critical in driving profit than growth. Therefore, we should not treat sales growth and profit as interchangeable performance measures, requiring a separate investigation for sales growth. These results could be driven by the different types of resources driving profit and growth. Second, the results of our US sample are broadly consistent with previous studies, except for the absence of substantive corporate–industry interaction in previous studies. The year effect was much larger when we adopted the MLM technique. This finding is consistent with Guo (2017), who also found a larger year effect using the MLM technique. Lastly, the results show that the research method matters in analyzing performance variance. The MLM technique can reflect the dynamic effect better while substantially improving the total explained variance (e.g., around 80% for MLM and 50% for COV against profit).

Stage 2: Performance Variance for Chinese Firms

This stage examines the determinants of both firm profit and growth in one of the largest emerging markets: China. We employed the same method as the first stage but with a different sample. We intend to show that the difference between profit and growth determinants persists in emerging markets. We include ownership identity as a determinant because previous studies have shown that it influences firm performance (Fitza & Tihanyi, 2017; Xia & Walker, 2015). We also include the region as a determinant because previous studies have shown considerable intra-country variance in large emerging markets such as China (Cole, Elliott, & Zhang, 2009; Zhong, Lin, Gao, & Yang, 2019). Such differences in external environments also influence firm performance (Xia & Walker, 2015). The region indicates the province where a firm is located.

Sample and Measures

The Chinese firm data is from the Database of Industrial Firms (DIF) compiled annually by the Chinese National Bureau of Statistics, including 4,743,693 manufacturing firms from 1995 to 2012. Because of the comprehensive coverage of the dataset, previous studies have used it to explore various issues, such as the impacts of market liberalization (Park, Li, & Tse, 2006), competition (Chang & Xu, 2008), and also performance variance decomposition (Xia & Walker, 2015).

We screened the raw data following the same procedure we did for the U.S. sample. The final sample included 2,554,996 observations from 523,172 firms from 1995 to 2012. This is much larger than the typical sample in previous studies, which generally included less than 100,000 observations. The sample covered 821 industries over 18 years. The average ROA was 10.17%, and the variance was 575.72%. The profit level was similar to the US sample, but Chinese firms have a much higher variance in profit and show high volatility.

The Chinese dataset provides information on the ownership identity of each firm. The most representative ownership identity was private limited liability firms, which accounted for about one-third of the total firms. State-owned businesses accounted for 6.2% of the total observations. Joint ventures with Hong Kong (H.K.), Macau, Taiwan, and foreign firms accounted for about 10%. Foreign firms, including H.K., Macau, and Taiwan, account for about 12%. The left side of Table 3 summarizes the distribution of ownership identities in the Chinese sample.

Results

We first estimated McGahan and Porter (1997)'s model using the Chinese sample and MLM. The results are summarized in Model 1 of Table 4. Because the Chinese data did not include segment-level data, we only had the firm effect, which combines corporate and segment effects.

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Table 3. Ownership identities in Chinese and global samples

Chinese sample		Global sample	
Ownership identity	%	Ownership identity	%
Private limited liability company	32.38	Corporate	82.22
Other limited liability company	14.79	One or more named individuals or family	7.92
Sole private firm	9.32	Public authority, State, Government	3.48
State-owned business	6.20	Financial company	2.37
Sole proprietorship of H.K., Macau, or Taiwan firms	5.75	Mutual & Pension Fund/Nominee/Trust	1.97
Sole proprietorship of foreign firms	5.72	Private equity firms	0.58
Collectively owned enterprises	5.41	Bank	0.57
Joint venture with foreign firms	4.89	Foundation/Research Institute	0.47
Joint venture with H.K., Macau, or Taiwan firms	3.97	Insurance company	0.27
Corporation	2.85	Employees/Managers/Directors	0.08
Joint-equity cooperative enterprises	2.16	Venture capital	0.05
Private corporation	1.79	Hedge funds	0.01
Private partnership	1.77		
Cooperative venture with H.K., Macau, or Taiwan firms	0.65		
State-owned limited liability company	0.56		
Cooperative venture with foreign firms	0.53		
Other	0.39		
State and collectively joint-run business	0.16		
Foreign-invested corporation	0.16		
HK, Macau, or Taiwan-invested corporation	0.15		
Collectively owned joint-run business	0.12		
Limited liability company	0.09		
State-owned joint-run business	0.08		
Other joint-run business	0.08		

Next, we added ownership identity and region as explanatory variables in Model 2 of Table 4. Ownership accounted for 12.19% of the total variance, and the region accounted for 7.87%. Ownership identity and region are important factors in explaining performance variance in China. In Model 3, we added the interaction between year and other independent variables. The interaction between industry and year accounted for 10.25% of the total variance, similar to the US sample results. The interaction between ownership identity and year accounted for 9.11% of the total variance, and the interaction between ownership identity and year accounted for 4.39%.

We then changed the dependent variable to sales growth and found similar results, as summarized in Models 4–6 of Table 4. Again, ownership identity accounted for 14.38% of the total variance, and region accounted for 9.43% of the total variance when entered in Model 5. In Model 6, ownership identity and its interaction with year accounted for 23.71% of the total variance, and region and year interaction accounted for 12.07% of the total variance. The results support the argument that ownership identity and region matter in determining firm growth in emerging markets.

The analyses using the Chinese sample suggest several points. First, the firm effect is more critical in determining profit than growth in emerging markets such as China. Models 3 and 6 in Table 4 show

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Table 4. Mixed model results of Chinese firms

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Dependent variable		ROA			Sales growth	
Sample			Full			
Number of firms			523,172			
Number of industry			821			
Number of years			17			
Ownership identity			28			
Total number of obs			2,554,996			
Variance component (%)						
Year	18.81	15.84	10.31	21.60	17.98	12.86
Industry	27.47	24.90	20.27	32.50	20.73	21.43
Firm	28.85	20.44	15.78	24.15	16.81	10.67
Ownership		12.19	11.43		14.38	13.21
Ownership-year			9.11			10.50
Region		7.87	5.92		9.43	6.37
Region-year			4.39			5.70
Industry-year			10.25			9.13
Error	24.87	19.76	12.54	21.74	20.67	10.13
Total	100	100	100	100	100	100

that the firm effect is larger for profit (15.78%) than for sales growth (10.36%) ($p < 0.000$). This result is consistent with that in Stage 1 using the US sample. Second, the industry effect (21.43%) is more important than the firm effect (10.67%) in driving firm growth in China, suggesting a more significant role of external factors in firm growth in emerging markets. Third, ownership identity and region matter in determining both firm profit and growth. Ownership, region, and interactions with year together accounted for more than 30% of the total variance for profit and sales growth.

Stage 3: Performance Variance for Emerging and Developed Markets

This stage further confirms the previous findings and compares the determinants of firm profit and growth in emerging and developed markets. The results of the two previous stages are incomparable due to different sampling procedures. In this stage, we draw data from the same dataset, thus ensuring the comparability of firms from different countries.

Sample and Measures

We decomposed the profit and sales growth variances in a sample of global firms from multiple countries. The global firm sample was from Osiris, which includes information on publicly listed companies worldwide. The dataset is from Bureau van Dijk (BvD), including about 80,000 publicly listed firms worldwide. This data has been broadly used in the field, with detailed and rich information beyond typical financial reports (Kalasin, Dussauge, & Rivera-Santos, 2014; Surroca, Tribo, & Zahra, 2013).

The final sample included observations from 1995 to 2012 consistent with the Chinese sample, covering 331 industries over 18 years. The average ROA was 3.66%, and the variance was 15.30. Figure 1 compares the distribution of sample companies by year across the four samples (McGahan and Porter (1997), our US, Chinese, and global samples). Table 5 shows the descriptive statistics for all samples.

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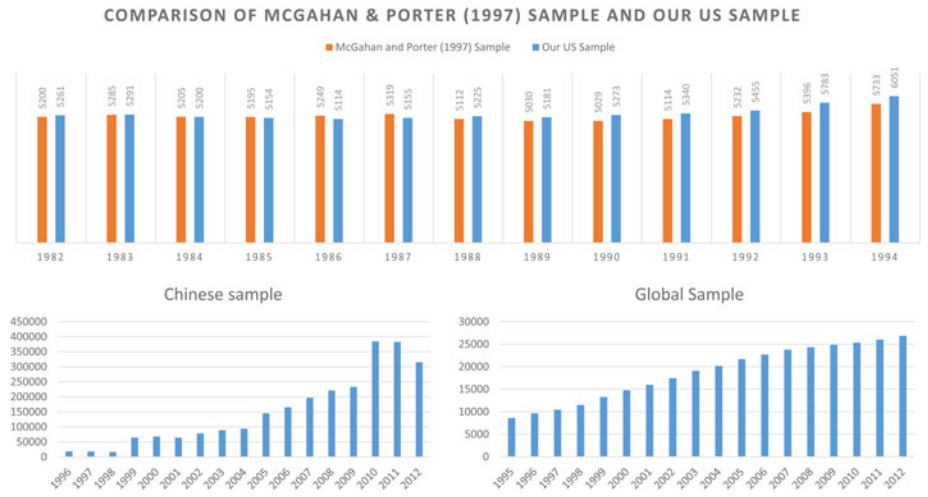

Figure 1. Sample distribution by year and country contexts

Table 5. Descriptive statistics for different samples

	McGahan and Porter (1997)	US sample (1981–1994)	US sample (1995–2012)	Chinese sample	Global sample
Mean ROA	9.3	10.1	7.9	10.17	3.66
Variance of ROA	248	249.30	252.74	575.72	15.30
Skewness test of ROA[†]	n.a.	0.38	0.33	0.44	0.22
Mean sales growth	n.a.	11.31	9.69	11.75	10.10
Variance of sales growth	n.a.	884.47	225.41	1,354.98	27.36
Skewness test of sales growth	n.a.	0.24	0.26	0.21	0.26
Total assets[‡]	903	891	1,907.42	21.50	1,589.24

Notes: [†]The number is the *P*-value of the skewness test. The null hypothesis is that a variable is normally distributed. [‡]The number of McGahan and Porter (1997) and our US sample is at the segment level; the number of Chinese and global samples is at the firm level.

Osiris provides information on the ultimate owner of each firm, and it traces the shareholder with the highest direct or total percentage of ownership. Among the different types of ultimate owners, corporate accounted for most firms, and families were the second largest group, accounting for less than 10%. The right side of Table 3 summarizes the distribution of different ownership identities among global firms.

Results

Using the global sample, we first estimate models, including country and ownership effects. Models 1 and 2 in Table 6 present the results. The dependent variable is profit in Model 1 and growth in Model 2. Again, we see differences in the determinants of growth and profit: firm effect was more critical for profit (27.31%) than sales growth (20.39%) ($p < 0.000$). Ownership and its interaction with year explained more than 10% of the total variance in profit and growth, and country and its interaction with year explained around 20% of the total variance in profit and growth.

Next, we split the sample into non-OECD (Organization for Economic Co-operation and Development) and OECD countries. OECD countries are generally regarded as developed countries, while non-OECD countries as emerging markets (Boehmer, Nash, & Netter, 2005; Dewan &

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Table 6. Mixed model results of global firms with ownership type

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Dependent Variable	ROA	Sales growth	ROA	Sales growth	ROA	Sales growth	ROA	Sales growth	ROA	Sales growth	ROA	Sales growth	ROA	Sales growth
Sample	Full		Non-OECD countries		OECD countries		HDI: Other countries		HDI: Top 25%		World Bank: Other countries		World Bank: High-income countries	
Number of firms	39,264		15,082		24,182		14,367		24,897		12,774		26,490	
Number of countries	142		107		35		97		45		89		53	
Variance (%)														
Year	10.36	11.04	12.14	12.62	8.23	9.87	12.83	12.94	8.17	9.92	12.86	12.98	8.23	10.16
Industry	9.29	10.99	12.27	13.99	10.14	10.70	12.46	13.39	10.02	10.90	12.50	13.46	10.19	11.23
Firm	27.31	20.39	15.11	9.21	28.99	22.30	15.38	9.14	28.10	22.13	15.17	9.09	27.91	21.98
Industry-year	4.28	6.17	5.76	7.88	5.15	5.54	5.81	7.80	4.24	5.58	5.78	7.91	4.28	5.61
Country	10.88	9.42	13.39	13.91	7.90	7.26	13.28	13.11	8.05	8.19	13.13	12.90	8.11	8.45
Country-industry	9.83	8.97	9.87	10.31	9.33	8.62	9.90	10.15	9.49	8.81	9.94	10.10	9.57	8.89
Country-year	5.45	5.03	9.27	9.92	4.92	4.81	8.27	9.98	4.99	4.89	8.22	10.04	5.02	4.92
Ownership	8.37	9.10	8.93	9.01	9.12	10.98	8.11	9.05	9.01	10.14	8.19	9.01	9.00	10.19
Ownership-year	3.35	4.37	3.80	4.39	4.51	4.26	3.22	4.42	4.38	4.29	3.28	4.45	4.44	4.34
Error	10.88	14.52	9.46	8.76	11.71	15.66	10.74	10.02	13.55	15.15	10.93	10.06	13.25	14.23
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Kraemer, 2000; Drori, Yonk Suk, & Meyer, 2006). The results of the subsamples are summarized in Models 3–6 of Table 6. These results largely confirm our previous findings.

First, for both OECD and non-OECD countries, the firm effect is more critical in determining profit than growth. For non-OECD countries, the firm plays a more critical role in determining profit (15.11%) than sales growth (9.21%) ($p < 0.000$). For OECD countries, the firm effect is also larger for profit (28.99%) than sales growth (22.30%) ($p < 0.000$).

Second, if we focus on the determinants of firm growth, for non-OECD countries, the industry played a more critical role than the firm in determining sales growth (13.99 vs. 9.21%) ($p < 0.000$). But it is not the case for OECD countries (10.70 vs. 22.30%).

Third, the firm effect is more critical in determining performance in OECD countries than non-OECD countries. For OECD countries, firm effect explains 28.99% of the total profit variance and 22.30% of the total growth variance. For non-OECD countries, the corresponding numbers are 15.11 and 9.21% ($p < 0.000$), respectively.

Besides the difference in the role of firm effect between OECD and non-OECD countries, industry and year effects are also different. The year effect is larger for non-OECD countries (12.14% for profit and 12.62% for growth) than OECD countries (8.23% for profit and 9.87% for growth) ($p < 0.000$), implying higher environmental volatility in emerging markets. The industry effect is larger in non-OECD countries (12.27% for profit and 13.99% for growth) than in OECD countries (10.14% for profit and 10.70% for growth) ($p < 0.000$), consistent with McGahan and Victer (2010), who found that industry effects tend to be higher in developing countries. The country effect is also larger for non-OECD countries than for OECD countries.

Finally, ownership identity and country matter for both non-OECD and OECD countries. Ownership identity and its interaction with year explain more than 10% of the total variance for non-OECD and OECD countries. Country and its interaction with year explain more than 15% of the total variance for non-OECD and OECD countries.

We also perform additional tests by adopting different ways to classify developed countries and emerging markets. First, we employ the United Nations Human Development Index (HDI) to classify developed countries. The HDI assigns an index ranging from 0 to 1 for a country's human development, such as education, health, and life expectancy. The top 25% of HDI consists of developed countries. Second, we used the World Bank's high-income country list to identify developed countries. The results in Models 7–14 in Table 6 confirm the previous findings for different classifications of country status, with Models 7–10 based on HDI and Models 11–14 based on per capita Gross National Income (GNI).

Discussion

What explains the performance variance across firms has been a foundational question in strategy research. The I.O. perspective assumes industry as the primary determinant of firm profitability, while the strategy field established a common belief that the firm (business- and corporate-level decisions) represents the core unit that explains performance variance (Guo, 2017; McGahan & Porter, 1997; McGahan & Victer, 2010). Despite several replications of similar studies, current understandings of the issue still use a limited set of determinants (mostly firm and industry) of firm profitability (mainly ROA) (Wang, 2023). Previous studies in this literature assumed that firm profit and firm growth are interchangeable performance measures with the same predictors. In this study, we compare the determinants of firm profit and growth. We show that the determinants of profit and growth are indeed different. The firm effect is more important in influencing firm profit than growth. Our study thus contributes to the literature on decomposing the variance of firm performance by highlighting the importance of considering growth as a performance measure. It also responds to the call for more academic attention on firm growth. Nason and Wiklund (2018: 53) posit that 'the relatively low level of explained variance highlights that current theoretical and methodological approaches fall short of explaining firm growth to any larger extent'. We adopted the concept of versatile resource and multilevel mixed model to decompose firm growth and explained how and why the determinants

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of growth differ from those of profit. Our findings thus also enrich our understanding of the determinants of firm growth.

Although scholars rely on the RBV as a dominant theory to explain firm performance, overlooking the difference between VRIN and versatile resources hinders theoretical development in this area (Nason & Wiklund, 2018), given their different impacts on firm performance. In this article, we attribute the difference in the determinants of profit and growth to the different impacts of VRIN and versatile resources on firm performance. We argue that VRIN resources are more related to competitive advantage and thus firm profit than versatile resources, while versatile resources can explain a broader range of growth than VRIN resources. Since versatile resources are less firm-specific than VRIN resources, we argue that firm effect is weaker in explaining firm growth than firm profit. We found strong support for the difference in firm effect in explaining firm growth and profit. Our study thus contributes to the RBV by distinguishing between VRIN and versatile resources and examining their different impacts on firm profit and growth. The findings of this study advance our understanding of the less-examined concept of versatile resources and how they influence firm performance.

Moreover, the increasing significance of emerging markets in strategy research and global commerce presents whether similar understandings would hold in multi-country contexts (Morris, Aguilera, Fisher, & Thatcher, 2023). This study also extends the stream of research on performance determinants by comparing firm performance determinants between developed countries and emerging markets, which previous studies have overlooked. We argue that firms in developed countries have more firm-specific VRIN resources, and firms in emerging markets better utilize less specific versatile resources. Accordingly, we found that firm effect plays a more critical role in determining firm performance in developed countries than emerging markets. This result supports that there are profound differences in the sources of performance variance between emerging and developed countries and warns that we cannot blindly accept previous findings from developed countries, especially in emerging markets (Cuervo-Cazurra, Newburry, & Park, 2016). Studies need to develop a suitable model to adequately explain emerging market situations.

Besides the differences mentioned above, the replication part of our study also found patterns consistent with prior studies. We find that the year effect explains around 10% of the total variance of firm performance, which is consistent with Guo (2017). Our US sample analyses show that the corporate effect gradually increases over time, consistent with Wang (2023). We also find that ownership identity influences firm performance in developed countries and emerging markets, consistent with Fitza and Tihanyi (2017) and Xia and Walker (2015). Country and region also significantly explain firm performance, consistent with McGahan and Victer (2010).

The findings of this study have important practical implications. Western firms undergo painful trials and errors in emerging markets in managing their performance over time due to misunderstandings about the underlying drivers of performance and the different dynamics between profit and growth (Park & Ungson, 2016; Rothfeder, 2015). Our findings guide practicing managers in that firm growth and profit in emerging markets rely on different factors. As warned by Park and Ungson (2016), Western multinationals are often blindsided in emerging markets by their biases and misunderstandings regarding the drivers and dynamics of performance. Park and Ungson (2016) pointed out that many US multinationals have adopted typical growth-oriented strategies in emerging markets, which led to poor performance over time. These firms did not realize that the advantage over local firms in emerging markets was their firm-specific VRIN resources rather than their ability to adapt to market uncertainties. However, they would not necessarily have advantages over local firms in utilizing versatile resources to sustain growth-oriented strategies. Our findings provide new insights for multinational and local firms in emerging markets to set the proper boundaries and orientations for their strategies to pursue sustained profitable growth.

We recognize a few limitations in this study. First, although we define VRIN and versatile resources conceptually, we did not measure them directly, interpreting their impacts on firm performance through the difference in the firm effect. The lack of direct measures also prevents us from examining the interaction effect of the two resources. Future studies could employ more direct measures of these resources to verify these implications. Second, this study focuses on the interaction between year and

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other factors. Previous studies have shown other interactions, such as between country and industry. Future studies could explore such possibilities and examine how they influence firm performance. Third, this study did not consider multiple industry membership. We classified each firm according to its primary industry. However, multiple industry memberships may affect the accuracy of the industry effect (Guo, 2017), which requires further examination in future studies. Fourth, our global sample included only listed firms. Private firms across different countries may exhibit different patterns in the determinants of their performance. Future studies could employ datasets including private firms worldwide to generalize the findings of this study.

This study enriches our understanding of drivers and contexts of firm performance, further advancing the literature on firm performance. Our findings prove the significant difference between firm profit and growth determinants regardless of country context. Emerging markets reveal distinctively different results regarding what drives firm performance compared to developed countries. The study extends our understanding of the nature of firm performance across different country contexts.

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