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Organization capital, labor market flexibility, and stock returns around the world

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ABSTRACT

Using data from 20 OECD countries, we find that firms with greater organization capital have significantly higher stock returns and that this represents an international phenomenon. We also find new evidence that the positive association between organization capital and stock returns increases with labor market flexibility. This finding is consistent with greater labor mobility and competition in flexible labor markets rendering organization capital investment riskier from the shareholders' perspective.

Keywords: Organization Capital; Labor Market Flexibility; Intangible Assets; Stock Returns; Implied Cost of Capital

JEL Classification: G12; G15; K31; L23

1. Introduction

The economics and finance literature has documented that labor market regulations play an important role in determining employee turnover, productivity growth, and a number of corporate decisions, such as capital structure and cash holdings (see, e.g., Besley and Burgess, 2004; Autor, Kerr, and Kugler, 2007; Messina and Vallanti, 2007; Simintzi, Vig, and Volpin, 2015; and Ghaly, Dang, and Stathopoulos, 2017). Since labor institutions differ considerably across countries, a natural and yet unexplored question is whether labor-related investments could have different risk and return implications for shareholders. A deeper understanding of the effects of such investments is important for both investors (in making portfolio decisions) and managers (in allocating firm resources). In this paper, light is shed on this issue by investigating the pricing of organization capital risk across different labor markets.

Organization capital consists of the expertise or knowledge embodied in a firm's key employees that contributes to productivity (Eisfeldt and Papanikolaou, 2013).[1] Although organization capital investment is a source of growth (Lev and Radhakrishnan, 2005; Lev, Radhakrishnan, and Zhang, 2009), it is risky for shareholders. According to Eisfeldt and Papanikolaou (2013), since part of organization capital is embodied in key talent and thus potentially movable across firms, key talent can extract payment from shareholders equal to their outside option. When outside option improves, the higher compensation required to retain key talent reduces the fraction of cash flows shareholders can appropriate from organization capital.

[1] There are two widely accepted definitions of organization capital. The first focuses on *organizational capabilities* and defines organization capital as "an agglomeration of technologies—business practices, processes and designs, and incentive and compensation systems that together enable some firms to consistently and efficiently extract from a given level of physical and human resources a higher value of product..." (Lev and Radhakrishnan, 2005). The second definition, which is adopted in this paper, views organization capital as the knowledge and expertise embodied in a firm's employees. This definition is consistent with previous evidence that the loss of key talent may negatively affect corporate outcomes. For instance, Bernstein (2015) shows that losing skilled inventors post-IPO leads to declines in firm innovation.

As a result, shareholders of firms with organization capital are exposed to additional risks and demand higher returns (Eisfeldt and Papanikolaou, 2013).

The riskiness of organization capital investment may vary across countries because key talent's outside option—and thus the division of surplus from organization capital between shareholders and key talent—is likely to depend on the institutional features of labor markets. In particular, the ease with which key talent can leave a firm to pursue outside options may well depend on the flexibility in national labor regulations. A growing body of literature documents that less restrictive labor regulations are associated with greater job and work flows, and labor mobility because of increased employer leverage in terminating individual contracts and more outside opportunities (see, e.g., Burgess, Lane, and Stevens, 2000; Gangl, 2003; Autor, Kerr, and Kugler, 2007; Messina and Vallanti, 2007; Haltiwanger, Scarpetta, and Schweiger, 2014). Moreover, when competing for key talent, firms in flexible labor markets face fewer restrictions regarding the contracts and remuneration packages they can offer (Bloom, Genakos, Sadun, and Van Reenen, 2012). Therefore, the greater labor mobility and competition improve key talent's outside option and increase the cost of their retention, thereby lowering the rent that shareholders can extract from organization capital. To the extent that labor market flexibility is associated with a bigger threat of key talent leaving the firms and a lower payment that shareholders can extract from organization capital, shareholders may consider organization capital investment to be riskier in more flexible labor markets. Motivated by these arguments, our main hypothesis asserts that the positive association between organization capital and stock returns is stronger in countries with more flexible labor markets.

To test this hypothesis, we construct a firm-level panel dataset consisting of 16,962 firms (131,810 firm-year observations) from 20 OECD countries over the period from 1998 to 2013. Our first set of tests examines whether the positive relationship between organization capital and stock returns is present in an international context. Following Lev and Radhakrishnan (2005) and Eisfeldt and Papanikolaou (2013), we measure the *stock* of organization capital as capitalized selling, general, and administrative (SG&A) expenses scaled by total assets (*OC/TA*). Our analysis shows that firms with higher organization capital have significantly higher annual buy-and-hold stock returns. A one-standard-deviation increase in *OC/TA* is associated with a 3.2 percentage point increase in annual returns. This evidence suggests that the positive relationship between organization capital and stock returns (henceforth OC-return relationship) is applicable to other countries.

Our second set of tests investigates whether the OC-return association increases with the degree of labor market flexibility. Following the previous literature (see, e.g., Pagano and Volpin, 2005; Simintzi, Vig, and Volpin, 2015), we measure labor market flexibility using the Employment Protection Legislation (EPL) index from the OECD. Although EPL measures the difficulty in hiring and firing, to a certain extent, from an employer's perspective, less restrictive labor regulations are widely shown to promote labor turnover, flows, and mobility (see, e.g., Autor, Kerr, and Kugler, 2007; Messina and Vallanti, 2007; Haltiwanger, Scarpetta, and Schweiger, 2014; Edmans, Li and, Zhang, 2016), consistent with our motivation that EPL captures the ease with which key talent can leave a firm to pursue outside options.

Consistent with our hypothesis, we find that the positive relationship between organization capital and stock returns is significantly stronger in countries with less strict EPL. The economic magnitude is sizable. A move from Belgium to the US (i.e., from the least flexible to the second-most flexible country) increases the implied coefficient on *OC/TA* from 0.018 to 0.034. In other words, a one-standard-deviation increase in *OC/TA* is associated with an increase of 2.1 percentage points and an increase of 3.9 percentage points in annual stock returns in Belgium and the US, respectively. Furthermore, our country-by-country analysis reveals that the positive OC-return association is significant in 9 of the 20 sample countries, most of which are ranked highly in labor flexibility. More importantly, this positive relationship increases monotonically from the least to the most flexible country groups, and its difference between the most and the least flexible country groups is significant at the 1% level, thus lending direct support to our hypothesis.

We perform a number of robustness tests and confirm that our results are robust to controlling for the loadings to the global and regional asset pricing factors, alternative samples, estimation methods, as well as alternative measures of organization capital, labor market flexibility, and cost of capital. In subsequent analysis, we sort stocks into five portfolios and estimate factor model regressions on these portfolios to examine the pricing of organization capital risk. Consistent with our main results, our tests show that trading alpha increase monotonically with organization capital, suggesting that the global market, size, and value factors are unable to explain the anomalous returns of organization capital.

Finally, we consider two alternative explanations relating to investment irreversibility and operating leverage. A natural implication of these explanations is that high-*OC/TA* stocks are riskier than low-*OC/TA* stocks during bad economic times and, hence, the higher returns of the former should operate through increased loadings to the market portfolio. To rule out these explanations, we estimate and document that a conditional version of the global three-factor model, which allows factor loadings to vary over time, fails to price the *OC/TA*-sorted portfolios. Moreover, classifying economy states into “good”, “normal”, and “bad” based on GDP growth and local market returns *for each country*, we find no evidence that high-*OC/TA* firms have greater exposure to the global or regional market portfolios during the bad economic states. Overall, our findings are inconsistent with the two alternative explanations.

This paper makes several contributions to the literature. First, we add to the literature on the value implications of intangible assets. Previous studies show that investment in intangible assets, such as Research and Development (R&D) (Chan, Lakonishok, and Sougiannis, 2001), employee satisfaction (Edmans, 2011), human capital (Eiling, 2013), and innovative efficiency (Hirshleifer, Hsu, and Li, 2013), is associated with abnormal stock returns. With regard to organization capital, Lev, Radhakrishnan, and Zhang (2009) find that firms with high organization capital earn significantly higher future abnormal stock returns. Building on the notion that organization capital is embodied in key talent, Eisfeldt and Papanikolaou (2013) posit that shareholders require risk premia for investing in firms with organization capital. This paper is the first to investigate the link between organization capital and stock returns in an international context. We present new evidence that the positive association between organization capital and stock returns is more pronounced in more flexible labor markets, consistent with greater labor mobility and competition for key talent rendering organization capital investment riskier for shareholders.

Second, we contribute to the literature by validating capitalized SG&A expenses as a proxy of organization capital. Lev and Radhakrishnan (2005) argue that most of the expenditures that increase organization capital (e.g., IT expenditures, employees’ training costs, advertising expenses, etc.) are included in this income statement item. However, because SG&A expenses may include items that do not improve organization capital, the validity of this measure must be empirically verified. Although prior studies have validated this measure in the US market (Eisfeldt and Papanikolaou, 2013; Li, Qiu, and Shen, 2017), its validity for non-US firms has yet to be examined. To the best of our knowledge, we are the first to offer validation tests in an international setting and show that capitalized SG&A expenses capture firm productivity, innovative efficiency, and managerial quality well.

Finally, our paper also relates to a number of studies examining the country-level determinants of asset pricing anomalies. For instance, Pincus, Rajgopal, and Venkatachalam (2007) find that the accrual anomaly is stronger in countries with a more extensive use of accrual accounting and a lower share ownership concentration. Chui, Titman, and Wei (2010) show that the returns to momentum investment strategies are higher in countries characterized by greater individualism. For its part, our study reveals that the positive OC-return association is an international rather than a local manifestation, and varies across national labor markets.

The rest of this paper is organized as follows. Section 2 explains our data and variables. Section 3 presents our empirical tests and reports the results. Section 4 presents the results of additional analyses, and Section 5 concludes.

2. Data and Variables

2.1. *Data*

Our sample covers firms from 20 OECD countries over the period from 1998 to 2013. Following Bartram, Brown, and Stulz (2012), a firm's country is that of its primary listing. For non-US firms, we download their annual financial information, and daily and monthly stock prices from Compustat Global, and translate them into US dollars using exchange rates from Thomson Reuters or the Bank of England (whichever is available). For the US sample, we include stocks listed on the AMEX, NYSE, and NASDAQ, and obtain their financial and market information from the Compustat North America and CRSP databases. The daily stock prices are used to calculate weekly returns for estimating factor exposure. The monthly prices and returns are used for calculating annual buy-and-hold returns, which are the main outcome variable for most analyses in our paper. All financial firms are excluded. Observations that are unmerged and have negative values in book equity are discarded. Industry classification is constructed using the Fama-French 49 industry classification (our results are robust to using the 4-digit Global Industry Classification Standard). All continuous variables are winsorized at the 1st and 99th percentiles to reduce the effects of outliers.

Our final sample consists of 16,962 firms (131,810 firm-year observations) from 20 countries. As Table 1 shows, the five countries with the most observations are the US (34.3%), Japan (25.9%), the UK (8.7%), Australia (7.6%), and Germany (5.1%). Detailed breakdowns by country and year, and by industry and year of our sample can be found in Table IA.1 of the Internet Appendix.

2.2. *Variables*

2.2.1. Measuring organization capital

Following Eisfeldt and Papanikolaou (2013), we adopt the perpetual inventory method and estimate a firm's *stock* of organization capital by capitalizing SG&A expenses. A substantial share of the reported SG&A expenses consists of costs related to employee training, information technology, and brand promotion, most of which would improve labor efficiency (Lev and Radhakrishnan, 2005). Since any accrued value from these expenditures cannot be attributed to a specific unit of output and is shared by key talent, SG&A expenditure can be considered an investment in organization capital (Eisfeldt and Papanikolaou, 2013).[2]

Under the perpetual inventory method, we estimate a firm's *stock* of organization capital by recursively cumulating its deflated value of SG&A expenses as follows:

$$OC_{it} = (1 - \delta_O) \cdot OC_{it-1} + (SG\&A_{it} / cpi_t) \quad (1)$$

where δ_O is the depreciation rate, and cpi_t is the US consumer price index. For a given firm we begin the recursive estimation after it has first appeared in the Compustat Global or Compustat North America databases. For non-US firms, SG&A expenses are translated into US dollars before they are deflated. Following prior studies (Eisfeldt and Papanikolaou, 2013; Li, Qiu, and Shen, 2017), we treat missing SG&A expenses as zero. The initial stock of organization capital is defined as follows:

$$OC_0 = SG\&A_1 / (g + \delta_O) \quad (2)$$

[2] Eisfeldt and Papanikolaou (2013) find that US firms with higher capitalized SG&A expenses to total assets ratios are more likely to consider loss of talent as a risk factor, to spend more on information technology, be more productive after controlling for capital and labor, and have better managerial quality. Lev, Radhakrishnan, and Zhang (2009) find that capitalized SG&A expenses capture managerial quality, as shown by its positive association with both executive compensation and pay-for-performance. Li, Qiu, and Shen (2017) find that organization capital is significantly and positively related to higher average ranks in the Fortune magazine's "100 Best Companies to Work for in America" list and the Computerworld's "100 Best Places to Work in IT" list.

Following Eisfeldt and Papanikolaou (2013), we use a depreciation rate (δ_O) of 15% and a growth rate (g) of 10%.[3] We scale the *stock* of organization capital by total assets (*OC/TA*) and use it as our main independent variable throughout the paper.

2.2.2. Measuring labor market flexibility

We measure labor market flexibility using the Employment Protection Legislation (EPL) index from the OECD. The EPL index measures the restrictiveness in national labor regulations in the protection of labor in dismissals and the use of temporary contracts in hiring. Since the EPL index is computed using national labor legislations and thus captures changes in institutions, it is less likely to reflect changes in macroeconomic conditions. There are three components in EPL: individual dismissal of workers with regular contracts (*EPR*), additional costs of collective dismissals (*EPC*), and regulation of temporary contracts (*EPT*). *EPR* measures dismissal protection for employees with regular contracts and covers issues relating to the procedural inconvenience of dismissal faced by employers. *EPC* measures the additional regulations, provisions, notifications, and costs required for collective dismissals over and above those involved in individual dismissals. *EPT* measures the regulations used in fixed-term and temporary labor contracts in terms of the maximum number of successive contracts, restrictions on renewing temporary contracts, maximum cumulated duration, and the legality of fixed-term and temporary contracts.[4] Following prior studies (Pagano and Volpin, 2005; Simintzi, Vig, and Volpin, 2015; Edmans, Li, and Zhang, 2016), we define *EPL* as the equally weighted average of *EPR, EPC,* and *EPT*. For a more convenient interpretation, we multiply *EPL* by negative one such that higher values indicate greater labor market flexibility.

Undeniably, *EPL* is imperfect in measuring key talent's outside option because it captures labor regulations relating to restrictions in hiring and firing, to a certain extent, from an employer's perspective. However, EPL is shown in the extant labor economics literature to be significant in determining labor supply, and job and worker flows. For instance, Gangl (2003)

[3] A depreciation rate of 15% has been used since 2006 by the US Bureau of Economic Analysis to estimate the stock of R&D capital (Li, 2012). Eisfeldt and Papanikolaou (2013) match the growth rate, *g*, to the average real growth rate of SG&A expenses in their US sample, which is 10%. In our sample, the average real growth rate of SG&A expenses is 12%. Our results hold when an alternative growth rate of 12% is used. We also follow Li, Qiu, and Shen (2017) and repeat our analysis using the industry average real growth rate of SG&A expenses for each year, and our results hold.

[4] For more details on these components and the construction of *EPL*, please refer to: http://www.oecd.org/els/emp/EPL-Methodology.pdf.

argues that labor protection reduces mobility due to lower leverage in terminating individual contracts by employers and reduced external opportunities for employees. Analyzing the adoptions of wrongful-discharge laws across U.S. states, Autor, Kerr, and Kugler (2007) document that less protective labor regulations are associated with greater employment flows and firm entry rates. Using a cross-country sample in the 1990s, both Gómez-Salvador, Messina, and Vallanti (2004), and Haltiwanger, Scarpetta, and Schweiger (2014) document that more stringent hiring and firing regulations are associated with reduced job flows and reallocation. Similarly, Messina and Vallanti (2007) find that less strict EPL is associated with greater job destructions and creations in sectors with declining growth. Relatedly, Edmans, Li, and Zhang (2016) argue and document that employee satisfaction is particularly important for countries with less strict EPL because competitors face fewer constraints in hiring away key talent. The authors also find that the time-series mean of *EPL* is positively correlated with labor turnover with a coefficient of over 0.7 using data from 7 OECD countries.

Despite this extant evidence on the link between EPL and labor flows reviewed above, we perform an additional test to shed further light on the validity of *EPL* in capturing job and worker flows (the definitions of these job and worker flow measures follow Davis and Haltiwanger (1999, pp. 2716-2717) and OECD (2009, pp. 122-123)). We collected the country-average (across the years 1997-2004) job reallocation (defined as the sum of job creation and destruction) and excess job reallocation (defined as total job reallocation minus the absolute value of the difference between job creation and job destruction) rates for 6 European countries in our sample, and the country-average (across the years 1998-2005) worker reallocation (defined as the sum of total hiring and separations) and excess worker reallocation rates (defined as total worker reallocation minus the absolute value of the difference between job creation and destruction) for 13 European sample countries from OECD (2009). We then computed pairwise correlations between these job and worker flow measures and the time-series average *EPL* (calculated across the years of 1998-2005). In unreported results, we find that the correlations between *EPL* and the two job reallocation rates, and those between EPL and the two worker reallocation rates are all above 0.5. While the correlations for the job reallocation rates are insignificant (nonetheless subjected to a small sample problem), those for the worker reallocations are significant at the 10% level or better (for more details, please see Table IA.3 of the Internet Appendix).

Overall, this evidence is consistent with our motivation that employees in flexible labor markets may find it less difficult to leave the firms to pursue outside options. In subsequent robustness tests, we employ an alternative industry-level measure of labor mobility and confirm that our conclusions are unchanged.

2.2.3. Estimating systematic risk

It is important that we control for systematic risk in our analysis. Since systematic risk is unobserved, we estimate it using the Capital Asset Pricing Model (CAPM). In an international setting, CAPM could hold globally or locally depending on the degree of financial and economic integration. The local CAPM holds when local markets are fully segmented, and the global CAPM holds when local markets are fully integrated. As pointed out by several studies (see, e.g., Bekaert and Harvey, 1995; Baele, 2005), the process of market integration may not proceed smoothly. A pertinent example is that frictions in labor markets induced by employment protection laws may segment markets, implying that risk models may differ across labor markets. In light of this issue, instead of choosing the global or local CAPM *a priori*, we follow Bekaert, Hodrick, and Zhang (2009) and choose a model specification with a maximum flexibility. In this model, returns depend on both the global and regional market portfolios, and the size and value factors. The pricing factors are downloaded from Professor Kenneth French's data library (for more details about factor construction, please see Fama and French, 2012). We use regional factors instead of country factors as local factors because Brooks and Del Negro (2005) show that regional factors mostly explain the country factors within-region.

To allow the factor loadings to vary over time, we use weekly returns (Wednesday-to-Wednesday) and estimate the following time-series regression for each stock in each calendar year:

$$r_{i,t} - rf_t = \alpha_i + \beta^{WMKT}_i WMKT_t + \beta^{WSMB}_i WSMB_t + \beta^{WHML}_i WHML_t$$
$$\beta^{RMKT}_i RMKT_t + \beta^{RSMB}_i RSMB_t + \beta^{RHML}_i RHML_t + \varepsilon_t \quad (3)$$

where $r_{i,t}$ is the weekly returns for stock *i* in week *t*, $WMKT_t$ is the excess returns of the global market portfolio, $WSMB_t$ is the return of the global Small-Minus-Big (SMB) size portfolio, and $WHML_t$ is the return of the global High-Minus-Low (HML) value portfolio. $RMKT_t$ is the excess returns of the regional market portfolio, $RSMB_t$ is the return of the regional SMB size portfolio,

$RHML_t$ is the return of the regional HML value portfolio, and ε_t is the residual term. Following Bekaert, Hodrick, and Zhang (2009), each of the three regional pricing factors is orthogonalized with respect to the global three factors using a time-series regression on the latter. These regressions are conducted every calendar year, and their residuals are the new regional factors used in equation (3).[5] A minimum of 26 weeks is required for the estimation. To be precise, our analysis uses factor loadings estimated using weekly returns within calendar year *t-1* to explain annual buy-and-hold stock returns in fiscal year *t*.[6]

2.2.4. Firm and country control variables

We control for a number of firm and country characteristics in our analysis. Firm size is measured by log market capitalization (*Ln(ME)*), and the value effects are captured by the log book-to-market equity ratio (*Ln(BM)*) (Banz, 1981; Fama and French, 1993); profitability is measured as the ratio of income before extraordinary items to total assets (*ROA*); R&D intensity is defined as the ratio of R&D expenditure to total sales (*R&D/Sale*); *Leverage* is measured as the ratio of the sum of short-term and long-term debt to total assets; capital intensity is measured as the ratio of capital expenditures to total assets (*CAPX/TA*); asset tangibility is calculated as net property, plant, and equipment divided by total assets (*Asset tangibility*). Finally, to account for a firm's operations in foreign markets, we construct an indicator variable (*Foreign currency indicator*) that equals one when it reports a nonzero value of foreign currency adjustments, and zero otherwise.

As for country characteristics, we collect the rule of law index (*Rule of law*) from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) that measures the degree of tradition in law and order, with smaller values for less traditions. Second, we collect the revised anti-directors rights index (*Anti-directors rights index*) from Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008). The anti-directors rights index measures the degree of legal protection on minority shareholders, which ranges from 0 to 6, with higher values indicating stronger investor protection. Third, we collect the individualism index (*Individualism*) from Professor Hofstede's homepage, capturing how individualistic or collectivistic a nation is. Fourth, we control for stock

[5] Note that the orthogonalization does not affect the model, but only simplifies the interpretation of the betas. In an earlier version of this paper, our results based on the unorthogonalized regional factor loadings are very similar.

[6] This empirical choice is made for the sake of computational efficiency for the estimation of factor loadings.

market development as measured by the ratio of market capitalization to GDP (*Stock Cap to GDP*) (Bekaert and Harvey, 1997). Fifth, we use the ratio of total private credit to Gross Domestic Product (GDP) to capture the degree of financial market development (*Financial development*) (Stulz and Williamson, 2003). Sixth, we use log real GDP per capita (in 2005 US dollars) (*Ln(GDP per capita)*) and the rate of change in real GDP (*GDP growth*) to control for the effects of income level and economic growth on stock returns, respectively. Finally, to control for macroeconomic uncertainty, we include the rate of change of the national consumer price index (*CPI growth*) (Beck, Demirgüç-Kunt, and Maksimovic, 2006).

The detailed definitions and descriptions of the above firm and country control variables can be found in Appendix A.1.

3. Empirical Results

3.1. *Descriptive statistics*

Table 1 reports descriptive statistics by country. Consistent with US firms investing more in firm-specific human capital, the mean *OC/TA* for US firms is 1.23, ranking third among our 20 sample countries. The other four countries investing most heavily in organization capital (*OC/TA*) are the UK (1.38), Japan (1.31), Sweden (1.041), and Denmark (1.036). As for labor market flexibility, the US is the second-most flexible market according to *EPL*. The remaining four of the top five most flexible countries are New Zealand (-0.79), Canada (-1.38), the UK (-1.48), and Ireland (-1.65).[7]

Insert Table 1 about here

Table 2 presents summary statistics. For firm size, the mean (median) deflated total assets are US$2.26 (US$0.28) billion. The mean (median) *OC/TA* is 1.073 (0.750), and the mean (median) annual buy-and-hold return is 15.5% (5.2%). The univariate comparison (median breakpoint) shows that high-*OC/TA* firms earn higher stock returns, are smaller, and less levered than low-*OC/TA* firms on average. These differences are significant at the 1% level in both mean and median tests. These statistics are consistent with the notion that high-*OC/TA* firms are riskier than low-*OC/TA* firms. If high-*OC/TA* firms have higher discount rates, their valuations should be lower (Berk, 1995). Likewise, if cash flows are riskier among these firms, leverage is

[7] For more convenient interpretation, we multiply *EPL* by negative one. As a result, all values of *EPL* are negative, and less negative values of *EPL* indicate greater labor market flexibility.

expected to be lower under standard trade-off theory (Leland, 1994). Consistent with the view that organization capital is an important factor of production, firm productive efficiency, measured as the ratio of sales to total assets, is significantly higher for the high-*OC/TA* firms. Moreover, high-*OC/TA* firms have lower systematic risk, captured by both global and regional market betas, higher global and regional size factor loadings, and lower global and regional value factor loadings. Overall, these statistics are largely consistent with those reported by Eisfeldt and Papanikolaou (2013).

Insert Table 2 about here

3.2. *Validating the SG&A measure of organization capital in our non-US sample*

We begin by evaluating the validity of capitalized SG&A expenses in measuring organization capital. Our estimated stock of organization capital are measured with errors because SG&A expenses may include items unrelated to investment in organization capital. Although capitalized SG&A expenses measure organization capital well in the US market (see, e.g., Eisfeldt and Papanikolaou, 2013; Li, Qiu, and Shen, 2017), its validity in other markets has not been verified. Arguably, the extent to which SG&A expenses capture investment in organization capital may differ across countries due to differences in institutional settings, such as accounting standards, corporate governance, etc. Therefore, we perform several validation tests for the SG&A measure in our non-US sample.

First, since organization capital is an important factor of production, we test whether firms with high capitalized SG&A expenses have higher productive efficiency, measured by the sales-to-asset ratio (*Sale/TA*). In our non-US firm-year panel, we regress *Sale/TA* on *OC/TA*, firm size, and fixed effects. Column (1) of Table 3 shows that capitalized SG&A expenses are positively and significantly (at the 1% level) associated with *Sale/TA*.

Insert Table 3 about here

Second, due to their superior business processes, knowledge capital, and technologies, we expect firms with higher organization capital to have greater innovation outputs and efficiency. Since patent data for international firms is not readily available, we collect country-level innovation data instead and examine whether country-average capitalized SG&A expenses are associated with these innovation measures. For each of the 19 non-US sample countries, we collected four country-level measures of innovation outputs and efficiency: the number of triadic patent families (*TPF*) from the OECD (2015)[8], the total number of patents (*Patent*) granted by the United States Patent and Trademark Office (USPTO), total R&D expenditures (in 2005 US dollars) (*R&D*) from the OECD, and the ratio of *Patent* to *R&D*. These innovation proxies are natural logarithm transformed. To isolate the effects of the SG&A measure from those of macroeconomic factors, we control for the country characteristics as discussed in Section 2.2.4 and year fixed effects in the regressions, and cluster standard errors at the country level. As columns (2) to (5) show, the country-average SG&A expenses are positively and significantly (at the 5% level or better) associated with all four measures of innovation, suggesting that the SG&A measure is informative about innovative efficiency.

Third, considering that firms with high organization capital tend to have higher managerial efficiency (Lev, Radhakrishnan, and Zhang, 2009; Li, Qiu, and Shen, 2017), the SG&A measure should correlate positively with the quality of management. To test this, we collect the managerial practices scores *(Managerial Practices Scores)*, constructed based on interview-based survey evidence, for 11 of the 19 non-US sample countries from Bloom, Genakos, Sadun, and Van Reenen (2012) (Table 2 of their paper). Regressing *Managerial Practices Scores* on the (full sample) average SG&A measure, column (6) reveals a positive and significant (at the 10% level) association between the SG&A measure and *Managerial Practices Scores*, consistent with our conjecture.

Insert Table 4 about here

Although this finding is encouraging, the power of this test is limited because of the small sample problem. In unreported analysis, we estimate a firm-level measure of managerial ability (*Managerial ability scores*) following the procedure outlined in Demerjian, Lev, and McVay (2012). Regressing *Managerial ability scores* on *OC/TA*, firm size, and industry and year fixed effects for each country, we find that the coefficients for *OC/TA* are positive in all countries and are significant at the 10% level or better in 11 of the 19 (57.9%) non-US countries. When pooling the countries together, the regression yields a significant (at the 1% level) coefficient

[8] Triadic patent families are sets of patents filed to protect the same invention at these three major patent offices (OECD, 2015): the European Patent Office (EPO), the Japan Patent Office (JPO) and the United States Patent and Trademark Office (USPTO).

estimate for *OC/TA* of 0.064. These results suggest that the SG&A measure captures managerial ability well (for more details, please see Table IA.4 of the Internet Appendix).[9]

Overall, our validation test results confirm that capitalized SG&A expenses capture the qualitative characteristics of organization capital well and are valid in our international sample.

3.3. *Organization capital and stock returns*

Having validated the SG&A measure of organization capital, we now examine whether *OC/TA* explains stock returns in our international sample using the following model:

$$RET_{it} = \gamma_h + \lambda_k + \nu_t + \delta \cdot OC/TA_{it-1} + \zeta \cdot X_{it-1} + \varepsilon_{it}, \quad (4)$$

where i, h, k, and t index the firm, industry, country, and year, respectively. The dependent variable is the annual buy-and-hold stock returns (*RET*) of firm i in year t. Industry (γ_h), country (λ_k), and year (ν_t) fixed effects are controlled for in the model. X_{it-1} is a vector of firm and country control variables as defined in Sections 2.2.3 and 2.2.4, lagged one year to alleviate the reverse causality concern; ε_{it} is the error term. Standard errors are clustered at the firm level to account for serial correlations. A positive coefficient (δ) for *OC/TA* would be consistent with shareholders demanding more compensation for holding firms with higher organization capital (Eisfeldt and Papanikolaou, 2013).

Table 4 reports the estimation results. Column (1) reveals a positive and statistically significant relationship between organization capital and stock returns, consistent with the US-based evidence from Eisfeldt and Papanikolaou (2013). Columns (2) and (3) show that this finding is robust to the inclusion of firm control variables and the global and regional factor loadings. Column (4) augments the model with five country variables, *Stock Cap to GDP*, *Financial Development*, *Ln(GDP per capita)*, *GDP growth*, and *CPI growth*[10], and shows that our results hold. Economically, the magnitude of the coefficient on *OC/TA* is sizable and stable across specifications. Based on the estimates from column (4), a one-standard-deviation increase in *OC/TA* (1.175) is associated with a 3.2-percentage-point increase in stock returns, corresponding to a 20.5% increase relative to sample mean.

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[9] Note that given that the dependent variable, *Managerial ability scores*, is measured with errors, the estimated standard errors of the independent variables would be inflated whereas the coefficients will remain consistently estimated (Hausman, 2001).

[10] We do not include the rule of law index, anti-director rights index, and individualism index in column (4) because these variables are time-invariant by construction and absorbed by the country fixed effects.

Insert Table 4 about here

As for the control variables, their coefficient estimates are in line with the prior literature. In particular, we document a significantly positive value effect and a significantly negative size effect (Fama and French, 1993). Profitability is positively and significantly associated with stock returns (Fama and French, 2008). The global market, size, and value factors, and the regional value factor enter significantly (at the 10% level or better) into columns (3) and (4), suggesting that they are significantly priced in the cross section of international stock returns. More importantly, however, these results show that existing pricing factors are unable to explain away the anomalous returns associated with organization capital.

In summary, our findings support the theoretical prediction by Eisfeldt and Papanikolaou (2013). The documented positive association between organization capital and stock returns is statistically significant and economically meaningful, and appears to be generalizable to other countries.

3.4. *Organization capital, labor market flexibility and stock returns*

To the extent that firms are exposed to greater risks associated with higher outside options of key talent in more flexible labor markets, organization capital risk premia are likely to be higher in such national labor markets. To test this hypothesis, we augment equation (4) with the interaction between *OC/TA* and *EPL* as follows:

$$RET_{it} = \gamma_h + \lambda_k + \nu_t + \delta \cdot OC/TA_{it-1} + \zeta \cdot EPL_{kt-1} + \theta \cdot (OC/TA_{it-1} \times EPL_{kt-1}) + \beta \cdot X_{it-1} + \varepsilon_{it}, \quad (5)$$

where *EPL* is the labor market flexibility index. The coefficient on the interacted term between *OC/TA* and *EPL*, θ, is of our main interest. A significant and positive θ would be consistent with our hypothesis that investors demand higher return on investment in organization capital in more flexible labor markets. To isolate the effect of labor market flexibility from other potential confounding country factors, we control for the interaction between *OC/TA* and the eight control variables (as defined in Section 2.2.4) in the estimation.

Insert Table 5 about here

Table 5 reports these results. In column (1) where only *OC/TA*, *EPL*, their interacted term, and fixed effects are included, the coefficients on *OC/TA* and *EPL* are both positive and highly significant. More importantly, the interacted term (*OC/TA×EPL)* is also significantly positive, consistent with our hypothesis. Column (2) shows that the results hold after controlling for the firm characteristics, and the global and regional factor loadings. In column (3), after we account for the country control variables and their interaction with *OC/TA*, the interacted term between organization capital and the EPL index (*OC/TA×EPL*) becomes considerably larger and remains significant at the 1% level.

To gauge the economic significance of our findings, we compare the implied coefficients on *OC/TA* between the least flexible country, Belgium (mean *EPL*=-3.137), and the second most flexible country, the US (mean *EPL*=-1.130). Specifically, we calculate the sum of the product of the country-specific average country characteristics (including *EPL*) with the estimated coefficients of their interaction terms with *OC/TA*, and then add to it the estimated coefficient of *OC/TA* to obtain the implied coefficients on *OC/TA* for both countries. Our calculations show that moving from Belgium to the US increases the implied coefficient on *OC/TA* from 0.018 to 0.034. In other words, a one-standard-deviation increase in *OC/TA* is associated with an increase of 2.1 percentage points and an increase of 3.9 percentage points in annual stock returns in Belgium and the US, respectively. The details of these calculations can be found in Table IA.5 of the Internet Appendix.

Overall, the results support our hypothesis that shareholders consider investment in organization capital to be riskier in more flexible labor markets and thus require higher expected returns as compensation.

3.5. *Country-by-country analysis*

To examine whether the positive OC-return relationship holds across countries, we follow Dhaliwal, Radhakrishnan, Tsang, and Yang (2012) and estimate the baseline regressions of equation (4) separately for each of our 20 sample countries. Since statistical power of the regressions can be constrained for countries with a small number of available observations, we rank the countries from low to high (based on the average *EPL* reported in Table 1) and consecutively divide every four countries into a group to increase the power of the tests. We then estimate the baseline regressions for each country and each country group. To make the coefficients more comparable, we normalize *OC/TA* to have zero mean and unit standard deviation within each country and each country group. The firm and country controls are identical to those in the baseline models. Industry and year fixed effects are included in each country regression, and industry, country, and year fixed effects are controlled for in the country group regressions.

Insert Table 6 about here

Table 6 reports the estimated coefficients and firm-clustered robust standard errors for *OC/TA*, the adjusted R^2, and the number of observations for each regression. We find that 19 of 20 countries have positive coefficient estimates on *OC/TA*, among which 9 of them are statistically significant at the 10% level or better. Consistent with our hypothesis, these significant coefficients are mostly documented in countries that rank highly in terms of labor market flexibility. When we partition our sample into 4-country groups, the coefficients on *OC/TA* in the five groups are all positive and significant, and increase monotonically from the least to the most flexible country groups. The difference in coefficients on *OC/TA* between the most and the least flexible country groups is significant at the 1% level.

Overall, the *OC*-return relationship appears to hold internationally, and the organization capital risk premia increase with labor market flexibility.

3.6. *Robustness tests*

In this section, we present the results of our robustness tests (based on equation (5)) in Table 7. To save space, we only report some of the tests and leave the remaining ones in the Internet Appendix. For those reported, we only report estimates for their main variables of interest, and keep their unabridged versions in the Internet Appendix.

Insert Table 7 about here

First, organization capital is measured with errors if certain SG&A expenses are unrelated to organization capital investment, such as audit fees, taxes, restructuring expenses, and managerial perk consumption (Lev and Radhakrishnan, 2005). Since the composition of SG&A expenses is often governed by industry-specific accounting practices, such measurement errors may have an industry component. To address this concern, we industry-adjust *OC/TA* by subtracting the country-specific industry mean from a firm's *OC/TA*, and then dividing the de-meaned value by its (cross-sectional) standard deviation. Column (1) shows that our results are robust to the industry adjustment. In columns (2) and (3), we use alternative depreciation rates, 30% and 50%, for capitalizing SG&A expenses and document similar results. Column (4) excludes the first 5 years of *OC/TA* observations to reduce the effect of initial stock assumption and shows that our results hold. Column (5) uses the ratio of SG&A expenses to total assets as an alternative *flow* measure of organization capital and reports similar results (for more details, please see Table IA.6 of the Internet Appendix).

Next, we check the robustness of our results to alternative samples. Given that high-*OC* stocks tend to be small, and that small stocks in general earn higher returns (Banz, 1981), our results might have been driven by a size effect. Removing stocks in the lowest quartile based on market capitalization (i.e., below US$49.2 million, down to 98,857 observations), column (6) shows that our results are robust to excluding the smallest stocks. Another concern is that countries with more observations may be over-represented in the regressions. Column (7) excludes the US and Japan—the two countries with the largest number of observations in our sample—and shows that our results continue to hold after the sample attribution (down to 52,521 observations (39.8% of the full sample)). Moreover, since the 2007-09 global financial crisis represents major structural changes to stock markets and EPL in many countries (Simintzi, Vig, and Volpin, 2015), column (8) excludes the financial crisis years (2007-09) and shows that our results continue to hold. Columns (9) and (10) re-estimate equation (5) on subsamples before and after the global financial crisis, confirming that our results are not primarily driven by the financial crisis (these unabridged results can be found in Table IA.7 of the Internet Appendix).

Furthermore, we use an alternative labor market flexibility index (*Flex index*), computed as the average of three subindexes from the World Bank Group: the *Difficulty-of-hiring index, Rigidity-of-labor-hour index,* and *Difficulty-of-firing index.*[11] Available for the years 2004-2013, *Flex index* is scaled to lie between 0 and 1, and multiplied by negative one for easier interpretation. Replacing *EPL* with *Flex index* in equation (5), column (11) shows that the positive *OC*-return relationship increases significantly with *Flex index*. In particular, the implied coefficient of *OC/TA* changes from -0.001 to 0.030 when moving from France (with the lowest average *Flex index*: -0.626) to the US (with the highest average *Flex index*: -0.056), consistent with our earlier findings (the unabridged results are reported in Table IA.8; the calculations of

[11] The *Difficulty-of-hiring index* measures the regulations on the use of fixed-term employment contracts; the *Rigidity-of-labor-hour index* measures restrictions on labor hours; and the *Difficulty-of-firing index* measures the extent to which priority rules and notifications and approvals to a third party are required when firing employees on an individual or group basis and whether redundancy is permitted as the basis for firing employees.

economic magnitude are shown in Panels C and D of Table IA.5; a country-by-country analysis using *Flex index* is reported in Table IA.9 of the Internet Appendix).[12]

Moreover, realized returns are an arguably noisy proxy for expected returns on equity capital (see, e.g., Blume and Friend, 1973; Elton, 1999). The accounting literature offers alternative methods to estimate expected returns without using realized returns or any asset pricing models. Instead, these methods use analysts' earnings forecasts as proxies for expected cash flows and apply accounting valuation models to estimate implied costs of capital (ICC). However, estimating ICC is challenging in our setting because data on analysts' earnings forecast is limited for international firms, which introduces self-selection problems or survivorship bias to our sample. To overcome these challenges, we forecast earnings with a profitability model of Hou, Van Dijk, and Zhang (2012), and apply the *model-based* earnings forecasts to estimate ICCs using three widely applied valuation models: Gordon and Gordon (1997) (*ICC_GG*), Easton (2004) (*ICC_MPEG*), and Ohlson and Juettner-Nauroth (2005) (*ICC_OJ*). To reduce measurement errors, we compute a composite ICC (*ICC_AVG*) by equally averaging the three ICCs. The details about the model specifications, summary statistics, and correlation analysis of the ICCs can be found in Tables IA.12 and IA.13 of the Internet Appendix. Consistent with our main results, in column (12) where *ICC_AVG* is the dependent variable, we find that the interaction term *OC/TA×EPL* enters positively and significantly into the model, suggesting that this concern does not drive our results.

[12] Note that the coefficient on *Flex index* is negative and significant whereas the coefficient on *EPL* is significantly positive in the baseline model of Table 5. Such difference is likely due to the differences in methodologies used in constructing the two indexes. In particular, *Flex index* is the average of three subindexes, each of which is normalized to lie between 0 and 100 using all sample countries available in that year. In other words, *Flex index* is a relative rank variable that is meaningful in the cross section, but perhaps less comparable across time. For instance, a country without any changes in labor regulations could be assigned a different relative scores in a given year due to changes in labor regulations in other countries. Indeed, in unreported analysis, we find that *EPL* and *Flex index* are similar cross-sectionally but differ substantially in the time series, and that *Flex index* is much more volatile over time. To explore this issue further, we calculate two sets of pairwise correlations between the two indexes, one by year (in a cross-sectional sense) and the other one by country (in a time-series sense). We find that the average cross-sectional correlation coefficient (averaged across the years) is 0.67 whereas the average time-series correlation coefficient (averaged across the countries) is only 0.02. Moreover, the correlations calculated cross-sectionally are stable across years but those calculated using time-series information differ substantially across countries. In unreported results, we exclude eight countries where the correlations computed using time-series information are negative and re-estimate equation (5). We find that the coefficients on *EPL* and *Flex index* no longer differ in signs and are both positive and insignificant. More importantly, the coefficients on the interaction between both indexes and *OC/TA* remain positive and highly significant (for more details, please see Table IA.10 and IA.11 of the Internet Appendix).

Another potential concern is that in our sample, *EPL* is constant over time for three countries: the US, Canada, and Switzerland. The lack of within-country variation in *EPL* for these countries may cause problems with country fixed effects in the baseline models. For robustness, we find that dropping the country fixed effects in equation (5) does not affect our results. Moreover, we estimate a multi-level mixed effects model with industry and year fixed effects, and country random effects, finding that our results hold (for more details, please see Table IA.14 of the Internet Appendix).

Although we have included an extensive set of country controls and have used country fixed effects to sweep out time-invariant unobserved heterogeneity across countries, *EPL* could still capture other omitted country characteristics that may influence the *OC*-return association. To reduce this concern, we consider five additional country controls. The first is average wages from OECD to account for wage differentials across countries which could potentially be determined by *EPL* and also drive stock returns. The second is political risk, measured by the corruption index from the International Country Risk Guide (ICRG) database. The third set of controls are three indicators for whether a country's Commercial/Company law is based on the British, French, and German legal origins, and zero otherwise, from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). The fourth is the degree of financial opaqueness, defined as the average of the country-level Center for International Financial Analysis and Research ratings in 1991, 1993, and 1995 following Dhaliwal, Radhakrishnan, Tsang, and Yang (2012). The final control is a country index of differences between local Generally Accepted Accounting Principles (GAAP) and the International Accounting Standards (IAS), collected from Bae, Tan, and Welker (2008). Including these additional controls and their interaction with *OC/TA* in equation (5) does not affect our main results (for more details, please see Table IA.15 of the Internet Appendix).

Under full market integration and the assumption that firms have the same systematic risk within-industry, industry systematic risk (i.e., exposure to the global market portfolio) should be the same across countries (Bekaert, Harvey, Lundblad, and Siegel, 2011). An implication is that industry fixed effects can, to a certain extent, capture systematic risk in our sample. Indeed, the robustness of our findings to industry fixed effects reinforces that the higher returns of high *OC*-stocks cannot be explained by factor exposure to the global market portfolio. As a further check and to reduce measurement errors, we adopt an alternative industry portfolio approach in estimating factor exposure. Specifically, we combine stocks in a given country into industry portfolios (Fama-French 49 industries) and compute their value-weighted portfolio weekly returns. We estimate equation (3) for each industry in a given country every year and assign the estimated loadings to all stocks in that industry. Since equation (3) is estimated for each industry-country pair yearly, industry systematic risk is allowed to vary across countries and time. Thus, this approach does not require the assumption of full market integration and is generally more flexible. Our baseline results (unreported) are robust to this alternative estimation approach for factor exposure (for more details, please see Table IA.16 of the Internet Appendix).

Finally, we test whether labor regulations directly influence firms' or employees' decisions to invest in organization capital and its efficiency. In more flexible markets, employees, who can move across firms and more easily, may place a greater value on general skills and thus invest less in firm-specific human capital. At the same time, the greater threat of losing key employees in highly flexible labor markets may deter firms from investing in firm-specific human capital, such as employee trainings, etc. In untabulated tests, our results based on *EPL* and *Flex index* are less than consistent. On one hand, we find that *EPL* is insignificant in explaining the *flow* of organization capital investment (defined as the ratio of SG&A expenses to total assets) and the productivity of organization capital (defined as the ratio of sales or earnings, to organization capital). On the other hand, *Flex index* is associated with a significantly lower *flow* of organization capital investment but a significantly higher productivity of organization capital. Overall, given this somewhat mixed, exploratory evidence, we are careful not to draw conclusions from these results, but rather conclude that our main results, which are based on *EPL*, are less likely to be driven by the endogenous response of firms and employees to changes in labor market regulations (for more details, please see Table IA.17 of the Internet Appendix).

4. Additional analysis

4.1. *Heterogeneity in labor mobility across industries*

Since *EPL* is imperfect in measuring key talent's outside option, we examine the heterogeneity in labor mobility across industries in this section. Since industry labor mobility data is not readily available for our non-US sample countries, we collect such data from Donangelo (2014) for the US firms and apply them to industries of the remaining sample countries. Following Donangelo (2014), labor mobility (*Labor mobility*) is defined as the average inter-industry occupational dispersion of employed workers in an industry. The rationale is that workers with occupations concentrated in a few industries, i.e., with low inter-industry occupational dispersion, face fewer opportunities to switch across industries and thus have lower mobility. Therefore, in industries with a lower (higher) average inter-occupational dispersion, labor is less mobile and generally finds it more difficult (easier) to leave the firms.

Based on the sample median of *Labor mobility*, we divide the US Fama-French 49 industries into high and low mobility groups each year, apply the industry mobility classification to industries of the remaining 19 non-US countries, and construct an indicator for the mobile industries (*High mobility (FF49) (Median)*). We then estimate the following model:

$$RET_{it} = \gamma_h + \lambda_k + \nu_t + \delta \cdot OC/TA_{it-1} + \zeta \cdot High\ mobility\ (FF49)_{it-1} + \theta \cdot (OC/TA_{it-1} \times High\ mobility\ (FF49)_{it-1}) + \beta \cdot X_{it-1} + \varepsilon_{it}. \quad (6)$$

where X_{it-1} is a vector of firm and country controls identical to those in the baseline model. Standard errors are clustered at the firm level. A positive estimated θ would support our hypothesis.

Insert Table 8 about here

Table 8 reports the estimation of equation (6). As column (1) shows, the coefficient for *OC/TA×High mobility (FF49) (Median)* is 0.018 and statistically significant at the 1% level, consistent with our hypothesis. In column (2), we divide the 2-digit SIC industries into high and low groups according to the sample median *Labor mobility*, and similarly construct an indicator for mobile industries, documenting similar results. For robustness, in columns (3) and (4), instead of sample median, we use an alternative breakpoint at the 70th percentile for dividing the industries. Our results show similarly that the positive *OC*-return association is significantly stronger for the top 30% mobile industries.

Overall, these findings confirm our earlier results based on *EPL* and similarly show that investment in organization capital is riskier when labor is more mobile or when key talent face less difficulty to leave the firms to pursue outside options.

4.2. *Factor Model Regressions*

In addition to the pooled cross-sectional regression framework previously employed, this section estimates factor model regressions to study whether organization capital risk is priced. At the end of June each year, within each country-industry (based on the Fama-French 12-industry classification) pair, we divide stocks into five groups based on their fiscal year *t-1 OC/TA*. Sorting stocks within country-industry pairs helps to remove the country-specific industry components in the measurement errors of organization capital. We require a minimum of 10 stocks within a country-industry pair for the sort. We then combine stocks with the same portfolio rank to form five equally (EW) and value (VW) weighted portfolios across all sample countries and calculate their average returns (in US dollars) from July of year *t* to June of year *t+1*. The portfolio *p*'s monthly returns ($r_{p,t}$) in US dollars in excess of the risk-free rate are regressed on the excess returns of the global market portfolio (*WMKTt*), and the global size ($WSMB_t$) and value ($WHML_t$) factors. The factor model regression can be written as follows:

$$r_{p,t} - rf_t = \alpha_p + \beta^{WMKT}{}_p\, WMKT_t + \beta^{WSMB}{}_p\, WSMB_t + \beta^{WHML}{}_p\, WHML_t + \varepsilon_t \tag{7}$$

Panel A (Panel B) of Table 9 reports the average portfolio returns, estimated alphas and factor loadings, adjusted R-squared, and number of monthly observations for the five EW (VW) portfolios. The zero-cost spread portfolio (5-1) that longs and shorts the high- and low-*OC/TA* portfolios are reported in the last row.

Insert Table 9 about here

Consistent with our earlier findings, Table 9 shows that average portfolio returns (*RET*) increase monotonically with organization capital. In Panel A, the average excess returns on the 5-1 EW portfolio are statistically significant at the 1% level and amount to 31 basis points per month, or 3.7 percentage points annually. In the second column, we find a similar and monotonically increasing pattern in trading alpha with organization capital. The alpha for the 5-1 portfolio is almost identical to the average excess returns (alpha=32 basis points per month), indicative of the failure of the global three factors in pricing the organization capital portfolios. In addition, high-*OC/TA* stocks have smaller exposure to the global market portfolio and load more heavily on the global size factor, in line with the US-based evidence reported by Eisfeldt and Papanikolaou (2013). In Panel B, we similarly document that average excess returns and trading alphas of the VW portfolios increase with organization capital in mostly monotonic manners, although being somewhat smaller in magnitude and less significant (at the 10% level).

To test our hypothesis that the positive *OC*-return association is stronger in flexible labor markets, we divide the countries into low (7 countries), middle (6 countries) and high (7 countries) groups according to average *EPL* (see Table 6) and combine stocks with the same portfolio ranks across these country groups. We report the trading alpha of the zero-cost spread portfolios (5-1) that long and short the high- and low-*OC/TA* portfolios in the last row, and those of the spread portfolios (3-1) longing and shorting the high- and low-*EPL* portfolios in the rightmost column. As Panel A shows, consistent with our hypothesis and earlier results, the trading alpha on the 5-1 EW portfolio is small and insignificant for the low flexibility group, but increase markedly as we move towards the high flexibility group. More importantly, the difference in trading alpha of the 5-1 EW portfolios between the high and low flexibility groups amounts to 44 basis points per month and is significant at the 5% level. In Panel B, the results based on the VW portfolios exhibit similar patterns in general.

We recognize that systematic risk may change over time and adopt two approaches to address this issue. First, we estimate equation (7) with a 60-month rolling window to obtain time-varying estimates for alphas and other factor loadings for the *OC/TA*-sorted and the spread portfolios. Following Eberhart, Maxwell, and Siddique (2004), we average these time-varying estimates of alpha and factor loadings over time and use their time-series volatility to compute their standard errors (with Newey-West correction for autocorrelation). Similarly, our results (unreported) show that trading alpha of the EW and VW portfolios increases monotonically with organization capital, especially for the middle and high *EPL* country groups. Second, we follow the methodology as described in Lewellen and Nagel (2006) and estimate a conditional version of the global three-factor model that does not require the specification of conditioning information. Specifically, we estimate equation (7) yearly using monthly returns from January to December each year and find similar results (unreported) for both EW and VW portfolios (for more details, please see Table IA.18 of the Internet Appendix).

Overall, adjusting for the global risk factors cannot explain away the positive abnormal returns associated with organization capital. Our results hold even after relaxing the assumption of constant betas, suggesting that the positive *OC*-return association is unlikely to operate through increased loadings on the global risk factors.

4.3. *Alternative Explanations*

Thus far, we interpret our findings as consistent with Eisfeldt and Papanikolaou’s (2013) theoretical model. That is, organization capital is embodied in key talent who has an outside option. When outside option improves, firms with organization capital would incur higher costs to retain key talent and are thus exposed to greater risks. Because such costs increase when labor could move across firms more easily, we argue and show that the *OC* risk premia are higher for more flexible labor markets. However, there are at least two alternative explanations.

First, our findings may reflect the irreversibility nature of organization capital. Capital investment can be generally viewed both as the exercise of a call option to expand capital stock (growth option) and/or a concurrent purchase of a put option to reverse the investments in the future (the option to disinvest) (Abel, Dixit, Eberly, and Pindyck, 1996). If investment is partially reversible, firms have the real option to disinvest. Negative aggregate shocks, despite reducing the value of assets and growth options, increase the value of the option to disinvest (Cooper, 2006). Therefore, compared to firms with disinvestment option, firms with no option to disinvest or completely irreversible investment are more sensitive to negative aggregate shocks. Because investment in organization capital incurs mostly irreversible expenses and has resale price that is much below purchase price (Pindyckd, 1991; Dewan, Shi, and Gurbaxani, 2007), high-*OC/TA* firms could be riskier during bad economic times and thus have higher expected returns.

Second, our findings may also be driven by operating leverage. Investing in key talent usually involves many labor- and IT-related expenses that typically have a fixed or quasi-fixed component. A high share of fixed costs relative to variable costs reduces a firm's ability to adjust unit cost to mitigate the impact of aggregate demand, thereby rendering its earnings more sensitive to market-wide shocks (Lev, 1974). Therefore, under this "traditional" operating leverage view, it is possible that the higher returns of organization capital represent compensation for higher market systematic risk. In a related strand of literature, Donangelo (2014) argues that flexibility of labor to move across industries is a special form of operating leverage that amplifies firms' systematic risk exposure. Under this mechanism, mobile industries have less elastic wages because they rely on workers with general skills who can search for greater salaries across industries. Firm risks increase because of their lower wage elasticity and the resulting increased sensitivity of their cash flows to industry-specific shocks. Hence, our results of a stronger *OC*-return association in more mobile industries (see Table 8) are nonetheless consistent with higher operating leverage.

If these alternative explanations are valid, one should expect high-*OC/TA* firms to be riskier during bad times and that the higher expected returns to organization capital can be explained by increased loadings on systematic risk. A natural implication from these predictions is that the conditional CAPM should price the cross section of *OC*-sorted portfolios. However, Eisfeldt and Papanikolaou (2013) find no evidence in the US market that high-*OC* stocks are riskier than low-*OC* stocks in times of high conditional market premium. Similarly, our factor model regression results show that the conditional version of the global three-factor model fails to price the *OC*-sorted portfolios, again inconsistent with these alternative explanations.

To shed further light on this issue, we follow Lakonishok, Shleifer, and Vishny (1994) and classify economy states into "good", "normal", and "bad" states *for each country* based on GDP growth and domestic stock market returns (at the 25th and 75th breakpoints). We compare univariately the estimated loadings on the global and regional market portfolios between the high- and low-*OC/TA* stocks (median breakpoint for *OC/TA*) within each economy state. As Table 10 shows, high-*OC/TA* firms do not exhibit greater exposure to global or regional market risk during bad states, regardless of whether the economy states are defined by GDP growth or domestic market performance. This evidence is inconsistent with the alternative explanations.

Insert Table 10 about here

Moreover, it is widely acknowledged that national regulations of employment protection increase firms' operating leverage by imposing large labor adjustment costs. For instance, Simintzi, Vig, and Volpin (2015) document that stricter EPL reduces financial leverage through increasing firms' fixed costs or operating leverage. Banker, Byzalov, and Chen (2013) find that the labor adjustment costs induced by stricter EPL increase firms' cost stickiness. Therefore, if the positive *OC*-return relationship is driven by operating leverage, we should expect this relationship to be stronger in countries with lower *EPL*, i.e., more restrictive EPL. Our main findings, which are contrary to this prediction, are inconsistent with the operating leverage explanation.

5. Conclusion

Organization capital consists of the stock of know-how or knowledge that contributes to firm productivity (Lev and Radhakrishnan, 2005; Eisfeldt and Papanikolaou, 2013). Unlike physical capital, organization capital is embodied in a firm's key talent, who typically have an outside option. The shareholders of firms with organization capital are exposed to additional risks because their share of organization capital rent is reduced when the outside option of key talent improves (Eisfeldt and Papanikolaou, 2013).

In this paper, we explore the cross-country implications of organization capital investment and hypothesize that these investments are riskier for shareholders in countries with more flexible labor markets. We argue that the increased labor mobility and greater competition for key talent in such markets improve key talent's outside option and the ease with which such talent can leave the firms to pursue outside options. This, in turn, increases the cost of retaining key talent and reduces the rent that shareholders can extract from organization capital.

Based on a sample of 16,962 firms from 20 OECD countries over the period from 1998 to 2013, our analysis yields several important findings and implications. First, we present new international evidence that firms with more organization capital have significantly higher stock returns. Second, we find that the positive association between organization capital and stock returns is significantly stronger for countries in which labor regulations are less restrictive. This finding is consistent with the argument that the threat of losing key talent and the mobility of key talent are both higher in flexible labor markets, rendering investment in organization capital riskier for shareholders. Therefore, one should consider these labor-related institutional features when investing overseas or managing their portfolio risk.

Finally, we verify the validity of capitalized SG&A expenses as a proxy for organization capital for 19 non-US OECD countries and show that it captures firm productivity, innovative efficiency, and managerial quality well. This finding advances the growing literature on organization capital and offers some guidance on future international research on intangible capital. Our results are robust to alternative samples, estimation methods, adjustments and assumptions in estimating organization capital, and alternative measures of labor market flexibility and cost of capital. Our findings provide useful guidance to corporate managers who allocate corporate resources relating to human capital, IT, and technology.

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TABLE 1
Descriptive Statistics by Country

Our sample covers firms in 20 OECD countries over the period from 1998 to 2013. For US firms, we only include those traded in the AMEX, NYSE, and NASDAQ, and download their financial and security data from Compustat and CRSP. All non-US data are downloaded from Compustat Global and converted into US dollars using daily closing exchange rates from the Bank of England or Thomson Reuters. All financial stocks are excluded. We measure labor market flexibility using the Employment Protection Legislation (*EPL*) index from OECD. *EPL* is the negative of the average of its three subindexes, *EPR*, *EPC*, and *EPT*. A higher *EPL* indicates greater labor market flexibility. This table reports the average *EPL*, its subindexes, ratio of organization capital to total assets (*OC/TA*), and buy-and-hold annual returns (*RET*) for each country. The number of firm-year observations is also reported. The detailed variable definitions can be found in Appendix A1.

					Components of *EPL*			
Country	Obs.	%	*OC/TA*	*EPL*	*EPR*	*EPC*	*EPT*	*RET*
Australia	9,978	7.6%	0.639	-1.724	-1.423	-2.880	-0.880	17.8%
Austria	576	0.4%	0.503	-2.346	-2.475	-3.250	-1.310	17.8%
Belgium	868	0.7%	0.414	-3.137	-1.914	-5.127	-2.378	12.4%
Canada	1,923	1.5%	0.837	-1.380	-0.920	-2.970	-0.250	18.0%
Denmark	1,095	0.8%	1.036	-2.252	-2.139	-3.239	-1.379	15.2%
Finland	1,336	1.0%	0.446	-1.847	-2.199	-1.788	-1.560	15.8%
France	5,916	4.5%	0.543	-3.136	-2.406	-3.380	-3.629	13.9%
Germany	6,688	5.1%	0.689	-2.541	-2.679	-3.630	-1.329	13.8%
Ireland	344	0.3%	0.816	-1.650	-1.367	-3.105	-0.481	17.9%
Italy	2,310	1.8%	0.230	-3.063	-2.759	-4.129	-2.311	8.4%
Japan	34,094	25.9%	1.305	-1.901	-1.551	-3.250	-0.912	11.0%
Netherlands	1,354	1.0%	0.642	-2.276	-2.862	-3.000	-0.978	11.7%
New Zealand	742	0.6%	0.234	-0.792	-1.496	-0.008	-0.880	20.3%
Norway	1,267	1.0%	0.319	-2.588	-2.327	-2.501	-2.936	21.1%
Portugal	453	0.3%	0.236	-3.101	-4.372	-2.516	-2.426	10.9%
Spain	997	0.8%	0.296	-3.050	-2.335	-3.750	-3.061	9.7%
Sweden	3,211	2.4%	1.041	-2.095	-2.618	-2.500	-1.173	16.7%
Switzerland	2,038	1.5%	0.738	-2.119	-1.598	-3.629	-1.129	16.6%
United Kingdom	11,425	8.7%	1.376	-1.482	-1.241	-2.880	-0.340	14.3%
United States	45,195	34.3%	1.229	-1.130	-0.260	-2.880	-0.250	19.3%
Total	131,810							

TABLE 2
Summary Statistics and Univariate Analysis

This table reports summary statistics and the results of univariate analysis. Firm-year observations are divided into two groups based on the sample median of *OC/TA*. We use *t*-test (Wilcoxon signed-rank test) to determine whether the difference in means (medians) is statistically significant. The detailed variable definitions can be found in Appendix A1. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

					High *OC/TA* (N=65,849)		Low *OC/TA*(N=65,850)		Difference			
Variable	Obs	Mean	Median	Std. Dev.	Mean	Median	Mean	Median	Mean		Median	
RET	131,810	15.47%	5.21%	62.91%	16.97%	5.50%	13.98%	4.90%	2.99%	***	0.60%	***
OC/TA	131,810	1.073	0.750	1.175	1.874	1.476	0.272	0.231	1.602	***	1.245	***
ln(BM)	131,810	-0.407	-0.356	0.869	-0.439	-0.375	-0.375	-0.337	-0.064	***	-0.038	***
Profitability	131,810	-0.009	0.027	0.171	-0.016	0.027	-0.002	0.027	-0.014	***	-0.001	
R&D/Sale	131,810	0.092	0.000	0.433	0.086	0.006	0.098	0.000	-0.012	***	0.006	***
Leverage	131,810	0.197	0.169	0.176	0.170	0.135	0.224	0.209	-0.053	***	-0.074	***
CAPX/TA	131,810	0.052	0.033	0.061	0.040	0.028	0.064	0.040	-0.024	***	-0.012	***
Asset tangibility	131,810	0.282	0.229	0.228	0.225	0.195	0.339	0.287	-0.114	***	-0.092	***
Foreign indicator	131,810	0.396	0.000	0.489	0.389	0.000	0.404	0.000	-0.015	***	0.000	***
Deflated total assets (2005 $US)	131,810	2,260	283	6,536	1,439	210	3,080	406	-1,641	***	-196	***
ME ($ millions)	131,810	1,802	189	5,462	1,401	140	2,204	258	-804	***	-118	***
ln(ME)	131,810	5.394	5.242	2.059	5.111	4.945	5.677	5.553	-0.566	***	-0.608	***
Sale/TA	131,672	1.049	0.926	0.709	1.251	1.095	0.847	0.723	0.405	***	0.372	***
β^{WMKT}	131,810	0.964	0.878	0.824	0.916	0.833	1.012	0.921	-0.096	***	-0.088	***
β^{WSMB}	131,810	1.047	0.835	1.665	1.109	0.905	0.984	0.771	0.125	***	0.134	***
β^{WHML}	131,810	0.049	0.109	1.869	0.039	0.095	0.059	0.123	-0.020	*	-0.028	*
β^{RMKT}	131,810	0.969	0.913	1.454	0.959	0.897	0.978	0.930	-0.019	**	-0.033	***
β^{RSMB}	131,810	0.811	0.708	1.589	0.861	0.771	0.761	0.642	0.100	***	0.129	***
β^{RHML}	131,810	0.092	0.129	1.872	0.064	0.118	0.120	0.139	-0.056	***	-0.020	***
Rule of law	131,810	9.472	10.000	0.589	9.439	9.233	9.505	10.000	-0.066	***	-0.767	***
Anti-director rights index	131,810	3.729	3.500	0.774	3.820	4.000	3.638	3.500	0.182	***	0.500	***
Individualism	131,810	74.073	89.000	18.979	72.200	89.000	75.945	80.000	-3.745	***	9.000	***
Stock Cap to GDP	131,810	101.270	102.580	38.984	102.042	103.600	100.497	102.230	1.545	***	1.370	***
Financial Development	131,810	159.631	175.570	38.247	170.232	178.430	149.030	161.690	21.202	***	16.740	***
Ln(GDP per capita)	131,810	10.559	10.525	0.140	10.570	10.556	10.547	10.521	0.023	***	0.035	***
GDP growth	131,810	0.012	0.017	0.021	0.011	0.016	0.013	0.017	-0.002	***	0.000	***
CPI growth	131,810	0.016	0.018	0.015	0.014	0.016	0.018	0.020	-0.004	***	-0.004	***

TABLE 3
Validating *OC/TA*: Evidence from 19 Non-US Countries

This table reports the results of our validation tests for *OC/TA* using the non-US sample. Columns (1) reports the results of regressions examining whether *OC/TA* captures a firm's productive efficiency, as measured by the ratio of sales to total assets, using all firm-year observations and controlling for firm size. Columns (2) to (5) examine whether *OC/TA* captures higher innovative efficiency using all country-year observations. We use four country-level measures of innovative efficiency. *TPF* is the number of triadic patent families owned by a country in a given year from the OECD; *Patent* is the number of patents granted by the United States Patent and Trademark Office (USPTO) for our sample countries in a given year; *R&D* is the gross domestic expenditure in R&D for our sample countries in a given year from the OECD; *Patent/R&D* is *Patent* divided by *R&D*. For these four regressions, the variable of interest is the country-average *OC/TA*. We control for year fixed effects and eight lagged country characteristics, including the rule of law index (*Rule of law*), anti-director rights index (*anti-director rights index*), individualism index (*individualism*), stock market capitalization to GDP (*Stock Cap to GDP*), total private credit to GDP (*Financial development*), log GDP per capita (*Ln(GDP per capita)*), rate of change in GDP per capita (*Growth in GDP per capita*), and rate of change in CPI (*Growth in CPI*). In column (6), we examine whether *OC/TA* captures managerial quality by regressing the country-level managerial practices scores from Bloom, Genakos, Sadun, and Van Reenen (2012) on average *OC/TA*. Robust standard errors are clustered at the firm level for column (1) and at the country level for columns (3) to (6). *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Firm-Year Panel	Country-Year Panel				Country Cross Section
	Sale/TA	*Ln(TPF)*	*Ln(Patent)*	*Ln(R&D)*	*Ln(Patent/R&D)*	*Managerial Practices Scores*
	(1)	(2)	(3)	(4)	(5)	(6)
OC/TA	0.137***	2.303***	2.589***	1.857***	0.062**	0.179*
	(0.006)	(0.739)	(0.772)	(0.626)	(0.028)	(0.085)
Ln(ME)	-0.008***					
	(0.003)					
Country controls		Yes	Yes	Yes	Yes	
Industry FE	Yes					
Country FE	Yes					
Year FE	Yes	Yes	Yes	Yes	Yes	
Sample	1999-2013	1999-2011	2001-2013	2000-2012	2001-2012	
Obs.	86,510	245	241	233	218	11
Adj. R^2	0.328	0.485	0.522	0.430	0.547	0.304

TABLE 4
Organization Capital and Stock Returns

This table reports the results of OLS regressions of the relation between organization capital and stock returns. The dependent variable is the buy-and-hold annual stock returns (*RET*). The main independent variable is the stock of organization capital (*OC/TA*), constructed using the perpetual inventory method following Eisfeldt and Papanikolaou (2013). Other firm-level independent variables include: Log book-to-market equity ratio (*Ln(BM)*), log market capitalization (*Ln(ME)*), return on total assets (*ROA*), R&D to total sales (*R&D/Sale*), total debt to total assets (*Leverage*), capital investments to total assets (*CAPX/TA*), property, plant and equipment to total assets (*Asset tangibility*), and foreign operations indicator (*Foreign currency indicator*). We control for a firm's factor loadings to the global and regional market, size, and value factors estimated using weekly return data within a fiscal year. Country-level control variables added in columns 3 and 4 include: stock market capitalization to GDP (*Stock Cap to GDP*), total private credit to GDP (*Financial development*), log GDP per capita (*Ln(GDP per capita)*), rate of change in GDP per capita (*GDP growth*), and rate of change in CPI (*CPI growth*). All independent variables are lagged one year relative to the dependent variable. Industry effects are constructed based on the Fama-French 49 industry classification. Robust standard errors (in brackets) are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	RET			
	(1)	(2)	(3)	(4)
OC/TA	0.024***	0.026***	0.026***	0.027***
	(0.002)	(0.002)	(0.002)	(0.002)
Ln(BM)		0.080***	0.080***	0.081***
		(0.003)	(0.003)	(0.003)
Ln(ME)		-0.020***	-0.022***	-0.022***
		(0.001)	(0.001)	(0.001)
Profitability		0.144***	0.153***	0.151***
		(0.016)	(0.016)	(0.016)
R&D/Sale		0.007	0.006	0.006
		(0.006)	(0.006)	(0.006)
Leverage		0.075***	0.070***	0.075***
		(0.011)	(0.011)	(0.011)
CAPX/TA		-0.001	-0.011	-0.013
		(0.042)	(0.042)	(0.042)
Asset tangibility		-0.023*	-0.018	-0.024**
		(0.012)	(0.012)	(0.012)
Foreign currency indicator		0.022***	0.022***	0.022***
		(0.003)	(0.003)	(0.003)
β^{WMKT}			0.025***	0.031***
			(0.003)	(0.003)
β^{WSMB}			-0.005***	-0.007***
			(0.001)	(0.001)
β^{WHML}			-0.002*	-0.002*
			(0.001)	(0.001)
β^{RMKT}			0.001	0.001

			(0.001)	(0.001)
β^{RSMB}			0.001	0.001
			(0.001)	(0.001)
β^{RHML}			0.002**	0.003**
			(0.001)	(0.001)
Stock Cap to GDP				0.000
				(0.000)
Financial Development				-0.002***
				(0.000)
Ln(GDP per capita)				-0.924***
				(0.109)
GDP growth				-1.686***
				(0.195)
CPI growth				2.287***
				(0.289)
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	131,810	131,810	131,810	131,810
Adj. R^2	0.155	0.172	0.173	0.177

TABLE 5
Organization capital, Labor Market Flexibility, and Stock Returns

This table reports the results of OLS regressions of the relation between organization capital, labor market flexibility, and stock returns. The dependent variable is the annual buy-and-hold stock returns (*RET*). The main independent variables are the stock of organization capital (*OC/TA*), constructed using the perpetual inventory method following Eisfeldt and Papanikolaou (2013), and the Employment Protection Legislation index (*EPL*). The lagged firm- and country-level control variables are the same as those used in Table 5 and are defined in Appendix A.1. The rule of law index, anti-director rights index, and individualism index are also included in the regressions. Column (3) also includes the interaction between all country control variables and *OC/TA*. Industry effects are constructed based on the Fama-French 49 industry classification. Robust standard errors (in brackets) are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	RET		
	(1)	(2)	(3)
OC/TA	0.052***	0.052***	0.480**
	(0.005)	(0.006)	(0.243)
OC/TA×EPL	0.019***	0.017***	0.047***
	(0.003)	(0.003)	(0.007)
OC/TA×Rule of law			0.000
			(0.007)
OC/TA×Anti-director rights index			-0.001
			(0.005)
OC/TA×Individualism			0.000**
			(0.000)
OC/TA×Stock Cap to GDP			-0.001***
			(0.000)
OC/TA×Financial Development			-0.000***
			(0.000)
OC/TA×Ln(GDP per capita)			-0.026
			(0.023)
OC/TA×GDP growth			0.069
			(0.082)
OC/TA×CPI growth			-0.234
			(0.192)
Ln(BM)		0.081***	0.081***
		(0.003)	(0.003)
Ln(ME)		-0.021***	-0.021***
		(0.001)	(0.001)
Profitability		0.150***	0.157***
		(0.016)	(0.016)
R&D/Sale		0.007	0.006
		(0.006)	(0.006)
Leverage		0.071***	0.076***
		(0.011)	(0.011)

CAPX/TA		-0.010	-0.012
		(0.042)	(0.042)
Asset tangibility		-0.020	-0.024*
		(0.012)	(0.012)
Foreign currency indicator		0.020***	0.021***
		(0.003)	(0.004)
β^{WMKT}		0.027***	0.031***
		(0.003)	(0.003)
β^{WSMB}		-0.005***	-0.007***
		(0.001)	(0.001)
β^{WHML}		-0.002**	-0.003**
		(0.001)	(0.001)
β^{RMKT}		0.000	0.001
		(0.001)	(0.001)
β^{RSMB}		0.000	0.001
		(0.001)	(0.001)
β^{RHML}		0.002**	0.003**
		(0.001)	(0.001)
EPL	0.317***	0.323***	0.162***
	(0.023)	(0.024)	(0.026)
Stock Cap to GDP			0.000***
			(0.000)
Financial Development			-0.002***
			(0.000)
Ln(GDP per capita)			-0.818***
			(0.116)
GDP growth			-1.971***
			(0.219)
CPI growth			2.646***
			(0.334)
Industry FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Obs.	131,810	131,810	131,810
Adj. R^2	0.157	0.174	0.179

TABLE 6
Country-by-Country Analysis

This table reports the results of the country-by-country analysis of the association between organization capital and stock returns. To increase the statistical power, we rank the countries from low to high according to average *EPL* (see Table 1) and divide consecutively every four countries into a group. We estimate our baseline regressions separately for each country and 4-Country group. To make the coefficients more comparable across countries and groups, we standardize the *OC/TA* variable within each country and country group. The number of observations, adjusted R^2, and estimated coefficients and firm-clustered standard errors for *OC/TA* are reported. Industry effects are constructed based on the Fama-French 49 industry classification. All firm controls follow the baseline models. Industry and year dummies are included in the country regressions, and industry, country, and year dummies, and the country control variables are included in the country group regressions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

		Country-by-Country				4-Country Group				
		OC/TA					*OC/TA*			
Countries	*EPL*	Std. Coef.	S.E.	Obs.	Adj. R^2	Group	Std. Coef.	S.E.	Obs.	Adj. R^2
Belgium	-3.137	0.022	(0.022)	868	0.295					
France	-3.136	0.008	(0.007)	5,916	0.271	1	0.011*	(0.006)	9,547	0.285
Portugal	-3.101	0.025	(0.030)	453	0.464					
Italy	-3.063	0.029**	(0.013)	2,310	0.349					
Spain	-3.050	0.050**	(0.022)	997	0.460					
Norway	-2.588	0.019	(0.023)	1,267	0.344	2	0.019***	(0.007)	9,528	0.29
Germany	-2.541	0.022**	(0.009)	6,688	0.285					
Austria	-2.346	-0.011	(0.028)	576	0.345					
Netherlands	-2.276	0.020	(0.015)	1,354	0.400					
Denmark	-2.252	0.015	(0.017)	1,095	0.253	3	0.028***	(0.007)	7,698	0.284
Switzerland	-2.119	0.007	(0.014)	2,038	0.291					
Sweden	-2.095	0.035***	(0.013)	3,211	0.313					
Japan	-1.901	0.026***	(0.004)	34,094	0.343					
Finland	-1.847	0.053**	(0.025)	1,336	0.401	4	0.030***	(0.004)	45,752	0.211
Australia	-1.724	0.034***	(0.011)	9,978	0.161					
Ireland	-1.650	0.024	(0.042)	344	0.300					
United Kingdom	-1.482	0.043***	(0.008)	11,425	0.215					
Canada	-1.380	0.025	(0.024)	1,923	0.179	5	0.036***	(0.004)	59,285	0.175
United States	-1.130	0.035***	(0.004)	45,195	0.173					
New Zealand	-0.792	0.033	(0.024)	742	0.173					
						5-1	0.025***			
						p-value	[0.0003]			

TABLE 7
Robustness Tests

This table presents results of our robustness tests. Columns 1 to 5 show results using alternative specifications and assumptions in the estimation of organization capital. In column (1), we annually industry-adjust *OC/TA* by subtracting a firm's *OC/TA* from its country-specific industry mean and then dividing it by the cross-sectional standard deviation. In columns (2) and (3), *OC* is estimated with depreciation rates of 30% and 50%, respectively. In column (4), the first 5 years of *OC/TA* observations are excluded when capitalizing SG&A expenses. Column (5) measures the (*flow*) investment in *OC* using the ratio of SG&A expenses to total assets. Columns (6) to (10) test the robustness of our results to the use of alternative samples. Column (6) excludes small stocks with market capitalization within the lowest quartile. Column (7) excludes firms from the US and Japan, which have the most firm-year observations. Column (8) excludes the crisis years, including 2007, 2008, and 2009. Column (9) uses a subsample ending in 2006 whereas column (10) uses a subsample after 2009. Column (11) use an alternative labor market flexibility measure (*Flex index*) from the World Bank Group. Column (12) uses an alternative measure of expected returns: implied cost of capital (*ICC AVG*). For brevity, we only report the estimates for *OC/TA*, the labor market flexibility indexes, and their interacted terms. The firm-level controls (including the factor loadings) follow the baseline model specification. We also control for the interacted terms between the country controls variables and *OC/TA* in each regression. Industry effects are constructed based on the Fama-French 49 industry classification. Robust standard errors (in brackets) are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. The unabridged version of all these results can be found in the Internet Appendix.

	RET											*ICC AVG*
	Industry-adjusted	Depreciation rates		Exclude first 5 years	*SG&A/TA*	>$ME_{25\%}$	Non-(US & JP)	Exclude crisis	<=2006	>2009	*Flex index*	*ICC AVG*
		30%	50%									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OC/TA	0.910***	0.854**	1.230**	0.501**	2.335**	-0.155	-0.097	0.833***	2.693***	0.065	-0.912***	0.112
	(0.309)	(0.386)	(0.574)	(0.247)	(1.031)	(0.253)	(0.301)	(0.257)	(0.563)	(0.381)	(0.310)	(0.098)
OC/TA×EPL	0.050***	0.086***	0.131***	0.045***	0.223***	0.015**	0.032***	0.044***	0.118***	0.017*		0.006**
	(0.009)	(0.012)	(0.018)	(0.007)	(0.034)	(0.007)	(0.011)	(0.008)	(0.018)	(0.010)		(0.003)
EPL	0.217***	0.150***	0.145***	0.039	0.155***	0.201***	0.102***	0.115***	0.282***	-0.263		0.043***
	(0.025)	(0.026)	(0.026)	(0.029)	(0.026)	(0.027)	(0.030)	(0.026)	(0.047)	(0.169)		(0.010)
OC/TA×Flex index											0.073***	
											(0.020)	
Flex index											-0.242***	
											(0.044)	
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Factor loadings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OC/TA×Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	131,810	131,810	131,810	109,263	131,810	98,857	52,521	103,420	66,178	37,242	84,113	95,820
Adj. R^2	0.177	0.179	0.179	0.179	0.178	0.190	0.176	0.141	0.182	0.083	0.162	0.315

TABLE 8
Further Evidence: Industry Labor Market Flexibility

This table reports the results of regressions that use an alternative measure of labor market flexibility at the industry level. The dependent variable is the buy-and-hold annual stock returns (*RET*). The main independent variable is the stock of organization capital (*OC/TA*), constructed using the perpetual inventory method following Eisfeldt and Papanikolaou (2013). We obtain the industry labor mobility data for the US from Donangelo (2014). In columns (1) and (2) (columns (3) and (4)), we divide the US industries into high and low groups according to the sample median (the breakpoint at the 70th percentile) of labor mobility. We apply these classifications of mobile industries to the rest of the sample countries. *High mobility (FF49)* is an indicator that equals one if a firm belongs to a mobile industry under the Fama-French 49 industry classification, and zero otherwise. *High mobility (SIC2)* is an indicator that equals one if a firm belongs to a mobile industry under the 2-digit SIC industry classification, and zero otherwise. The lagged firm- and country-level control variables are the same as those used in Table 5 and are defined in Appendix A1. Industry effects are constructed based on the Fama-French 49 industry classification. Robust standard errors (in brackets) are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	RET			
	(1)	(2)	(3)	(4)
OC/TA	0.018***	0.018***	0.021***	0.018***
	(0.003)	(0.003)	(0.002)	(0.003)
OC/TA×High mobility (FF49) (Median)	0.018***			
	(0.004)			
OC/TA×High mobility (SIC2) (Median)		0.013***		
		(0.004)		
OC/TA×High mobility (FF49) (Top 30%)			0.016***	
			(0.004)	
OC/TA×High mobility (SIC2) (Top 30%)				0.014***
				(0.004)
Ln(BM)	0.081***	0.080***	0.081***	0.081***
	(0.003)	(0.003)	(0.003)	(0.003)
Ln(ME)	-0.022***	-0.022***	-0.022***	-0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
Profitability	0.154***	0.151***	0.152***	0.152***
	(0.016)	(0.016)	(0.016)	(0.016)
R&D/Sale	0.007	0.006	0.005	0.006
	(0.006)	(0.006)	(0.006)	(0.006)
Leverage	0.074***	0.074***	0.074***	0.074***
	(0.011)	(0.011)	(0.011)	(0.011)
CAPX/TA	-0.009	-0.016	-0.012	-0.011
	(0.042)	(0.042)	(0.042)	(0.042)
Asset tangibility	-0.028**	-0.023*	-0.027**	-0.027**
	(0.012)	(0.012)	(0.012)	(0.012)

Foreign indicator	0.022***	0.022***	0.022***	0.022***
	(0.003)	(0.003)	(0.003)	(0.003)
β^{WMKT}	0.032***	0.031***	0.031***	0.031***
	(0.003)	(0.003)	(0.003)	(0.003)
β^{WSMB}	-0.007***	-0.007***	-0.007***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
β^{WHML}	-0.002*	-0.002*	-0.002*	-0.002*
	(0.001)	(0.001)	(0.001)	(0.001)
β^{RMKT}	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
β^{RSMB}	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
β^{RHML}	0.003**	0.003**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Stock Cap to GDP	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Financial Development	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Ln(GDP per capita)	-0.925***	-0.921***	-0.922***	-0.924***
	(0.109)	(0.109)	(0.109)	(0.109)
GDP growth	-1.688***	-1.687***	-1.688***	-1.687***
	(0.195)	(0.195)	(0.195)	(0.195)
CPI growth	2.290***	2.284***	2.285***	2.280***
	(0.288)	(0.288)	(0.288)	(0.288)
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs.	131,810	131,810	131,810	131,810
Adj. R^2	0.177	0.177	0.177	0.177

TABLE 9
Factor Model Regressions

This table reports the results of our factor model regressions estimated using monthly returns data. We use fiscal year *t-1* accounting data to explain stock returns from July of year *t* to June of year *t+1*. In the end of June each year, we sort stocks into quintiles based on its year *t-1 OC/TA* within each country-industry pair. We combine the stocks with the same portfolio rank to form five equally (Panel A) and value weighted (Panel B) portfolios across all countries and within country groups (based on labor market flexibility, i.e., average *EPL*) and calculate the average portfolio monthly returns. We risk-adjust these portfolio returns by regressing them on the global market (r^W-*rf*), size (*WSMB*), and value (*WHML*) factors. For the all-country sample, we report the returns, estimated alphas, betas, adjusted R-squared, and number of observation for each portfolio. For each of the country groups sorted by average *EPL*, we only report the estimated alphas for these portfolios. The low group includes 7 countries with the lowest average *EPL*: Belgium, France, Portugal, Italy, Spain, Norway, and Germany. The high group includes 7 countries with the highest average *EPL*: Finland, Australia, Ireland, United Kingdom, Canada, the United States, and New Zealand. The remaining 6 countries are in the middle group: Austria, Netherlands, Denmark, Switzerland, Sweden, and Japan. We report the portfolio returns and alphas of the high minus low zero spread portfolio (5-1) and the high minus low EPL spread portfolio (3-1). The Newey-West robust standard errors with 3 month lags are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Equally weighted portfolios

	All countries							*EPL*			
								1 Low	2	3 High	3-1
OC/TA	*RET*	α	(r^W-*rf*)	*WSMB*	*WHML*	Adj. R^2	Obs.	α			
1 Low	0.0078	-0.0001	1.009***	0.773***	0.167**	0.936	174	0.0006	-0.0028	0.0014	0.0008
	(0.0049)	(0.0011)	(0.025)	(0.116)	(0.067)			(0.0022)	(0.0025)	(0.0018)	(0.0026)
2	0.0089*	0.0006	1.009***	0.802***	0.240***	0.931	174	-0.0067	-0.0017	0.0022	0.0090*
	(0.0049)	(0.0012)	(0.024)	(0.126)	(0.074)			(0.0046)	(0.0029)	(0.0019)	(0.0049)
3	0.0093**	0.0013	0.965***	0.682***	0.257***	0.941	174	0.0004	-0.0004	0.0032**	0.0042*
	(0.0047)	(0.0010)	(0.021)	(0.087)	(0.061)			(0.0019)	(0.0021)	(0.0015)	(0.0021)
4	0.0109**	0.0029***	0.963***	0.811***	0.197***	0.939	174	0.0005	0.0000	0.0049***	0.0044**
	(0.0048)	(0.0010)	(0.021)	(0.105)	(0.068)			(0.0027)	(0.0026)	(0.0017)	(0.0022)
5 High	0.0109**	0.0031***	0.940***	0.836***	0.168**	0.918	174	0.0003	-0.0002	0.0055***	0.0052**
	(0.0049)	(0.0010)	(0.024)	(0.109)	(0.071)			(0.0022)	(0.0026)	(0.0018)	(0.0023)
5-1	0.0031***	0.0032***	-0.069***	0.064	0.0012	0.100	174	-0.0004	0.0027***	0.0041***	0.0044**
	(0.0008)	(0.0008)	(0.015)	(0.040)	(0.028)			(0.0019)	(0.0009)	(0.0011)	(0.0022)

Panel B: Value weighted portfolios

	All countries							EPL			
								1 Low	2	3 High	3-1
OC/TA	*RET*	*α*	*(r^W-rf)*	*WSMB*	*WHML*	Adj. R^2	Obs.	*α*			
1 Low	0.0041	0.0008	1.044***	-0.084	-0.156***	0.948	174	0.0017	-0.0025	0.0010	-0.0007
	(0.0045)	(0.0012)	(0.023)	(0.070)	(0.054)			(0.0022)	(0.0021)	(0.0015)	(0.0026)
2	0.0051	0.0007	1.129***	-0.201*	-0.236**	0.887	174	-0.0061**	-0.0032	0.0020	0.0081**
	(0.0046)	(0.0016)	(0.034)	(0.121)	(0.093)			(0.0031)	(0.0022)	(0.0020)	(0.0039)
3	0.0053	0.0007	0.998***	-0.133**	-0.133**	0.933	174	0.0023	-0.0007	0.0014	-0.0010
	(0.0041)	(0.0011)	(0.024)	(0.066)	(0.065)			(0.0031)	(0.0019)	(0.0015)	(0.0039)
4	0.0069*	0.0021**	0.924***	-0.129**	-0.041	0.941	174	-0.0015	0.0018	0.0030***	0.0045
	(0.0038)	(0.0009)	(0.017)	(0.053)	(0.052)			(0.0035)	(0.0019)	(0.0010)	(0.0033)
5 High	0.0070*	0.0036**	0.936***	-0.243***	-0.163**	0.887	174	0.0024	0.0005	0.0050***	0.0026
	(0.0040)	(0.0014)	(0.035)	(0.087)	(0.082)			(0.0023)	(0.0018)	(0.0014)	(0.0027)
5-1	0.0029*	0.0028*	-0.108***	-0.159*	-0.007	0.097	174	0.0007	0.0030	0.0040**	0.0033*
	(0.0015)	(0.0016)	(0.041)	(0.090)	(0.065)			(0.0027)	(0.0024)	(0.0016)	(0.0020)

TABLE 10
Alternative Explanation: Investment Irreversibility and Operating Leverage

This table examines the relation between organization capital and the firms' exposure to the global and regional market risk in different market conditions. In Panels A and B, based on the firm-year panel dataset, we divide the firms into high and low groups according to the sample median *OC/TA*. We also classify our sample into three states according to the local market conditions. Panel A measures local market conditions by the real GDP annual growth rates; Panel B measures local market conditions by the value-weighted country stock market returns. Within each country, a bad (good) state is defined to be the 25% worst (best) performing years. The remaining years are defined as normal. We report the means and medians of the firms' global and regional market beta (β^{WMKT} and β^{RMKT}) for the two *OC* groups in each of the three states. We also report the mean and median differences between the high- and low-*OC* groups, and the statistical significance based on two-sample *t*-tests and Wilcoxon signed-rank tests. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: GDP growth

		High *OC/TA*		Low *OC/TA*		High Minus Low			
	State	Mean	Median	Mean	Median	Mean		Median	
β^{WMKT}	Bad 25%	0.915	0.810	1.117	0.997	-0.201	***	-0.187	***
	Normal 50%	0.973	0.903	1.004	0.935	-0.031	***	-0.032	***
	Good 25%	0.802	0.690	0.938	0.822	-0.136	***	-0.132	***
β^{RMKT}	Bad 25%	1.007	0.945	1.006	0.945	0.001		-0.001	
	Normal 50%	0.928	0.901	0.970	0.939	-0.042	***	-0.038	***
	Good 25%	0.981	0.856	0.973	0.898	0.008		-0.042	**

Panel B: Country stock market returns

		High *OC/TA*		Low *OC/TA*		High Minus Low			
	State	Mean	Median	Mean	Median	Mean		Median	
β^{WMKT}	Bad 25%	0.880	0.825	1.026	0.954	-0.146	***	-0.129	***
	Normal 50%	0.913	0.816	1.015	0.916	-0.103	***	-0.100	***
	Good 25%	0.963	0.878	0.990	0.902	-0.026	***	-0.024	***
β^{RMKT}	Bad 25%	0.952	0.891	0.965	0.946	-0.013		-0.055	***
	Normal 50%	0.980	0.909	0.967	0.917	0.013		-0.008	
	Good 25%	0.917	0.880	1.016	0.936	-0.099	***	-0.056	***

APPENDIX A.1
Variable definitions

Variable	Definition	Source
RET	Buy-and-hold annual returns of a stock over a fiscal year.	Compustat Global Compustat North America CRSP
SG&A	Selling, general and administrative expenses.	Compustat Global Compustat North America
OC	Stock of organization capital, computed as the capitalized SG&A expenses using the perpetual inventory method. A firm's stock of organization capital (*OC*) is computed by recursively cumulating its deflated value of SG&A expenses as follows: $OC_{i,t} = (1 - \delta_o) \cdot O_{i,t-1} + (SG\&A_{it} / cpi_t)$ where δ_o is the depreciation rate and cpi_t is the US consumer price index. For each firm, we start the recursive estimation of its stock of organizational capital since its first observation in the Compustat Global or North America Annual databases. For non-US firms, all SG&A expenses are translated into US dollars before deflating. Following prior studies, we treat missing observations of the SG&A expenses as zero. The initial stock of organization capital is defined as: $OC_0 = SG\&A_1 / (g + \delta_o)$ Following prior studies (Eisfeldt and Papanikolaou, 2013; Li, Qiu, and Shen, 2017), a depreciation rate of 15% is used throughout the study. The growth rate *g* is assumed to be 10%.	Compustat Global Compustat North America
OC/TA	The ratio of the stock of organization capital *(OC)* to total assets.	Compustat Global Compustat North America
Industry-adjusted	The industry-adjusted *OC/TA*, computed by subtracting a firm's *OC/TA* from its country-specific industry mean, and dividing the demeaned value by its standard	Compustat Global

OC/TA	deviations (across industry firms).	Compustat North America
$OC_{30\%}/TA$	*OC/TA* in which *OC* is estimated with an assumed 30% depreciation rate.	Compustat Global Compustat North America
$OC_{50\%}/TA$	*OC/TA* in which *OC* is estimated with an assumed 50% depreciation rate.	Compustat Global Compustat North America
OC_{Ex5yr}/TA	*OC/TA*, of which the first five years of *OC/TA* observations are excluded when capitalizing the SG&A expenses.	Compustat Global Compustat North America
SG&A/TA	Selling, general and administrative expenditure (*SG&A*) to total assets.	Compustat Global Compustat North America
Labor market flexibility		
EPL	The Employment Protection Legislation (*EPL*) index measures the country-level degree of labor market flexibility. It is computed by taking the average of three indexes, which measure the country-level strictness of employment protection in individual dismissals (regular contracts) (*EPR*), collective dismissals (additional provisions) (*EPC*) and temporary employment (*EPT*), respectively. A higher value indicates less strict protection, or higher labor market flexibility.	OECD
EPR	A labor market flexibility index measuring regulations relating to individual dismissals.	OECD
EPC	A labor market flexibility index measuring regulations relating to collective dismissals.	OECD
EPT	A labor market flexibility index measuring regulations relating to fixed-term and temporary work contract.	OECD
Flex index	An overall labor market flexibility index. It is computed by taking the average of the *Difficulty-in-hiring, Rigidity in labor hours and Difficulty-in-firing indexes.* A higher value reflects higher flexibility.	World Bank Group

	Difficulty-of-hiring is an index measuring the flexibility in national labor regulation in relation to contracting during the hiring process. *Rigidity-in-labor-hour* is an index measuring the flexibility in national labor regulations in relation to labor hours. *Difficulty-of-firing* is an index measuring the flexibility in national labor regulation in relation to the provisions or restrictions in redundancy.	World Bank Group
Country variables		
Rule of Law	An index that measures the degree of tradition in law and order. Smaller values reflect less traditions in law and order.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998)
Anti-director index	First developed by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) and subsequently revised by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008), the anti-director rights index measures legal protection on minority shareholders against management. The index ranges from 0 to 6 with a higher value reflecting stronger investor protection. The index is constructed by summing six indicator variables: (1) proxy by mail allowed; (2) shares not blocked before shareholder meeting; (3) cumulative voting/ proportional representation; (4) oppressed minority protection; (5) preemptive rights to new share issues; (6) percentage of share capital to call an extraordinary shareholder meeting.	Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)
Individualism	An index of country-level degree of individualism. The index was constructed using evidence from psychological surveys on IBM employees between 1967 and 1973. The index is constructed from a factor analysis on the country mean scores on 14	Professor Hofstede's homepage

	questions about the respondents' attitudes toward their work and private life. A higher index value reflects higher degree of individualism.	
Stock Cap to GDP	The ratio of stock market capitalization to Gross Domestic Product (GDP).	World Bank
Financial Development	The ratio of total private credit to GDP.	World Bank
Ln(GDP per capita)	Natural log of GDP per capita (in 2005 US dollars).	World Bank
Growth in GDP per capita	Percentage growth in GDP per capita.	World Bank
Growth in CPI	Percentage growth in CPI.	OECD
Ln(TPF)	Natural log of the number of triadic patent families (*TPF*) of a country in a given year (in thousands).	OECD
Ln(Patent)	Natural log of the number of patents originated from a non-US country and granted by the USPTO in a given year (in number).	USPTO
Ln(R&D)	Natural log of the total gross domestic expenditure on R&D by a country in a given year (in constant 2005 million US dollars).	OECD
Ln(Patent/R&D)	Natural log of the ratio of *Patent* to *R&D*.	USPTO, OECD
Managerial Practices Scores	A country indicator of managerial quality based on survey evidence by Bloom, Genakos, Sadun, and Van Reenen (2012). The survey procedure follows Bloom and Van Reenen (2007). A higher score indicates better managerial quality.	Bloom, Genakos, Sadun, and Van Reenen (2012)
Firm controls		
Ln(BM)	Log book-to-market equity ratio, computed as the book value of equity capital to market value at the fiscal year end.	Compustat Global Compustat North America
Ln(ME)	Log of market capitalization at the fiscal year end.	Compustat Global Compustat North America

Profitability	Profitability is measured by return on assets, computed as the income before extraordinary items to total book value of assets.	Compustat Global Compustat North America
R&D/Sale	Research and Development (*R&D*) intensity, computed as the ratio of *R&D* expenditure to total net sales.	Compustat Global Compustat North America
Leverage	Leverage, computed as ratio of the sum of short-term and long-term debts to total book value of assets.	Compustat Global Compustat North America
CAPX/TA	Capital investment, computed as the ratio of capital expenditure to total book value of assets.	Compustat Global Compustat North America
Asset tangibility	Net property, plant & equipment to total book value of assets, as a measure of asset tangibility.	Compustat Global Compustat North America
Foreign currency indicator	A foreign currency indicator, defined as one when firms report a non-zero foreign currency adjustment, and zero otherwise.	Compustat Global Compustat North America
Sale/TA	Ratio of total sales to total assets.	Compustat Global Compustat North America
ICC_AVG	Composite implied cost of capital (ICC). It is the average of *ICC_OJ*, *ICC_MPEG* and *ICC_GG*. *ICC_OJ* is the ICC following the model of Ohlson and Juettner-Nauroth (2005). *ICC_MPEG* is the ICC following the model of Easton (2004. *ICC_GG* is the ICC following the model of Gordon and Gordon (1997). Following Hou, van Dijk and Zhang (2012), to increase coverage, we require a firm to have at least one non-missing individual ICC to compute this average ICC.	Authors' calculations Compustat Global Compustat North America
High mobility (FF49)	An indicator equal one if a firm belongs to a mobile industry under the Fama-French 49 industry classification, and zero otherwise. Labor mobility is defined as the average inter-industry occupational dispersion of employed workers in an industry collected from Donangelo (2011). We divide the Fama-French 49 industries into high and low groups according to the sample median or the 70th percentile of labor mobility. We apply this classification of mobile industries to the rest of the sample countries.	Professor Donangelo's homepage
High mobility (SIC2)	An indicator equal one if a firm belongs to a mobile industry under the 2-digit	Professor Donangelo's

industry classification, and zero otherwise. Labor mobility is defined as the average inter-industry occupational dispersion of employed workers in an industry collected from Donangelo (2011). We divide the 2-digit SIC industries into high and low groups according to the sample median or the 70th percentile of labor mobility. We apply this classification of mobile industries to the rest of the sample countries.	homepage