

Bringing Institutions into Performance Persistence Research: Exploring the Impact of the Product, Financial and Labor Market Institutions.

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Abstract

Performance persistence perhaps best captures the consequences of a competitive advantage. Past studies, however, implicitly assume that the national institutional environments of firms are homogenous. This study challenges this assumption, proposing that the home country national institutional context is an essential driver of firm performance persistence. Using firm and institutional level data from 33 countries, we show that cross-country variations in formal institutions in the product, finance and labor markets indeed lead to differences in firm performance persistence. Additionally, while our results hold controlling for MNC status, in post-hoc analyses, we identify some important differences between MNCs and domestic firms.

Sustained competitive advantage is the holy grail of managers and management scholars. Researchers, however, typically theoretically examine and/or empirically measure instead firm performance levels at a specific time, a common criticism of scholars advocating longitudinal research (e.g., Ralston, 2008). Performance persistence, the extent to which firms are able to *maintain* past performance levels vis-à-vis competitors, is essential because it captures the consequences of a sustainable competitive advantage (Wiggins & Ruefli, 2002). A few exceptions have examined the prevalence of performance persistence over time and its drivers (e.g., McGahan & Porter, 1999, 2003; Villalonga, 2004). These studies, however, assume away differences in national institutional impacts. We partially remedy this research need by examining the degree to which home country institutions in the product, finance and labor markets impact firm performance persistence.

The formal and informal institutions in a firm's environment shape its behavior, sustainability of its competitive advantage, and ultimately its performance (North, 1990). These institutions vary by country (Kostova, 1999), with the home country's importance being noted in both developed (Porter, 1990) and developing countries (Cuervo-cazurra & Genc, 2008). This importance may even be increasing, particularly as investments shift towards emerging markets, commonly defined by rapid institutional changes (e.g., Hoskisson, Eden, Lau & Wright, 2000). Moreover, many firms now operate in multiple countries, so understanding variations in factors impacting performance persistence across different institutional contexts is of practical significance (e.g., Delios & Henisz, 2000; Rodríguez, Uhlenbruck, & Eden, 2005). In fact, in a study comparing firm performance persistence in the UK, France and Germany, Geroski and Jacquemin (1988: 388) noted that "somewhat surprisingly, in our limited experiments, countrywide factors have turned out to be more discriminating than firm or industry specific ones." Comparative studies of country performance level have also noted significant country effects and cross-regional variations (e.g., Chan, Isobe, Makino, 2008; Sakakibara & Yamawaki, 2008).

Recognizing this need, we examine the impact of home country institutions on performance persistence. Such an examination complements budding research on national institutions' impact on performance levels (e.g., Decker & Lim, 2008). We also focus on home country institutions as a

complement to much empirical literature, which highlights the host country (e.g., Singh, 2007, Delios & Henisz, 2003). While all firms face the same host country institutions in a particular market, home country institutional pressures will also impact firm actions and competitiveness as these institutions shape their global strategies, their operating practices, and local perceptions of firms, making these pressures an important source of variation between firms (e.g., Mezas, 2002; Li & Wyer, 1994).

Specifically, we respond to Hirsch and Lounsbury's (1996) call to examine organizational differences from an institutional economics perspective by conceptualizing home country institutions as the crucial constraint that determines the rules of exchange in the labor, financial, and product markets, thus impacting competition and governance choice (Khanna & Palepu, 1997). Of note, our study captures differences in the financial and labor markets on firm performance, whereas past studies directly or indirectly focused primarily on product market competition.

By bringing country institutional elements to the foreground, we extend past performance persistence research and suggest that its implicit assumption of institutional efficiency may not always be valid. We also extend current research regarding impacts of national institutions on strategic choices and firm performance levels (e.g., Benito, Groggaard & Narula, 2003; Delios & Henisz, 2003) by proposing that the effectiveness of market supporting institutions may directly impact firm performance persistence. Finally, we extend empirical research mostly focused on host-country impacts on firm operations (e.g., Singh, 2007; Delios & Henisz, 2003) by examining the impact of home country institutions. Our results also suggest that the impact of national institutions on performance persistence may be different for MNC versus domestic firms.

In the following sections, we first elaborate on the performance persistence concept and briefly highlight research on national institutions. We then build our theory on the impact of formal institutions in the product, financial and labor markets on performance persistence. Next, we present our methodology and results, followed by a discussion of our findings. We test our hypotheses on a broad sample of corporate-level data from over 10,000 firms from 33 countries over the period 1991 to 2002. Our empirical tests strongly demonstrate the importance of national institutions.

PERFORMANCE PERSISTENCE

The convergence hypothesis, derived from the general equilibrium framework, states that both above and below average profits will converge towards the same mean (e.g., Arrow & Debreu, 1954; Makowski & Ostroy, 2001). Poorly performing firms will improve their performance by redirecting resources to more lucrative activities, imitating profitable firms, or replacing their managers with more effective ones. If not, these firms will eventually go out of business. Similarly, superior performing firms will see their performance erode over time through imitation and competition.

Management scholars argue, however, that this theory does not hold in pure form, and the strategy field has focused on reasons for sustained performance differences among firms (e.g., Lippman & Rumelt, 1982). This attention is consistent with interest in the resource-based view, which focuses on sustainable competitive advantage (Wiggins & Rueffli, 2002). Industry structure and firm-specific capabilities act as ‘frictions’ that are viewed as hampering competition, imitation and resource redeployment, and slowing down convergence, thus leading to the opposite: performance persistence (Roberts & Dowling, 2002; Mueller, 1990). In fact, much research has emphasized the impact of firm resources and industry structure on firms’ sustainable competitive advantage (e.g., Hoskisson et al., 1999). While empirical research has demonstrated a convergence of firm performance towards the mean, this process is imperfect at best (e.g., Mueller, 1990).

Further attempts were made to explore the relative importance of firm and industry effects on firm performance persistence (e.g., Bou & Satorra, 2007; McGahan & Porter, 1999; 2003). All these studies, however, assume away differences in national institutional contexts of firms and have predominantly focused on the U.S and Canada (e.g., Mueller, 1986; Waring, 1996), although limited empirical research in Europe, Japan and other countries provides evidence that performance persistence does vary between countries (e.g., Odagiri & Yamawaki, 1986) and that country-level factors could lead to performance persistence variations.

Firm behavior, and ultimately its performance persistence, are likely shaped and constrained by both formal and informal national institutions (North, 1990; Kostova & Roth, 2002). Thus, apart

from industry structural attributes and firm-specific capabilities, the speed of convergence of performance across firms in an economy likely also depends on national institutional factors (Chacar & Vissa, 2002, 2005). These institutions are humanly developed constraints that shape human interaction and are akin to the ‘rules of the game’ (North, 1990). An economy’s institutional context is a combination of formal rules, informal constraints and their enforcement characteristics. With institutional change usually being gradual and path dependent, institutional contexts vary significantly across countries, and even neighboring countries or countries of otherwise similar characteristics can have wildly different national institutions (North, 1990; Kostova, 1999). Ultimately different institutions elicit different strategic responses from companies (Oliver, 1991), and hence, different performance.

THE IMPACT OF NATIONAL INSTITUTIONS

A common theme across research on institutions is how certain national institutions may facilitate or inhibit various aspects of competition. As will be subsequently hypothesized, competition stemming from institutions in these markets is expected to influence firm performance persistence. Below, we examine existing research on institutions, as it occurs at various analysis levels and amongst different firm constituencies, with an emphasis on how institutions impact competition and competitive intensity within a market. These competitive pressures will ultimately be important in our arguments regarding the development of firm performance persistence.

Much research on institutions focuses on the country level, examining how national institutions impact FDI patterns and economic growth. As these issues directly impact the level of competition and competitive intensity in a country, they are likely to impact firm performance as well (e.g., Bowen and De Clercq, 2008; Decker and Lim, 2008). For example, Gittelman (2006: 1052) argued that institutions governing scientific careers, a significant portion of the skilled labor market, “shape the professional identities and boundary-spanning activities of research scientists”, and hence, affect national technological performance. Also regarding labor market institutions, Kılıçaslan and

Taymaz (2008: 477) propose that countries with more wage and employment regulations have higher productivity levels.

A common argument in this literature is that institutions impact firm strategic choices, operations and/or governance structures (e.g., Leff, 1978; Murtha & Lenway, 1994) and industry structure (Caves, 1986), and thereby indirectly drive firm performance persistence by impacting various competitiveness elements in a country. For example, Khanna and Palepu (1997) focused on institutional voids in capital, labor and product markets as drivers of firm diversification strategies in emerging economies. Regarding firm strategic choices, Williamson (1991) identified cross-national differences in labor practices, banking systems and subcontracting relationships as important institutional drivers of organizational outcomes. Regarding firm governance, Hill (1995) suggested that national institutional factors drive transaction costs, and thus, shape optimal firm boundaries, and by extension, the number of firms in a market and the competitive intensity level. La Porta et al. (1999) focused on the level of legal protection for shareholders' control rights and found that among large firms in 27 countries, greater shareholder legal protection was associated with dispersed ownership structure of firms.

A major focus area in terms of institutional impacts on firm strategy concerns entry mode and location decisions, which again, impact firm competitiveness in terms of how they compete. For example, Delios and Henisz (2003) found that political hazard experience decreases the sensitivity of firms towards such hazards when making entry decisions. Regarding firm operations, Kostova and colleagues examined how institutional factors, often associated with institutional distance between home and host markets, impact headquarter-subsidiary and inter-subsidiary transfers of knowledge and practice. Successful transfers from the home market may impact a firm's ability to effectively compete locally. For example, Kostova (1999) theorized on how differences between regulatory, cognitive and normative institutional structures (Scott & Meyer, 1983) in home and host markets influence the transfer and internalization of organizational practices in an MNC subsidiary. Kostova and Zaheer (1999) examined how various types of institutional complexities inhibit MNCs from gaining legitimacy in host countries. Kostova and Roth (2002) examined how a host country's

institutional context along with the relational context within an MNC influence the adoption of organizational practices by subsidiaries. Overall, the previous evidence suggests that national institutions impact firm strategic choices, operations and/or governance structures, which in turn impact firm competitiveness, and ultimately performance persistence.

Finally, multiple scholars have taken particular note of the importance of host country institutional practices in relation to MNC activities in developing and emerging markets (e.g., Meyer & Peng, 2005; Hoskisson, Eden, Lau & Wright, 2000; Steensma, Tihanyi, Lyles & Dhanaraj, 2005; Shenkar & von Glinow, 1994). In developing country settings, institutions and multinationals seem to develop in tandem, as each learns to accommodate the other (Child & Tsai, 2005).

Building upon prior literature, we focus on the impacts of formal institutions in the product, capital and labor markets (Khanna & Palepu, 1997). These institutions are key discriminating factors of the emergence and success of companies, and ultimately the economic development level of a country (Leff, 1978; Khanna & Palepu, 1997). We thus depart from extant performance persistence literature, and contend that the national institutional context has a significant influence on competitive intensity and will therefore influence firm performance persistence by creating conditions that allow firms to sustain their competitive advantages over time. We also focus on the impacts of home country institutions rather than host country institutions, an area that has received less empirical attention, despite its perceived importance (Porter, 1990). The following section exposes our theory on how such national institutions are likely to influence performance persistence.

NATIONAL INSTITUTIONS AND FIRM PERFORMANCE PERSISTENCE

National institutions, especially those in the home country, are key drivers and constraints of firm actions and the competitive environments in which these firms operate. Porter (1990), among others, noted that “governments play an important role in influencing the performance of firms within particular industries...” (p. 620), and that “competitive advantage in a nation’s industries is created over a decade or more, not over three- or four-year business cycles” (p. 622). Location is also a central component of Dunning’s OLI theory, regarding which he noted that firms seek “locations

which offer the best economic and institutional facilities for their core competencies to be effectively utilized” (e.g. Dunning, 1998: 51). Ultimately, national institutions also influence performance and its sustainability over time.

While past studies provide insight into institutional influences on country and firm performance, they do not directly address firm performance persistence and do not provide an organizing framework for evaluating institutional effects on firm performance persistence. Building on Chacar and Vissa (2005) and Khanna and Palepu (1997), we focus on formal institutional elements from the home market supporting transactions in the product, capital and labor markets whose attributes are proximate causes for resource allocation in an economy. These institutions are believed to be key discriminating factors to the economic development level of firms from a country, and as such, are important to competition along with the emergence and success of companies (Leff, 1978; Khanna & Palepu, 1997).

We propose that national institutions affect competitive intensity, and hence, performance and ultimately performance persistence in two ways. First, by defining the rules of the game, the national institutional context facilitates or prohibits certain kinds of exchanges (North, 1990; Tolbert & Zucker, 1983). For example, antitrust laws are designed to prevent collusion between firms, and hence, are likely to increase the competitive intensity facing firms (Scherer & Ross, 1990). Second, the national institutional context impacts the size of the pool of actors that can participate in exchanges that are not prohibited. Greater availability of exchange partners increases competitive intensity by making possible potentially efficient exchanges between actors that would otherwise not take place, and will ultimately impact performance persistence (Greif, 1993; North, 1990). For example, well-developed public equity markets make it easier for de novo entrants to obtain financing. Hence, these institutions may drive firm success (Khanna, Palepu, & Sinha, 2005).

More specifically, we examine the strength of antitrust regulations (Tybout, 2000) and effectiveness of product liability regulations in the product market. In the financial market, we explore the development of markets for public equity (Levine, 1997) and corporate control (Manne, 1965). Finally, we investigate the impact of flexibility of unskilled labor markets (Forteza & Rama,

2006) and the availability of skilled labor on firm performance persistence. In the following hypotheses, we describe how firm performance persistence is driven by the above institutions.

Product Markets

To sustain their performance, firms compete in the product market by attempting to increase their revenue through customer retention and attraction, and by attempting to reduce the threats posed by competitors. In this context, home country anti-trust laws and product liability laws have been identified as key regulations, or formal institutions that govern competitive activity in product markets. Examining these influences is consistent with Khanna and Palepu's (1997) focus on contract enforcement and research on judicial efficiency (e.g., Knack & Keefer, 1995).

Antitrust laws regulate firms' competitive behaviors and disallow "unfair" market activity such as overt or tacit collusion to control prices, deter new entrants and in general, promote anticompetitive conduct (Scherer & Ross, 1990). Stronger antitrust laws also lead to better monitoring of anticompetitive conduct, which, along with better enforcement of anti-competitive statutes would lead to a greater probability of detecting collusion among incumbent firms, and thereby reduce the benefits of collusion and its likelihood. Greater probability of detection coupled with reduced benefits from collusion would lead to greater competitive intensity (Dutz & Vagliasindi, 2000), as incumbent firms are forced to compete based on product attributes and new entrants are allowed freer market entry. As antitrust laws are not easily changed, we suggest that the increased competition associated with these laws will continue over time, leading to lower firm performance persistence.

It is acknowledged that a potential counterargument exists that greater antitrust laws may provide incumbent firms with stronger innovation incentives, which leads to superior long-term performance on an individual firm basis. However, if all firms in an industry increase their innovation levels, competition will increase and the surplus from innovation will likely be passed to consumers in that sector, while performance persistence will decrease.

Accordingly, based upon our earlier arguments, we suggest the following:

H1: Stronger antitrust laws will be associated with lower persistence of firm performance.

Product liability laws grant protections to consumers against unsafe products as a result of defective conditions, and as such, influence both firms' behaviors in terms of what products they produce and consumers' decisions regarding product purchase and expectations. At one extreme, these laws protect consumers adequately, while at the other extreme, they simply constrain firms' activities and especially product development. Herein, we are particularly concerned with the extent to which product liability laws ultimately impact competition. Fairgrieve and Howells (2007) note that considerable variation still exists in these laws and their enforcement.

Product liability laws may have competing effects. On one hand, product liability laws generally aim to protect customers from harm caused by defective products. More effective product liability statutes would lead to lower switching costs for customers, since customers would be more confident in trying new products and services, secure in the knowledge that their rights are protected. These reduced switching costs suggest that product liability laws will lead to greater competition at the product-market level. Additionally, such laws may be beneficial for both entrants and incumbents, since such laws provide rules of the game that promote fairer market competition, thus enhancing competition, and ultimately reducing performance persistence.

On the other hand, effective product liability laws along with some established firms' ability to continuously introduce new innovations at the product market level (Roberts, 1999) increase new entrants' new product introduction costs and typically dampen the overall level of new product introductions by new entrants. Product liability laws raise the costs of introducing new products to the market, a cost likely to be disproportionately greater for new entrants (e.g., McCubbins & Mosier, 1998), for two reasons. First, since incumbents have established routines (Nelson & Winter, 1982) for the design and safe manufacturing of new products, they will likely have a better knowledge of underlying product technologies, and are thus less likely than new entrants to make defective products. Second, because of close customer contact, incumbents are likely to better understand how customers could potentially use their new product (Von Hippel, 1988), again reducing the chances of

making defective products, when compared to new entrants. With less competition from new products introduced by new firms, performance persistence will likely increase. Even if other incumbents introduce new products, ultimately, fewer firms in an industry will likely lead to lower competition levels. Under such conditions, the number of firms may be reduced and competition may be more 'gentile', in the words of Michael Porter, leading to greater sustainability of performance. Thus, to the extent that more effective product liability laws attenuate competition, we would expect greater performance persistence.

Based upon the preceding competing logics, we suggest the following competing hypotheses:

H2a: More effective product liability laws will be associated with lower persistence of firm performance.

H2b: More effective product liability laws will be associated with greater persistence of firm performance.

Financial Markets

Home country financial markets affect competitive intensity in two major ways. First, well-developed markets for public equity make financing easily available for companies to build their business and enter new markets. These public equity markets affect the number of firms in any one sector and their level of resources. On the other hand, when markets for corporate control are well developed, firms face a threat of disciplinary action by the market and ultimately potential takeover by other companies (e.g., Morck, Schleifer & Vishny, 1989). Well-developed markets for corporate control ultimately lead to the elimination of inefficient firms. Our focus on public equity markets corresponds with Williamson's (1991) emphasis on cross-national differences in financial intermediaries, while focusing on corporate control markets is consistent with Khanna and Palepu's (1997) stress on voids in capital market intermediaries.

Markets for public equity arise to ameliorate problems created by information and transaction costs (Levine, 1997), and one of their key functions is the allocation of capital from providers to capital users. The intensity of competition faced by firms will vary greatly depending on the availability of public equity, whether via banks, venture capitalists, or individual investors. Public

equity intermediaries screen and select the most promising capital users (Greenwood & Jovanovic, 1990). In turn, existing firms will grow and become more efficient, leading to greater competition and greater efficiency among surviving firms, while also allowing new entrants (e.g., entrepreneurs) to gain funding more efficiently, again increasing competition. While many of these new entrants typically fail, some eventually will rise to challenge incumbent advantages, and performance persistence, including that of incumbents, will be reduced. On the other hand, in poorly-developed public equity markets, capital allocation will be made more haphazardly or capital will be given to the most visible or politically-connected firms, with no clear impact on firm efficiency or performance persistence.

More formally:

H3: More developed markets for public equity will be associated with lower persistence of firm performance.

Besides financing access, financial markets also provide corporate control, disciplining non-performing firms through pressure on management that ultimately leads to management removal, and at the extreme, takeover of non-performing firms (Fama, 1980). The corporate control market acts as a disciplinary device of last resort for poorly performing companies (Manne, 1965). In well-functioning markets, firm managers are aware that their firms need to perform well or shareholders will replace them. In the event shareholders fail to do so, the market for corporate control will. Specifically, threat of a hostile or unsolicited takeover is perhaps the most potent mechanism for disciplining and improving performance of inefficient firms (Jensen & Ruback, 1983; Morck, Schleifer & Vishny, 1989).

We argue that a well-developed market for corporate control will lead to greater competitive intensity, and hence, lower persistence because it increases the efficiency of surviving firms in two ways. First, a well-developed market corporate control market disciplines managers of poorly performing firms to quickly improve performance, thus reducing their performance persistence. Efficient ‘weeding out’ of poorly performing firms increases competitive intensity because surviving firms will face more efficient competitors, again reducing their performance persistence. This

argument is consistent with the notion that corporate raiders in the takeover market systematically identify inefficiently run companies in order to find new value for them (Jarrell & Poulsen, 1987) and with the claim that greater activity in corporate control markets is negatively associated with the *level* of firm performance (Agarwal & Knoeber, 1996). Irrespective of the discipline ‘done’ on poorly performing firms, with threats of takeovers being non-negligible, all competitors are likely to work harder to maintain or improve their performance.

Second, well-developed corporate control markets allow for recombination of resources, which leads to greater efficiency. Acquiring firms may enter the corporate control market to buy out currently well-performing target firms on the basis of private information that the merged entity would have a performance advantage because of synergies (Lubatkin, 1983). Such reallocation of resources would again lead to greater competitive intensity, and thus, to lower performance persistence. More formally:

H4: More developed markets for corporate control will be associated with lower persistence of firm performance.

Labor Markets

Taking our cue from Chesbrough’s (1999) focus on the fluidity of technical labor markets and Williamson’s (1991) stress on national differences in labor practices, we examine how two institutional elements in national labor markets drive performance persistence - flexibility of the unskilled labor market and availability of skilled labor. Flexibility of the unskilled labor market refers to the extent to which hiring and firing practices of unskilled labor by firms are regulated by legal rules such as severance pay, no layoffs, minimum wage, etc. In particular, we are concerned with the extent to which government restricts hiring and firing practices. Availability of skilled labor refers to skilled workers (including managers) in a market, creating the potential for knowledge to more easily move across firms. The substantive content and enforcement of these rules vary across countries, and as argued below, have different effects on firm performance persistence.

Greater flexibility in the unskilled labor market will be associated with greater firm performance persistence because it reduces legal constraints imposed on residual claimants

(managers and owners) to take necessary actions to maintain or enhance profitability, and thus sustain competitiveness over a longer time period. Reduced legal constraints on residual claimants increase their power relative to dependent actors such as workers. Greater power of residual claimants over dependent actors enables firms that are likely to experience performance decline to maintain their performance by restructuring their workforce quickly (Meyer & Zucker, 1989). To the extent that labor laws permit firms to reduce their workforce quickly and at lower cost, firms are more likely to sustain competitiveness in their local markets. Accordingly, institutional pressures that grant firms greater power over their workforces likely lead to greater performance persistence.

While an alternate hypothesis might be suggested that flexibility in the unskilled labor market may reduce unskilled workers' commitment and motivation levels, and increase the cost of job adjustment (costs associated with hiring and training), which jointly lead to lower competitiveness and performance persistence, the opposite might also be suggested - I.e., flexibility may increase unskilled worker motivation by decreasing job security, leading them to work harder, and thus supporting our previous argument of greater performance persistence. Thus, we hypothesize:

H5: Greater flexibility in the unskilled labor market will be associated with greater persistence of firm performance.

In contrast to the positive impact of unskilled labor market flexibility, we suggest that availability of skilled workers in a labor market will be associated with lower performance persistence. This may occur for two reasons. First, greater stocks of skilled workers (including senior managers) may result in greater imitation and leakage of proprietary knowledge across firms due to either skilled workers being more easily replaced by outside talent or the institutionalization of professional norms through isomorphic pressures (Scott & Meyer, 1983). This in turn may cause firm competitive advantages to become widely available throughout the marketplace. Second, resource based theorists believe that unique knowledge is perhaps the most fundamental source of abnormal returns (Spender, 1996; Teece, 1998), since knowledge-based advantages are difficult to imitate. Knowledge-based capabilities include both technologies and organizing principles. Skilled workers

are often considered the embodiment of organizational skills and knowledge that are needed for sustained superior performance (Castanias & Helfat, 2001). When knowledge associated with skilled workers becomes less distinctive due to greater stocks of these workers, this source of competitive advantage will dissipate, lowering performance persistence.

Mobility of information across firms (either directly through skilled worker movement or indirectly via professional norms) leads to lower firm performance persistence by causing capability loss in the target firm and competitive advantages to erode. Worker mobility leads to skill transfer to the hiring firm, enabling them to imitate the products and processes of competing firms. In fact, some evidence suggests that migration of senior managers (often a firm's most skilled workers) leads to strategic change (e.g., Boeker, 1997) in the hiring firm, while mobility of lower level managers has been linked to improved innovation in the hiring firm (e.g., Rao & Drazin, 2002). By contrast, since top managers and other skilled workers of a firm are often considered important firm resources, the target firm may lose capabilities when they leave. While their direct impact on firm performance can be difficult to gauge (Wade et al., 2006), Cannella and Hambrick (1993) argued that executives are part of a firm's resource base, and empirically found that the loss of acquired firm executives led to lower post-acquisition performance. While we are not aware of formal research that focuses explicitly on whether the hiring firm is a poor performer relative to the target firm, an implication of this argument is that performance of hired and hiring firms tends to converge due to leakage of know-how and proprietary knowledge embedded in the migrating skilled workers. On the other hand, firms where important intangible knowledge is embedded in multiple personnel (e.g., via clear top management successors; Zajac, 1990) may have superior performance.

In essence, these arguments suggest that greater availability of skilled labor in a market enables poorly performing firms to catch up faster and could impose costs on superior performing firms due to loss of capability. More formally:

H6: Greater availability of skilled labor will be associated with lower persistence of firm performance.

METHODS

We estimate performance persistence and test our hypotheses using a fixed-effect dynamic panel data method (Hsiao, 1986) in conjunction with Nickell's (1985) bias correction (for a similar application see Chacar & Vissa, 2005 or McGahan & Porter, 1999). In the following subsections, we describe our sample selection procedures, data sources, measures and statistical modeling.

Sample

Consistent with our focus on home-country institutions, we used corporate-level data from the Global Vantage database which contained 212,340 records on 17,695 public firms from 82 countries for the time period 1991 to 2002. The firms in the data ranged from MNCs that most researchers are likely to know, such as BMW and 7-Eleven, to smaller companies such as China First Pencil. After deleting records with no data, we were left with 110,514 observations from 16,327 firms. We then dropped 2,404 observations where post tax IROA $> 50\%$, since these are likely to be database errors or unusual outliers (see Waring, 1996). We also dropped 13,346 observations that correspond to firms that entered and exited the database within 5 years, since we needed a sufficient time series of firms' financial performance to estimate their persistence. Finally, we dropped 4,460 observations from 35 countries since we could not obtain institutional elements measures.

Since modeling persistence involved using an autoregressive specification, with a lagged dependent variable, we needed to drop 10,815 observations that pertained to the first year of data, bringing down the data to 79,489 observations. We then removed observations from 12 countries that were left with less than 150 observations, and two countries for lack of data availability on an added control measure and one of the national institutional measures. Our final sample consisted of 78,065 observations from 10,551 firms drawn from 33 countries.

Dependent Variables and model

Performance persistence is defined as the percentage of a firm's performance from previous periods that remains in the current period (e.g., Jacobsen, 1988).

The basic model used in the performance persistence literature is an autoregressive equation given in (1).

$$P_{j,t} = a_j + b * P_{j,t-1} + e_{j,t} \quad (1)$$

$P_{j,t}$ is the performance of firm j at time t , $P_{j,t-1}$ is the performance of firm j at time $t-1$, a_j is the firm specific intercept that controls for firm level heterogeneity, $e_{j,t}$ is the error term and b , the coefficient of the lagged performance variable, is the measure of persistence. Values of the coefficient b between 0 and 1 are considered valid estimates of persistence and the interpretation is that b measures the percentage of an initial level of performance or rent which remains after one year.

Since our interest is in the impact of national institutions on persistence, we test our hypotheses as follows. We create an interaction term between the lagged performance variable and our independent variables (denoted as the vector \mathbf{X}) as given in equation (2) below, where the vector of coefficients \mathbf{c} measures the impact of the independent variables \mathbf{X} on performance persistence.

$$P_{j,t} = a_j + b * P_{j,t-1} + \mathbf{c} * (P_{j,t-1} * \mathbf{X}_{t-1}) + d * \mathbf{X}_{t-1} + e_{j,t} \quad (2)$$

Our study is concerned with the impact of \mathbf{X} on persistence, or b , which is captured by the coefficient c .

We use firm specific rent (FSR) to measure firm performance (Waring, 1996). Firm specific rent is a measure of *intra-industry* rent and is identified as the return a firm earns on its assets, which is above or below the competitive rate of return plus the industry rent. This measure thus corrects for fixed industry effects, with 70 2-digit SIC industries in the sample, as follows: Firm j 's profitability at time t ($\pi_{j,t}$) is decomposed into a competitive return component (c_t) for all firms in the focal country, an industry rent component common to all firms within an industry (i_t) in the focal country, and a firm specific rent component ($f_{j,t}$):

$$\pi_{j,t} = c_t + i_t + f_{j,t} \quad (3)$$

To separate firm specific rent ($f_{j,t}$) from total profitability, the simple (i.e. unweighted) average industry profitability (an estimate of $c_t + i_t$) is subtracted from the firm's total return ($\pi_{j,t}$) in equation (2). This removes the cyclical component of economy-wide profitability changes and also

removes industry-specific profitability changes. If $f_{j,t}$ is positive (respectively negative), firm j earns rents above (respectively below) the average industry rent in year t in the focal country.

Following past studies, we used Return on Assets (ROA) to measure profitability ($\pi_{j,t}$). We used net income to calculate ROA since presumably the appropriate signal for resource allocation is the post-tax return.

$$\text{ROA} = (\text{Net Income} + \text{Interest Expense} - \text{Interest Income}) / \text{Assets} \quad (4)$$

Using ROA as defined in equation (4), firm specific performance is computed as per equation (3) in each country sub-sample.

Explanatory Variables

Most independent variables below are country scores on a 10-point scale reported annually by the World Competitiveness Report (WCR) published by IMD-Geneva. We used yearly data from 1991 to 2002 unless otherwise noted. These country scores are computed from an annual survey of senior and middle managers, who usually have some international experience, from a cross-section of domestic and foreign firms operating in each country. The survey consists of Likert-type items where respondents are asked to evaluate their respective country's institutional context. IMD computes a country score by averaging the ratings of respondents from each country.

Strength of antitrust laws (Antitrust Laws - AL) is measured by the WCR survey item that asked respondents "To what extent do antitrust laws prevent unfair competition in your country?" The index is coded so that countries with anti-trust laws that prevented unfair competition were rated high, whereas countries where antitrust laws did not prevent unfair competition were rated low. If H1 is supported, the interaction term *Lagged performance X Antitrust Laws* will be significant and negative.

Effectiveness of product liability laws (Product Liability Laws - PL) is measured by the WCR survey item that asked respondents "To what extent do product liability laws in your country constrain new product development?" The index is coded so that countries with product liability laws that were appropriate for the purpose of customer protection were rated high, while countries where product liability laws constrained new product development unnecessarily were rated low. If H2a is

supported, the interaction term *Lagged performance X Product Liability Laws* will be significant and negative. If H2b is supported, it will be significant and positive.

Development of markets for public equity (Public Equity - PE) is proxied by a measure from the World Bank's World Development Index database, the 'market capitalization of listed companies as a % of GDP'. Well-developed financial markets are ultimately reflected in more firms, more public firms, and larger public firms, which this measure captures to a large extent¹. If H3 is supported, the interaction term *Lagged performance X Public Equity* will be significant and positive.

Development of markets for corporate control (Corporate Control Market - CC) is measured directly by the normalized count of fully-completed or pending hostile and unsolicited takeovers, since there is no readily available index that captures the development of corporate control markets. Arguably, countries with formal rules and informal norms that promote or at least not hinder hostile or unsolicited mergers are likely to see more of that activity in comparison to countries without such rules and norms. We used the SDC Platinum database on mergers and acquisitions to compile the number of fully completed or pending deals on hostile and unsolicited bids to acquire a target company headquartered in the focal country, that were announced in the year of interest. This count was normalized by the total number of publicly listed companies in each country that we were able to obtain for 1997 from the World Bank. If H4 is supported, the interaction term *Lagged performance X Corporate Control Market* will be significant and negative.

Flexibility of the unskilled labor market (Unskilled Labor Market - UL) is measured by the WCR survey item that asks respondents "To what extent does the government restrict hiring and firing practices?" The item is coded so that countries where hiring and firing is highly restricted by government are rated low, while countries where hiring and firing are very flexible are rated high. If H5 is supported, the interaction term *Lagged performance X Unskilled Labor Market* will be significant and positive.

Availability of skilled labor (Skilled Labor Market - SL) is proxied by the WCR survey item that asks respondents "What is the availability of skilled labor in the market in your country?" The

item is coded so that countries where there is a lack of skilled labor are rated low, while countries where there is enough skilled labor are rated high. If H6 is supported, the interaction term *Lagged performance X Skilled Labor* will be significant and negative.

Control Variables

Our models and dependent measure control for fixed firm-effects, such as multinationality, globalization, and international diversity (e.g., Tallman & Li, 1996; Makhija et al., 1997; Sakakibara, 2008) or internal organization (e.g., Frost, Birkinshaw & Ensign, 2002) by using a fixed-effect estimation. Such statistical models control for any firm effects that are relatively stable over time, and variables such as multinationality, internal organization and R&D typically change very slowly. We also control for fixed industry and country effects through the definition of our FSR measure. Nonetheless, we included two measures which are typically added to such studies. First, since industry concentration is viewed as an important persistence driver (e.g., Mueller, 1990; Waring, 1996), we included *Industry Concentration -IConcentration*, measured by the four firm concentration ratios for the company's main 2-digit SIC code in its home country. Second, we included firm size to control for other firm specific factors that could be correlated with both institutional elements as well as performance persistence. Since the theoretical concept we are interested in is firm size within their respective countries and to control for differences in currencies, we measured *Firm Size* by the proportion of total sales revenue in a country that is due to sales from the focal firm in each year. We also controlled for fixed country effects through the inclusion of Country Dummies in the equations and controlled for a *Country Development* level (Chan et. al., 2008) as measured by GDP per capita, which we obtained from the World Bank data on country economic development. Data for all control variables was available for all years in the dataset.

Model Specification

To test the hypotheses, we estimated the model shown equation (5) below. The performance measure used is firm specific rent (FSR). The subscript j is used to index firms, k is used to index

¹ We thank an anonymous reviewer for this suggestion.

countries and t is used to index year. The country dummies are set up so that the US is the base, omitted country.

$$\begin{aligned}
\text{Performance}_{jkt} = & \alpha_j + \beta * \text{Performance}_{jkt-1} \\
& + \delta_1 * (\text{Performance}_{jkt-1} * \text{AL}_{kt-1}) + \delta_2 * (\text{Performance}_{jkt-1} * \text{PL}_{kt-1}) \\
& + \delta_3 * (\text{Performance}_{jkt-1} * \text{PE}_{kt-1}) + \delta_4 * (\text{Performance}_{jkt-1} * \text{CC}_{kt-1}) \\
& + \delta_5 * (\text{Performance}_{jkt-1} * \text{UL}_{kt-1}) + \delta_6 * (\text{Performance}_{jkt-1} * \text{SL}_{kt-1}) \\
& + \gamma_k * (\text{Performance}_{jkt-1} * \text{Country Dummy}_k) \\
& + \eta_1 * (\text{Performance}_{jkt-1} * \text{IConcentration}_{jkt-1}) \\
& + \eta_2 * (\text{Performance}_{jkt-1} * \text{Firm Size}_{jkt-1}) \\
& + \eta_3 * (\text{Performance}_{jkt-1} * \text{Economic Development}_{kt-1}) \\
& + \phi_1 * \text{AL}_{kt-1} + \phi_2 * \text{PL}_{kt-1} + \phi_3 * \text{PE}_{kt-1} + \phi_4 * \text{CC}_{kt-1} + \phi_5 * \text{UL}_{kt-1} \\
& + \phi_6 * \text{SL}_{kt-1} + \phi_7 * \text{IConcentration}_{jkt-1} + \phi_8 * \text{Firm Size}_{jkt-1} \\
& + \phi_9 * \text{Economic Development}_{kt-1} + \epsilon_{jkt} \tag{5}
\end{aligned}$$

In the above model, the vector of coefficients α_j captures the effect of fixed firm factors on the *level* of firm performance. The coefficient β is the measure of persistence of the average firm located in the US (being the base, omitted country). The values of the last coefficients ϕ_1 to ϕ_9 are not central to this study, but capture the effects of the independent variables on the firm performance *level*. To assess the effect of the independent variables on performance persistence, we need to examine the coefficients δ_1 to δ_6 which are the key focus of this study. These capture the hypothesized impact of the specific country institutional elements on firm performance persistence. The vector of coefficients γ_k controls for all fixed country effects on performance persistence. The coefficients η_1 to η_3 capture the effects of industry concentration, firm size, and development level on performance persistence.

RESULTS

Table 1 provides the country-wise sample break up. The average country has 2,366 observations on 320 firms drawn from 37 two-digit SIC industries, giving an average of 6.4 years of time series data per firm. Table 2 provides descriptive statistics and a correlation matrix for the equation (5) variables. As can be seen in the minimum and maximum variable values, national institutions can vary dramatically across countries. Four coefficients are greater than 0.3, namely, the strength of antitrust laws with the skilled labor market and level of development, unskilled labor law and public equity, and the skilled labor market with GDP. Despite these high correlations between some explanatory variables, concerns about unstable regression coefficients are minimized since the number of observations implies significantly high power. Additionally, for the reported regressions, we ran collinearity diagnostics on all variables before and after they were multiplied by the lagged performance variable. The mean variance inflation factor (VIF) was 2.2 (resp. 2.4) and all the individual VIFs were less than 4, indicating low collinearity (Netter, Wasserman & Kutner, 1996).

Table 3 presents regression results for hypotheses H1 to H6. The top half of the table presents the results of interest under the label: 'Effects on Performance Persistence'. This section includes impacts of both control and national institutional variables on performance persistence. The bottom half presents the main effects, which are not directly relevant to this study, under the label 'Main Effects'. Model 1 of Table 3 presents the base model that includes control variables and the lagged performance measure, which we call performance persistence for clarity. As can be seen, the model is significant ($F=40$) with a good overall fit.

Focusing on the top half of Table 3, we can examine persistence and its drivers. *Performance Persistence* ($=0.40$) is significant and positive, indicating some performance persistence for US firms (the omitted country dummy). This represents the proportion of the previous year's performance, measured as firm specific rent, that persists in the current period, for the average US firm. Regarding the control measures, *Industry Concentration* is negative and significant in Models 1-5, suggesting that performance persistence is about .015 lower in industries with higher industry concentration.

Specifically, US firms whose industry concentration is one standard deviation above the average have a persistence of 0.385 (=0.40-0.015). The *Firm Size* coefficient suggests that persistence increases with firm size. The *Country Development coefficient* suggests that persistence decreases significantly with development. The *Country Dummies* coefficients (not reported in Table 3) indicate that firms in 3 countries had significantly greater performance persistence than firms in the US (Germany, Finland, and the Netherlands) and firms in 23 had significantly lower performance persistence (Australia, Belgium, Brazil, Canada, Switzerland, Chile, China, UK, Greece, Hong Kong, Indonesia, Japan, Korea, Mexico, Malaysia, Norway, New Zealand, Portugal, Singapore, Sweden, Thailand, Turkey, South Africa).

Focusing on the bottom half of Table 3, Model 1 included the main effects of Industry Concentration, Firm Size, and Country Development on the *performance level* of the sample firms. The first two are not significant, but Country Development is positive and significant, indicating that firms in countries with higher GDP have lower performance levels as measured by FSR, or profitability relative to firms in their industry. The only other significant ‘main effect’ was availability of skilled labor, which is negative and significant, indicating a negatively correlation with performance level or FSR.

To test our hypotheses, we first estimated regression models with the individual explanatory variables corresponding to the three institutional dimensions – product, financial and labor markets in Models 2 to 4 of Table 3 respectively. We then estimated a full model in Model 5. *Antitrust Laws* is significant and negative in Models 2 and 5 ($p < .001$), indicating that stronger antitrust laws are associated with lower firm performance persistence, supporting H1. *Product Liability Laws* is positive and significant in these same models ($p < .05$) indicating that more effective product liability laws are associated with greater firm performance persistence, supporting H2b and not H2a. *Public Equity* is not significant, although positive as expected and bordering significance in Models 3 and 5, showing no support for H3. *Corporate Control Market* is not significant in these same models, indicating no support for H4. *Unskilled Labor Market* is positive and significant in Models 4 and 5 ($p < .001$), indicating that countries with more flexibility in unskilled labor markets are likely to have

greater firm performance persistence, providing support for H5. *Skilled Labor Market* is negative and significant in these same models ($p < .05$; $p < .001$), providing support for H6.

To recap, we found strong support for our product market and labor market hypotheses, and poor or no support for our financial market hypotheses.

ROBUSTNESS CHECKS, POST-HOC ANALYSIS AND LIMITATIONS

We conducted multiple robustness checks which substantiated our results and gave us confidence in our measures. We first tested our assumption that cross-country variation in accounting treatments of depreciation and income tax does not systematically affect our performance persistence measure. To accomplish this, we substituted operating ROA before depreciation to post-tax ROA. The results obtained were nearly identical with mostly higher significance levels (except for industry concentration) and larger model R-squared. We then examined whether countries with more observations influenced the results by excluding observations from Japan, the US and the UK, achieving nearly identical results.

We also substituted different measures for our independent variables when available, and the similarity of results increased our confidence in our measures and findings. Specifically, we used two alternative measures of antitrust law strength – La Porta, Lopez-de-Silanes & Shleifer (1999)’s measures of judicial efficiency and rule of law. We replaced Public Equity with a measure of financial intermediaries markets based on a factor score of WCR survey items focusing on two aspects of a countries’ financial system: credit flow from banks to companies and availability of venture capital for new business development². We were unable to obtain alternative measures for product liability laws and corporate control markets. We used Forteza and Rama’s (2006) measure of labor market rigidity as an alternate measure of flexibility of unskilled labor markets and the more restrictive WCR measure of senior manager availability instead of skilled labor availability.

² On credit flow, respondents were asked “How easily does credit flow from banks to companies”, with higher scores indicating free flow of credit. On venture capital, respondents were asked “Is venture capital readily available for new business development”, with higher scores indicating better venture capital availability. These items were highly correlated (>0.70) and loaded onto the single factor used here.

We then checked whether the results held for countries across income levels. Using the World Bank Classification³, we split our sample into two groups, the ‘High Income’ sample with N=69,338 observations from 23 countries and all ‘Others’ with N=8807 from 11 countries. Two differences emerged. First, product liability for the non-high income group was not significant, potentially indicating that the competition reduction effects predicted in H2b balance out the competition enhancing arguments made in H2a. Alternatively, relative country homogeneity of firms could drive this, as product liability has the smallest standard deviation of all institutional variables in this country grouping. Second, the unskilled labor market works as predicted only in high income countries, where flexibility in hiring and firing may matter more, supporting H5.

Finally, we added additional controls to ensure that we corrected sufficiently for time-varying firm-effects, namely R&D Intensity and multinationality status, which we were able to ascertain for 6294 sample firms. As shown in Table 4, column 2 compared to column 1, our results remained unchanged.

Reasoning that institutional effects may be different for MNCs vs. domestic firms, we created two subsamples consisting of MNCs (N=3739) and Domestic firms (N=2555)³. Unfortunately, MNCs and domestic firms were not equally distributed across countries, and the size and R&D expenditures of MNCs were much higher as might be expected due known differences between these firms (see, e.g., Nachum, 2003, re: multinationality advantages). While this complicates interpretation of sample differences, we nonetheless ran the full model on these two subsamples with interesting findings (Table 4, columns 3 and 4). First, product liability laws operated as predicted in H2b in the full sample and the MNC subsample only. This may be due to differential impacts of product liability laws or different MNC abilities. Second, Public Equity which was not significant in the full sample was positive and significant for the domestic subsample. This suggests that greater available financing increases the performance persistence of domestic firms, as they are better able to acquire resources needed to maintain a competitive advantage. Third, the coefficient of Corporate Control Market is marginally significant and positive in the MNC subsample. This lends weak support to the

³ We would like to thank our anonymous reviewers for this suggestion.

idea that stronger corporate control markets lead to greater performance persistence. Finally, the availability of skilled labor is negative and significant in the full model and the Domestic subsample, but not the MNC subsample. This suggests that managerial pools that MNCs draw from may differ from those used by Domestic firms. Hence, greater local managerial availability may impact the performance persistence of domestic firms, but not MNCs.

Unfortunately, we cannot conclude that the differences observed are attributable to MNC status. They could be driven by size and R&D expenditure differences noted above, as smaller firms or firms with lower R&D intensity tend to exhibit lower performance (see, e.g., Lichtenberg & Siegel, 1991; Miller, 2004). For example, it is possible that greater domestic capital availability intensifies local competition, which has a greater impact on smaller and hence domestic firms while global competition is more likely driven by global capital availability. It is also possible that the performance of larger firms persists more as these firms are more visible and more likely incentivised to allocate their resources better in the face of corporate control markets. MNCs are also present on average in countries with greater managerial availability.

Limitations

While this study represents the first step towards understanding institutional drivers of persistence, some potential biases could affect our conclusions. These include the quality of the accounting data and heterogeneity across countries in responses of firms to random shocks. In addition, the short time series data could have hidden significant relationships. It should be noted that some if not most of our sample firms have activities in more than one country (e.g., Makhija, Kim & Williamson, 1997) and may be influenced by other countries' national institutional environments. While examining home country influences controlling for host country influences was appropriate for our current theoretical objectives, future work should attempt to capture both home and host country institutional effects on firms' strategic activities and performance. Moreover, some of our measures possibly underestimate the institution in question and could be improved. Our corporate control market measure (CCM) likely underestimates CCM development as it captures the realized rather

than the actual takeover threat. Similarly, the measures of skilled labor availability and the alternate, availability of managers, only proxy actual fluidity or labor movements. Individuals need to be available for flows to occur, but their availability does not necessarily lead to flows. Our study also does not measure the underlying theoretical concept, competition. We do not test the direct impact of institutions on competition and the subsequent impact on performance persistence.

Our sample data comes mainly from 'High Income Countries' as per the World Bank classification. As such, it is not clear whether study results extend to countries in the World's Bank's three other income classes, namely 'low income', 'lower middle income', and 'upper middle income', although as reported above, when we divided our sample into high income versus other countries, results were generally similar with two noted exceptions.

Additionally, our research may be biased from including what are likely the largest firms in the study countries (McNamara, Aime & Vaaler, 2005) and using only public companies. Albeit we could not demonstrate it conclusively with available data, it is possible that the results vary with a firm's multinationality status.

Ideally, future research should examine the business unit level impact of both host and home country institutions. Such focus will allow examining variations in institutional impact by industry and the relevance of firm resources in line with the Resource Based View. Institutions also may have a moderating effect on the relationship between competition and performance, not just the direct effect studied herein.

DISCUSSION

While scholars have examined industry- and firm-level drivers of firm performance persistence, persistence research has neglected national institutions. The few cross-country comparisons of performance persistence have been mainly descriptive (e.g., Geroski & Jacquemin, 1988) and did not directly examine the impact of institutional elements. This paper argued that national institutions enable or constrain exchanges of inputs and outputs between economic actors and consequently shape the competitive intensity faced by firms, and hence, their performance

persistence. The empirical tests conducted above support this argument, in line with research showing that country matters in determining firm performance (Christmann et al., 1999; Makino et al., 2004).

We conceptualized three elements of the home country national institutional context as crucial constraints that determine the rules of exchange in the product, labor and financial markets. We believe that capturing differences in the financial and labor markets on firm performance is a significant contribution, as past studies have directly or indirectly focused on competition's impact in the product market. We especially note the importance of labor market institutions discussed below with our findings.

In the product market, we hypothesized that stronger antitrust laws lead to greater competitive intensity, and hence, lower performance persistence. These arguments were strongly supported, with empirical results showing that stronger antitrust laws positively correlate with performance persistence. Additionally, we hypothesized competing arguments regarding product liability laws. On one hand, more effective product liability statutes may lead to lower switching costs for customers, since customers would be more confident in trying out new products and services. These reduced switching costs suggest that product liability laws lead to greater competition at the product-market level, decreasing performance persistence. On the other hand, effective product liability laws may lower competitive intensity by raising entry barriers, and hence, increase performance persistence. The argument that more effective product liability laws positively correlate with performance persistence was supported.

No prior performance persistence study has examined the link between firm performance persistence and legal institutions, and as such, we cannot compare these results with past studies. However, our findings are in consonance with a growing literature suggesting that the judicial system significantly influences outcomes such as economic growth (Levine, 1999), development of securities markets (Black, 2001), investor protection and corporate governance (La Porta, Lopez-de-Silanes, Shleifer & Vishny, 2000). Costly market entry regulations were found to serve as a barrier to entrepreneurship by slowing new firm growth within a European-based sample (Klapper, Laeven &

Rajan, 2006). These results are also consistent with anecdotal and case study evidence supporting the view that small and new businesses are often disproportionately affected by product liability regulations (e.g., McCubbins & Mosier, 1998).

In the labor market, we hypothesized that more flexible unskilled labor markets enable managers to achieve greater performance persistence. By contrast, greater availability of skilled labor accelerates imitation and homogenization of firms, leading to lower performance persistence. Strong empirical support is found for these arguments, in line with research showing that managerial mobility leads to strategic change and enhances innovative performance, two potential precursors of performance persistence (Boecker, 1997; Rao & Drazin, 2002). Similarly, Madsen, Mosakowski and Zaheer (2002) found that human capital mobility was associated with knowledge retention and/or change in the banking industry. In a related study, Law, Tse and Zhou (2003) found that being able to overcome institutional constraints in China in terms of human resource management was associated with firm performance. While they did not directly address labor mobility, effectively managing this factor is a central component of HR practices. Similarly, Chacar and Vissa (2005) speculated that greater persistence of poor performance in India is due to rigid labor laws.

Finally, in the financial markets, we hypothesized that more developed public equity markets are associated with lower firm performance persistence, as access to financing becomes more equitable, leading to greater competition. Additionally, more developed corporate control markets eliminate inefficient firms, and hence, increase competitive intensity and decrease performance persistence. Neither hypothesis was supported. As indicated earlier, one explanation is that we measure the realised takeover threat rather than the actual threat, and hence, our measure likely underestimates the corporate control market. The results however are consistent with findings of a negative relationship between corporate control market activity and firm performance levels (e.g. Agarwal & Knoeber, 1996) and with research showing that hostile takeovers more likely target poorly performing industries (e.g. Morck et al., 1989) and firms (e.g., Palepu, 1986). It should be noted that our sample firms are more likely to be affiliated with a business group, which could buffer them from market pressures. Additionally, home country financial institutions may have lesser reach

in a host market than labor or product institutions since home country financing is less directly visible in host markets than labor or product characteristics, and as such, may impact firm competitiveness less.

Our results are consistent with studies suggesting significant country-level institutional influences on performance. For example, Khanna and Rivkin (2001) found that group membership increases average group member profitability in several, but not all of the six markets they examined, which they conclude suggests that variables impacting firm performance persistence vary across contexts. This result is in line with Sakakibara and Yamawaki (2008), detailed earlier. Similarly, Brito and Vasconcelos (2006) showed that country effects were in the same order of magnitude as industry effects. Hawawini, Subramanian and Verdin (2004) found that country factors were significant, albeit their relative importance was low relative to firm-specific factors. Similarly, Tong, Alessandri, Reuer, and Chintakananda (2008) found that firm effects and country–industry effects are large sources of variation in the value of firm growth options, while industry and country effects were relatively less significant when individually considered.

Research on the impact of national institutions on firm performance persistence has been limited due to the paucity of data spanning nations, national institutions, and firm performance. Extant work is descriptive and does not identify precise national institutional elements that drive firm outcomes. Nonetheless, our findings are comparable to the few available results. For example, in a study comparing firm performance persistence in the UK, France and Germany, Geroski and Jacquemin (1988) found that countrywide factors were more discriminating than firm or industry specific ones. Chacar and Vissa (2002, 2005) demonstrated that while the US and India lie at opposite ends of institutional development, their firms have generally similar performance persistence patterns. The exceptions were poorly performing firms in India, within which poor performance persisted more. They argued that national institutions in India, such as labor market institutions, make resource redeployment more difficult, and thus hamper firm performance improvement efforts. In a unique, small-sample study, Christmann et al. (1999) examined the impact of national institutions on subsidiary performance from four large MNCs in a single industry,

spanning 37 countries. They showed that country characteristics are by far the most important determinants of subsidiary performance, compared to industry structure, subsidiary strategy, and corporate characteristics. Using a larger data set on foreign affiliates of Japanese firms, Makino, Isobe, and Chan (2004) showed that country effects explain almost 10% of the firm-performance variance, an amount equal to industry effects in the same study.

This study thus pushes the boundaries of performance research by showing that differences in institutional environments lead to performance persistence differences, and not just industry and firm factors. This study also adds to the growing empirical literature documenting the impact of national institutions on firm actions and performance (e.g., Chesbrough, 1999; Benito, Groggaard & Narula, 2003; Delios & Henisz, 2003).

CONCLUSION

Recent research suggests that institutional elements constitute an essential third class of variables that could significantly impact firm performance persistence, in addition to industry- and firm-specific drivers (e.g., Chacar & Vissa 2005; Khanna & Palepu, 1997; Peng, 2003). We extended performance persistence work in that direction. Performance persistence is one of the better available ways to capture sustainable competitive advantage, a major theoretical construct in the international strategy field, and a primary goal of practicing company managers (e.g., Miller, 2003). Prior studies, however, typically empirically measured instead a firm's performance level at a specific period of time, or examined performance persistence within a single institutional context.

To identify the institutional contingencies that could affect performance persistence, this study drew on new institutional economics (e.g., North, 1990). In doing so, this paper's arguments and findings draw attention to hitherto neglected factors of the national institutional context with important performance consequences for firms. The evidence suggests that institutional context complements traditional performance persistence drivers, such as industry structure and firm resources and capabilities.

Specific firm responses to institutional variations hence need to be developed. This study suggests that the institutional elements shaping product and labor market competition influence firm performance persistence. Stronger antitrust laws and greater fluidity in the skilled labor market likely hinder firm performance persistence, while stronger product liability laws and greater flexibility in unskilled labor markets likely promote persistence. Surprisingly, we did not find strong support for a financial market institutional impact on performance persistence.

This study was limited to studying the impact of the formal institutions in the product and factor markets, but numerous other institutional elements are likely important, especially informal institutions (Guillén, 2001). Future research could consider the impacts of other institutional factors found to be essential to economic development and strategic actions, such as policy constraints (Henisz & Zelner, 2001), culture/country-of-origin (Kogut & Singh, 1988; Pereira, Hsu & Kundu, 2005), ethical standards/corruption (van Tulder & Kolk, 2001), currency stability (Miller & Reuer, 1996) and entrepreneurial profile (Busenitz, Gomez & Spencer, 2000). Scholars could also examine institutional impacts on a regional basis (Rugman & Verbeke, 2004), or whether the impact of institutions varies with firm multinationality. Moreover, we focused on the absolute institutional development level, but the change in institutions may also be important.

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TABLE 1
Sample Characteristics by Country

Country	Number of observations	Number of firms	Average years of data per firm	Number of SIC2 industries	Average ROA
Australia	2057	295	7.0	48	.034
Austria	523	76	6.9	22	.029
Belgium	595	84	7.1	35	.042
Brazil	804	122	6.6	27	.046
Canada	2061	309	6.7	49	.039
Chile	286	67	4.3	26	.045
China	303	75	4.0	26	.028
Denmark	828	110	7.5	34	.050
Finland	580	83	7.0	30	.060
France	3163	467	6.8	56	.037
Germany	3368	446	7.6	52	.027
Greece	193	40	4.8	23	.085
Hong Kong	757	115	6.6	37	.039
India	1296	214	6.1	31	.085
Indonesia	597	89	6.7	29	.050
Italy	900	141	6.4	37	.036
Japan	25345	2852	8.9	60	.012
Korea, Republic of	387	82	4.7	24	.040
Malaysia	2594	393	6.6	46	.033
Mexico	403	64	6.3	20	.063
Netherlands	1106	157	7.0	35	.066
New Zealand	255	57	6.0	35	.073
Norway	197	42	4.7	30	.036
Portugal	236	38	6.2	20	.038
Singapore	1457	210	6.9	44	.029
South Africa	559	93	6.0	34	.078
Spain	877	116	7.6	36	.054
Sweden	1143	187	6.1	44	.046
Switzerland	1172	163	7.2	37	.046
Thailand	1597	230	6.9	45	.057
Turkey	175	33	5.3	17	.117
United Kingdom	8084	1121	7.2	60	.054
United States	14167	2000	7.1	64	.042
Total	78065	10551		70	
Average	2366	320	6.4	37	.048

TABLE 2
Descriptive Statistics and Pearson Correlation Matrix^a

Variable	Mean	S.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. Performance	0.003	0.07	-.58	.50										
2.Lagged Performance	0.003	0.07	-.57	.50	0.50*									
3. Industry Concentration	0.58	0.32	0	1	0.01*	0.00								
4. Firm Size	0.004	0.02	-.00	1	-0.00	-0.00	0.22*							
5. Antitrust Laws	6.0	0.8	2.5	8	0.03*	0.03*	-0.16*	-0.22*						
6. Product Liability Laws	6.4	1	3.9	8.5	-0.01*	-0.01*	0.10*	0.08*	-0.05*					
7. Public Equity	93.1	54.6	4.4	373	-0.01*	-0.01	-0.06*	-0.12*	0.02*	-0.08*				
8. Corporate Control Market	0.001	0.002	0	.019	0.01*	0.00	0.34*	0.02*	0.09*	-0.02*	0.06*			
9. Unskilled Labor Market	5.6	1.6	1.6	9	0.02*	0.02*	-0.09*	-0.08*	0.09*	-0.11*	0.50*	-0.03*		
10. Skilled Labor Market	5.8	1.2	2.4	8.4	0.02*	0.02*	0.05*	-0.06*	0.48*	0.01	-0.21*	0.09*	-0.28*	
11. Country Development	22.6K	7.2K	930	37.2K	0.01*	0.01*	-0.27*	-0.20*	0.65*	-0.02*	0.03*	0.06*	0.14*	0.39*

^a N=78,065 observations; * = p<0.05

TABLE 3: Institutional Drivers of Persistence^a

	Model 1	Model 2	Model 3	Model 4	Model 5
Persistence	0.40 (22.99) ^{***}	0.47 (24.27) ^{***}	0.42 (17.61) ^{***}	0.30 (7.49) ^{***}	0.41 (10.39) ^{***}
Effects on Performance Persistence:					
Industry Concentration	-0.015 (2.12) [*]	-0.018 (2.55) [*]	-0.014 (2.00) [*]	-0.014 (2.04) [*]	-0.016 (2.35) [*]
Firm Size	0.052 (3.01) ^{**}	0.044 (2.55) [*]	0.052 (3.01) ^{**}	0.047 (2.74) ^{**}	0.042 (2.40) [*]
Country Development	-0.12 (8.04) ^{***}	-0.054 (3.28) ^{***}	-0.143 (6.63) ^{***}	-0.063 (3.54) ^{***}	-0.053 (2.11) [*]
Antitrust Laws (H1)		-0.104 (8.87) ^{***}			-0.092 (7.55) ^{***}
Product Liability Laws (H2)		0.008 (2.51) [*]			0.007 (2.14) [*]
Public Equity (H3)			0.018 (1.64)		0.018 (1.59)
Corporate Control Market (H4)			-0.001 (0.14)		0.01 (1.02)
Unskilled Labor Market (H5)				0.07 (4.56) ^{***}	0.06 (3.68) ^{***}
Skilled Labor Market (H6)				-0.035 (3.79) ^{***}	-0.022 (2.21) [*]
Main Effects:					
Industry Concentration	0 (0.03)	0 (0.02)	0 (0.05)	0 (0)	0 (0.06)
Firm Size	0.01 (1.24)	0.011 (1.43)	0.009 (1.17)	0.009 (1.16)	0.01 (1.26)
Country Development	0.011 (3.58) ^{***}	0.013 (4.01) ^{***}	0.01 (1.75) ⁺	0.016 (3.98) ^{***}	0.018 (2.70) ^{**}
Antitrust Laws		-0.001 (0.35)			-0.001 (0.27)
Product Liability Laws		0.001 (0.73)			0.001 (0.71)
Public Equity			0 (0.02)		-0.001 (0.41)
Market for Corporate Control			0.002 (0.62)		0.001 (0.5)
Unskilled Labor Market				-0.001 (0.31)	-0.002 (0.43)
Skilled Labor Market				-0.005 (1.99) [*]	-0.005 (1.93) ⁺
Constant	0.006 (5.13) ^{***}	0.007 (5.06) ^{***}	0.006 (4.82) ^{***}	0.004 (2.11) [*]	0.004 (2.24) [*]
Model F	40	38	36	37	33
R-squared within	0.022	0.024	0.023	0.024	0.024
between	0.267	0.215	0.290	0.178	0.140
overall ^b	0.133	0.115	0.140	0.100	0.080

^aThe dependent variable is performance measured as firm specific rent (FSR). Independent variables were standardized before calculating interactions; Absolute value of t-statistics in parentheses, estimated through *panel data with fixed effects*; +=p<.10; *=p<.05; **=p<.01; ***=p<.001; n= 78,065 observations from 10,551 firms; all two-tailed t-tests.

^bNote that the reported R-squared is not equivalent to the R-squared in OLS models. In the xtreg, fe function we ran, the effects of our 2 groups, firms and time, are fixed and not estimated. They are subtracted out of the model before the fit is performed, and the resulting R-Squared will typically be smaller.

TABLE 4: Robustness Checks^a

	Full Model	With added controls	MNCs	Domestic Firms
Persistence	0.41 (10.39) ^{***}	0.234 (7.83) ^{***}	0.219 (8.74) ^{***}	0.216 (7.77) ^{***}
Effects on Performance Persistence:				
Industry Concentration	-0.016 (2.35) [*]	-0.026 (3.05) ^{**}	-0.012 (1.46)	-0.015 (1.65) ⁺
Firm Size	0.042 (2.40) [*]	0.081 (2.96) ^{**}	0.041 (2.26) [*]	0.017 (0.78)
R&D Intensity		-0.458 (2.61) [*]	-0.01 (0.88)	-0.012 (1)
R&D Intensity Dummy		0.02 (1.80) ⁺	-0.028 (2.65) ^{**}	0.001 (0.08)
MNC Status		0.014 (1.32)		
Country Development	-0.053 (2.11) [*]	-0.033 (-0.99)	-0.023 (0.79)	-0.096 (3.02) ^{**}
Antitrust Laws (H1)	-0.092 (7.55) ^{***}	-0.101 (5.94) ^{***}	-0.1 (7.14) ^{***}	-0.079 (5.28) ^{***}
Product Liability Laws (H2)	0.007 (2.14) [*]	0.01 (1.97) [*]	0.007 (2.06) [*]	0.004 (0.96)
Public Equity (H3)	0.018 (1.59)	-0.001 (-0.06)	0.008 (0.63)	0.04 (2.86) ^{**}
Corporate Control Market (H4)	0.01 (1.02)	0.001 (0.05)	0.02 (1.86) ⁺	-0.003 (0.22)
Unskilled Labor Market (H5)	0.06 (3.68) ^{***}	0.045 (1.80) ⁺	0.067 (3.71) ^{***}	0.055 (2.64) ^{**}
Skilled Labor Market (H6)	-0.022 (2.21) [*]	-0.035 (2.66) ^{**}	-0.014 (1.19)	-0.028 (2.35) [*]
Main Effects Included				
R-squared	0.024	0.023	0.03	0.02

^aSee notes a and b from Table 3; N=6294 for columns 2-4.