

# BUSINESS GROUPS AND EMPLOYMENT

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## ABSTRACT

Using a newly assembled 56 country, 23,000 firm database, we document that firms affiliated with business groups display less pronounced fluctuations in employment than unaffiliated firms during business cycle changes, especially during economic downturns. The mitigated response of group affiliated firms to economic shocks is specific to countries with less stringent employment protection laws, possibly reflecting the greater flexibility business groups have to relocate employees across firms in those countries. Consistent with efficient labor dynamics within business groups, employment declines in poorly performing firms and increases in better performing firms. The results are robust to a battery of endogeneity tests.

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Employment is a primary concern for politicians, individuals, and economists alike. For over half a century since Okun's (1962) seminal study, economists have investigated how employment fluctuates with output. The widely documented positive correlation between these two fundamental variables has become a staple of modern macroeconomic textbooks; Mankiw (2012) and Romer (2012) are two of many examples.

In this paper we investigate how this relation varies across firms as a function of business group affiliation.<sup>1</sup> To do so, we construct a new database of group affiliation encompassing 23,548 publicly traded firms from 56 countries during the period 1991-2011. We document that group affiliated firms on average display less pronounced fluctuations in employment following shifts in the business cycle. The decreased sensitivity of employment growth to economic shocks in group affiliated firms is more strongly found during economic downturns – when employment (or lack thereof) is even more of a public concern. We thus uncover a new “bright side” of business groups: reducing fluctuations in employment.

Interestingly, we document that our results are concentrated in countries with less stringent employment protection laws. This possibly reflects the lesser frictions encountered by business groups when relocating workers from one firm to another in these particular countries. Additionally, we provide evidence consistent with efficient labor dynamics within business groups. More specifically, our results indicate that poorly performing group affiliated firms reduce employment on average, while better performing group affiliated firms increase employment on average.<sup>2</sup>

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<sup>1</sup> Khanna and Yafeh (2007) define business groups as “legally independent firms...which are bound together by persistent formal (e.g., equity) and informal (e.g., family) ties.”

<sup>2</sup> A related phenomenon is documented by Giroud and Mueller (2012), who find that firms reallocate scarce resources away from less profitable centers of production within the firm following exogenous shocks that increases firm investment in a particular production center.

One possible alternative explanation for these results is that group-affiliated firms are less sensitive *in general* to economics shocks (compared with unaffiliated firms). If this were the case, the employment dynamics we observe in group-affiliated firms might simply be a response to a lower sensitivity of operating performance or growth opportunities to economic shocks. However, we find no statistically significant differences between group-affiliated and unaffiliated firms' sensitivities of profitability changes, sales growth, and asset growth to economic shocks. Another explanation is that the diminished sensitivity of employment changes to economic growth in group affiliated firms is the result of agency conflicts in business groups. However, contrary to an agency story, we find the result to be strongest in countries that provide better shareholder protection.

In our models, identification comes from the different response of firms to economic shocks as function of their group affiliation. In our change regression specifications, we control for the change in a number of firm characteristics to mitigate the risk of spurious correlation between GDP changes and changes in employment. Additionally, we show that our results are also robust to the inclusion of country-year fixed effects to control for unobserved country-level shocks that might correlate with GDP changes and might equally affect all firms in a given country at a given point in time. Additionally, the results are also robust to the inclusion of firm fixed effects to control for time-invariant firm level omitted variables. We further show that the results are robust to the inclusion of interactions between the changes in GDP and each one of our control variables. These interactions control for the possibility that economic shocks might affect firms through a channel other than group affiliation. The results are also robust to a variety of sample selection criteria.

The results are especially important for two reasons. The first is the paramount importance of employment *per se*. Second, the results are relevant because, across the globe, business groups

represent a prevalent organizational form.<sup>3</sup> (In our sample, about one third of the firms are classified as group affiliated. Similarly, about one third of the workers are employed by group affiliated firms). Thus, the decreased sensitivity of employment growth to economic shocks in group affiliated firms encompasses a large share of worldwide economic activity and employment.

Our results relate to the literature investigating the benefits of group affiliation. This literature traces back to Coase (1937, 1960) and Williamson (1985), who have highlighted the benefits that organizations may play in reducing transaction costs in various factor markets. For example, to the extent that informational asymmetries increase the cost of accessing external factor markets, group affiliation may be advantageous in that it allows superior access to internal factor markets (Stein (1997)). Historically, the finance literature has focused on internal *capital* markets. Examples of such papers include Hoshi, Kayshap and Scharfstein (1991), Gopalan, Nanda and Seru (2006), and Almeida and Kim (2012).<sup>4</sup> In this paper we take a new perspective and provide evidence of an unexplored bright side of group affiliation related to employment (rather than financing).

Our paper is also closely related to recent studies by Tate and Yang (2014), Giroud and Mueller (2012), and Cestone, Fumagalli, Kramarz, and Pica (2015). Using worker-level and/or plant-level data from the U.S. Census, the first two papers document the presence of active internal labor markets in diversified firms (Tate and Yang (2014)) and across production centers within the same firm (Giroud and Mueller (2012)). Cestone *et al.* (2015) find evidence of internal labor

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<sup>3</sup> See, for example, Almeida, Park, Subrahmanyam and Wolfenzon (2011), Almeida and Kim (2012), Colpan (2010), Faccio, Lang, and Young (2001), Gopalan, Nanda and Seru (2007, 2008), Khanna and Yafeh (2005, 2007), Masulis, Pham and Zein (2012), Polsiri and Wiwattanakantang (2006).

<sup>4</sup> A different set of papers on business groups have focused on the *costs* of group affiliation, especially in the form of expropriation of minority shareholder by the dominant family (Bae, Kang, and Kim (2002), Baek, Kang, and Lee (2006), Bertrand, Mehta, and Mullainathan (2002), Cheung, Rau and Stouraitis (2006), Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000), etc.)

markets in French firms *specifically within business groups* using employee level data and information on firm ownership. All three papers find that the benefits of internal labor markets are shared by both firms and employees. We complement and extend the evidence in these papers and provide indirect evidence consistent with the presence of internal labor markets in business groups across a much larger sample of firms and countries.

Last but not least, our paper contributes to a vast literature investigating the relationship between employment and output. A number of authors have investigated how this relationship varies across countries, though time, or as a function of specific firm characteristics (for example, Meyer and Tasci (2012) Ball, Leigh, and Loungani (2013), and Ball, Jalles and Loungani (2014)). In this paper we investigate how this relation varies across firms as function of their organizational form.

The rest of the paper is organized as follows. Section I describes the data. Section II presents the main results. Section III investigates the possible explanations of the results. Section IV presents a number of robustness tests, and Section V concludes.

## **I. Data and Variables**

### *I.A. Group Classification*

Data on group affiliation is constructed using information from two *Thomson Reuters* databases. We use the *Worldscope* database to gain data for years 1991 through 2008<sup>5</sup> and the *Thomson Reuters Ownership* database for 2004 through 2011. Those databases report the name and ownership percentage of large shareholders -- those who typically own 5% or more of a firm's equity. (The specific threshold that triggers a requirement to disclose varies across countries.)

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<sup>5</sup> Worldscope CDs were discontinued in early 2010.

Using these data, we classify firms in our sample to be group affiliated if they meet at least one of three criteria: (i) the firm's largest shareholder is a corporate entity with a 20% or greater ownership stake, (ii) the firm's largest shareholder has a 20% or greater stake in more than one firm in our sample, or (iii) the firm itself is the largest shareholder of another firm in our sample with a 20% or greater ownership stake. The assumption that control is achieved by at least 20% ownership of shares has been used in several other studies of ownership structures, starting with La Porta, Lopez-de-Silanes, and Shleifer (1999). To classify a shareholder as a "corporate entity", we examine whether the name of the largest shareholder contains a commonly-used word or abbreviation that would identify the shareholder as a corporation (such as "corporation", "limited", "Inc.", "GmbH", etc.) We also look for commonly-used words or abbreviations that would indicate state or other non-corporate ownership (such as "government", "state", "foundation", etc.) and classify these firms as "unaffiliated".<sup>6</sup> We use a list of 45 words and 145 abbreviations in this process.<sup>7</sup> We classify any remaining firms that do not meet at least one of the three criteria above as "unaffiliated".

After this identification process, we merge the data from the two sources. The data is then checked for conflicting information between the two data sources. For example, if a firm-year observation is present in both databases but the identity of the largest shareholder is different in each database, that observation is dropped from the sample. We also check for how typographical errors might affect our classification process, as illustrated by the following example. Largest

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<sup>6</sup> These firms are classified as "unaffiliated" regardless of whether their largest shareholder owns large stakes in more than one firm. In other words, this keyword procedure takes precedence over criterion (ii) in our classification process.

<sup>7</sup> Some words and abbreviations for corporate entities were gathered from Appendix A in Faccio *et al.* (2011) and <http://www.corporateinformation.com/Company-Extensions-Security-Identifiers.aspx>. The remaining words and abbreviations were collected manually by the authors and the full list is available upon request.

shareholder data for the firm “Coca Cola Amatil Limited” is available for 15 years using our two sources. During 1991-1995, the largest shareholder for this firm is “Coca Cola Holdings (Overseas) Ltd” and this shareholder owns a stake of greater than 20% in each of these years. This meets criterion (i) from the previous paragraph, so the firm is classified as “group affiliated” for those years. However, during 1996-1999, *Worldscope* lists the largest shareholder as “Coca Cola Holdings (Overseas)” (without the “Ltd” abbreviation) before reverting back to “Coca Cola Holdings (Overseas) Ltd” from 2001-2005. Through a combination of manual checking and programming procedures used to analyze the similarity of text strings, we identify this minor difference and re-classify “Coca Cola Amatil Limited” as a group affiliated firm from 1996-1999.

(INSERT TABLE 1 ABOUT HERE)

From this process, we create an indicator variable *Group Affiliated* that is equal to one if a particular firm-year observation is classified as part of a business group and zero otherwise.

Our sample consists of firms with 500 or more employees. Employment changes at these firms are more relevant from a macroeconomic perspective. Further, firms with relatively *few* employees are more likely to experience large percentage changes in employment from one year to another despite hiring (or firing) only a fistful of employees. Including these latter firms would introduce additional noise in our measurement process while capturing a relatively small number of additional employees. For example, after restricting our main sample to firms with 500 employees or more, our sample firms account for more than 99% of all employees with group affiliation data available in our two data sources.

Table 1 presents the total number of observations and the fraction of firm-year observations that are classified as group affiliated by country and year over our entire sample. The results of our classification process appear to be consistent with previous studies of group affiliated firms. In

particular, prior studies document economically meaningful fractions of group affiliated firms in western Europe (Faccio, Lang and Young (2001)), eastern Asia (Claessens, Djankov, and Lang (2000), Polsri and Wiwattanakantang (2006), Almeida, Park, Subrahmanyam and Wolfenzon (2011)), India (Bertrand, Mehta, and Mullainathan (2000), Gopaland, Nanda, and Seru (2007, 2008)), Latin America (Khanna and Yafeh (2005, 2007)), and Turkey (Colpan (2010)), while the relatively low fraction of U.S. business groups in our sample is consistent with Morck (2005).<sup>8</sup>

### *I.B. Firm- and Country-Level Variables*

Accounting and stock data are obtained from Worldscope and Datastream. Our dependent variable in most regressions is *Employment Growth*, calculated by dividing the current year's employees by the prior year's employees and subtracting one. The values of *Employment Growth* (and all other variables listed below) are trimmed at the 1<sup>st</sup> and 99<sup>th</sup> percentiles in the sample. In other regressions, we use three firm-level measures of performance and valuation as dependent variables: (1) change in *Return on Assets (ROA)*, where ROA is calculated by dividing net income by the average book value of assets (the sum of end of current year assets and end of prior year assets, all divided by two) and the change in ROA is calculated by subtracting the prior year ROA from the current year ROA, (2) *Sales Growth*, which is calculated by dividing the current year sales by the prior year's sales and subtracting one, and (3) change in *Q*, where Q is calculated as the market value of equity plus the book value of liabilities, all divided by the book value of assets, and the change in Q is calculated by subtracting the prior year Q from the current year Q. To proxy

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<sup>8</sup> There are often large year-to-year changes in the country-level percentages of group affiliated firms, especially in 2004 when the first available year of *Thomson Reuters Ownership* data is added. This is due to a changing mix of firm data availability in each country.



for economic shocks, we use the annual change in Gross Domestic Product (GDP) by country, adjusted for inflation (*GDP Growth*). We obtain data on GDP from the World Bank website.

Control variables include current and prior year values of all three change variables listed above (*Change in ROA, Sales Growth, and Change in Q*), along with current and prior year changes in *Debt Ratio*, where *Debt Ratio* is calculated as the book value of current year debt divided by current year assets, changes in *Capital Expenditures* or *CapEx*, where *CapEx* is calculated as firm capital expenditures divided by the book value of assets, and changes in *Return Volatility* or *RetVol*, where *RetVol* is the volatility of weekly stock returns within a year. We also use lagged *Employment Growth* as an additional control variable in our tests.

(INSERT TABLE 2 ABOUT HERE)

Table 2 presents mean and median summary statistics for group affiliated and unaffiliated firms in our sample. Both the mean and median employment growth measures are significantly lower in group affiliated firms than unaffiliated firms, despite the higher average GDP growth experienced by group firms in our sample. Differences in the growth of other firm characteristics (such as sales growth, change in ROA, etc.) are not as pronounced as the difference in employment growth. When examining *levels* of firm characteristics, group firms tend to be smaller (in terms of sales volume), slightly less profitable (in terms of ROA) and less highly valued by the market (in terms of Q) than unaffiliated firms. Group firms also tend to have higher capital expenditures, slightly higher leverage, and higher return volatility on average than non-group firms.

The results in Table 2 might be the result of fundamental, unobservable differences between group affiliated and unaffiliated firms common to all countries, or they could be the result of cross-country heterogeneity. For example, the group structure of corporate ownership tends to thrive in countries where there is a larger risk of expropriation from controlling owners (examples

consistent with expropriation are provided by Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000), Bertrand, Mehta, and Mullainathan (2002), Khanna and Yafeh (2007)); this heterogeneity in investor protection across countries may be responsible for the observed differences in firm valuation (Q). Our tests control for the observed characteristic differences above; we include changes in key firm characteristics as variables in our change regressions, and we control for differences in the levels of firm characteristics through the use of firm fixed effects in some of the specifications. We also use country-year fixed effects in several specifications to control for any other unobservable country-level influences on employment growth.

## II. Empirical Results

### II.A. Identification Strategy

To examine the different employment dynamics displayed by group affiliated firms in response to economic shocks, we employ *change regression* specifications. In those specifications, annual changes in employment at the firm-level (*Employment Growth*) are regressed on changes in GDP (*GDP Growth*), an indicator variable denoting whether a given firm is affiliated to a business group (*Group Affiliated*), and the interaction between these last two variables:

$$\begin{aligned} \text{Employment Growth}_{i,c,t} = & \alpha + \beta \times \text{GDP Growth}_{c,t} + \gamma \times \text{Group Affiliated}_{i,c,t} + \\ & + \delta \times \text{GDP Growth}_{c,t} \times \text{Group Affiliated}_{i,c,t} + \varepsilon_{i,c,t} \end{aligned}$$

In the model,  $i$  identifies firms,  $c$  identifies countries, and  $t$  identifies years. The coefficient of interest is  $\delta$ , which reflects the different response displayed by group affiliated firms to a given economic shock. We account for the potential correlation of regression residuals in two dimensions. First, the response to a common shock exhibited by firms in the same country is likely

to be correlated. Second, a given firm will likely respond to similar shocks in similar ways across time. We therefore double cluster the standard errors at the country-year and firm levels.

We also augment our baseline specification with a number of firm-level change control variables for both the current and prior year (including the lagged value of employment growth). In some specifications we further augment our model with the inclusion of country-year fixed effects. These fixed effects account for any country-level observable and unobservable shocks that might correlate with the economic shocks and also affect the employment growth of all firms in a given country. When these fixed effects are included, identification comes from the different response exhibited by group affiliated (vs. non-affiliated) firms to the same economic shock.

In other specifications we use firm fixed effects (along with country-year fixed effects). These firm fixed effects account for any firm-level observable and unobservable variables (besides group affiliation status) that might affect the relationship between employment growth and GDP growth. In other words, firm fixed effects allow us to control for key differences between group-affiliated and non-affiliated firms (such as those observed in Table 2) and measure whether a change in group affiliation status affects the sensitivity of employment growth to GDP growth *within firms*.

We further show that the results are also robust to the inclusion of interactions between *GDP Growth* and each one of our control variables. Those interactions control for the possibility that different firms may exhibit different employment dynamics in response to GDP growth for reasons *other than* their group affiliation.

## *II.B. Main Results*

Specification (1) in Table 3, Panel A presents a simple model of the relationship between employment and GDP growth and no other controls. A benefit of this model is that it includes all

firms with 500 or more employees for which we have employment data for two consecutive years as well as group affiliation data at the year-end (125,682 firm-year observations).<sup>9</sup> The results confirm a positive correlation between GDP growth and employment growth, as documented in the macroeconomics literature. The magnitude of the coefficient is also in line with typical findings in the literature (see, for example, Mankiw (2012), Ball et al. (2013)).

Importantly, the results indicate different employment dynamics of group affiliated firms following economic shocks. In particular, group affiliated firms show a lower sensitivity of employment growth in response to economic shocks than unaffiliated firms (as shown by the negative and significant coefficient of *GDP Growth \* Group Affiliated*). In specification (2) we show that the results are robust to the inclusion of a number of additional firm-level change control variables. (As one would expect, *GDP Growth* loses significance once we add firm-level *Sales Growth* to the specifications.) Further, we show that the results are robust to the inclusion of country-year fixed effects (specification (3)) and both firm and country-year fixed effects (specification (4)).

(INSERT TABLE 3 ABOUT HERE)

A possible concern with our results is whether they truly reflect group affiliation. An alternative explanation for the Panel A results is that the different employment dynamics attributed to group affiliation do not occur because of firms' organizational structure but, rather, because of other factors that correlate with it. To address this concern, in Table 3, Panel B we augment our regressions with interactions between *GDP Growth* and each one of our control variables. These interactions capture the different employment dynamics of firms with different characteristics and

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<sup>9</sup> We use the end-of-year group classification for each firm as our current year value of *Group Affiliated*. However, these results are also robust to using beginning-of-year group classifications.

trends in response to economic shocks. As seen in Panel B, the majority of these interactions lack statistical significance. More importantly, the key double interaction (*GDP Growth \* Group Affiliation*) remains significant after including those additional controls. (The results are also robust to a number of (untabulated) different variable choices, specifications, etc.). This is consistent with our results occurring because of differences in firms' organizational structure as opposed to differences in profitability, leverage, or any of the other myriad characteristics and trends used as control variables in our regressions.

In Table 4, we further examine the sensitivity of employment changes to economic shocks by using separate variables for economic growth and economic contraction. In particular, *GDP Growth Positive* is a variable equal to *GDP Growth* if the value of that variable is positive and 0 if the value of *GDP Growth* is negative. *GDP Growth Negative* is a variable equal to 0 if the value of *GDP Growth* is positive and *GDP Growth* if the value of that variable is negative. The results indicate that the decreased sensitivity of employment growth to economic shocks in group affiliated firms is more strongly found in periods of *negative* GDP Growth (as the *GDP Growth Negative \* Group Affiliated* variable is negative and significant in all three specifications, while the *GDP Growth Positive \* Group Affiliated* variable loses its significance after the first specification.)

(INSERT TABLE 4 ABOUT HERE)

These results show that, on average, group affiliated firms display less pronounced fluctuations in employment following economic shocks. From the perspective of current employees, this represents a bright side of group affiliation. However, the question remains: why is this occurring?

One possibility is that business groups have a unique ability to relocate employees across firms as the business cycle changes (the “internal labor markets” hypothesis). For example, during economic expansions, group affiliated firms can get by with fewer outside hires as they can reallocate “high quality” employees from declining to growing firms as needed. By contrast, during downturns, group affiliated firms may be able to reallocate skilled employees of poorly performing firms to better performing business units, rather than firing them altogether. While the results of Table 4 show some evidence consistent with the former idea, they show much stronger evidence consistent with the latter idea. More specifically, the results show that group affiliated cut or reduce their employment less than unaffiliated firms in response to poor economic news. This result is consistent with press articles that provide anecdotal evidence of group-affiliated firms attempting to “save” workers from closing or struggling firms by transferring them to a different firm within the group<sup>10</sup> and with evidence in Giroud and Mueller (2012), Tate and Yang (2014), and Cestone, Fumagalli, Kramarz, and Pica (2015).

An alternative explanation is that the performance or growth of group firms is less sensitive to economic shocks than that of non-group firms, thus reducing the need to hire/fire employees as macroeconomic conditions change. A third explanation is that the diminished sensitivity of employment changes to economic growth in group-affiliated firms is the result of agency/shareholder conflicts present in group related firms, leading group firm managers to make

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<sup>10</sup> Financial Times, 08/03/1982, “Companies and Markets: UK company news – Unidare 90% ahead but some problems remain”; The Wall Street Journal, 04/17/2001, “Japan’s NTT unveils effort to lift profit – Plan to move workers from struggling units shows group tensions”; Dow Jones International News, 06/26/2001, “Philips to cut more than 1,200 jobs in France – Report”; Reuters News, 02/12/2002, “Daiei aims to cut 1,400 parent jobs”; Nordic Business Report, 02/25/2005, “Nokia multimedia division to cut 106 jobs in Finland – Report”; APA Economic News Service, 05/03/2006, “Siemens Austria to cut 250 jobs”; Chimie Pharma Hebdo, 06/04/2012, AstraZeneca to close research and development centre in Rheims”; Deutsche Welle, 06/30/2013, “Toshiba to cut thousands of jobs at foreign TV plants”; Spanish Collection, 05/19/2014, “Mondragon relocates 980 employees of Fagor Electrodomesticos.”

suboptimal hiring and firing decisions at the shareholder's expense. In the next section, we investigate the extent to which these hypotheses are supported by the data.

### **III. Tests of Hypotheses of Employment Dynamics**

#### *III.A. Internal Labor Markets*

One possibility is that the reallocation of workers from a group affiliated firm to another one is more easily done in countries that provide less protection to workers. In contrast, in those countries in which regulations highly protect workers, employee mobility will be lower and internal labor markets are less likely to develop. To investigate whether this is the case, in Table 5 we compare the sensitivity of employment to GDP growth in countries that provide poor protection to workers and those that provide strong protection. We use the employment laws index from Botero, Djankov, LaPorta, Lopez-de-Silanes, and Shleifer (2004) to measure the degree of employment protection in a given country. In the regressions, "Low (High) Protection Countries" are those with a below-median (above-median) value across all countries in their Employment Laws Index.

(INSERT TABLE 5 ABOUT HERE)

As the results in the table show, the mitigated response displayed by group affiliated firms to change in the cycle is specific to the subsample of countries that provide relatively poor protection to workers. Thus, it is specific to countries in which group affiliated firms enjoy more flexibility to re-deploy workers across business units or companies. This result is consistent with the internal labor markets hypothesis and confirms a mitigated response of employment to changes in the economic cycle for group affiliated firms, but *only* in countries with low employment protection.

A caveat with the interpretation of these results is that we cannot directly track individual employee movement across firms. However, we still provide *indirect* evidence consistent with the internal labor markets hypothesis. The idea of internal labor markets is also consistent with direct statements from firm managers, as press articles have documented anecdotal evidence on internal labor markets within business groups.<sup>11</sup>

We further investigate the internal labor markets hypothesis by investigating whether, *within group affiliated firms*, employees appear to be moving from less profitable to more profitable companies. To do so, we compare the employment dynamics of group affiliated firms with above-median ROA to the employment dynamics of group affiliated firms with below-median ROA. Median ROA is computed separately for each country and year. The results are tabulated in Table 6.

(INSERT TABLE 6 ABOUT HERE)

The key parts of the exhibit are the interactions between *GDP Growth* and the *Above-Median ROA* indicator variable. We expect the interaction of *Above-Median ROA* with *Positive GDP* to be positive, since profitable group affiliated firms can increase net employees during an economic boom by shifting them from the less profitable firms. Conversely, unprofitable firms group affiliated should be losing net employees or growing employees at less-than-typical levels during an economic downturn (resulting in a positive coefficient on the uninteracted *Negative GDP* variable) but this effect should be mitigated in the more profitable group affiliated firms, as these firms might absorb higher-quality employees from the unprofitable firms to offset their own layoffs (thus, we expect the interaction of *Above-Median ROA* with *Negative GDP* to be negative).

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<sup>11</sup> *Ibid.*



In line with our conjectures, the results show that employment growth is related to positive changes in GDP only for relatively profitable group firms. Further, the positive relationship between GDP *declines* and employment growth declines is significantly diminished for relatively profitable group firms. These results are consistent with employees flowing from less profitable to more profitable firms within groups in response to economic shocks.

### *III.B. Differences in the Sensitivity of Firm Performance and Growth to Economic Shocks*

One potential alternative explanation for our employment growth results is that it could simply be the case that the *performance* of group firms is less sensitive to economic shocks than that of non-group firms. Another alternative explanation is the changes in employees reflect difference responses in overall firm *growth opportunities* to economic shocks between group and non-group firms. If positive economic shocks lead to relatively fewer growth and profit opportunities for group firms than non-group firms (and negative economic shocks are less harmful or lead to smaller firm size declines for group firms than non-group firms), we would expect group firms' hiring to also be less sensitive to GDP changes.

In Table 7 we investigate these possibilities by looking at whether changes in firm performance (changes in ROA) and firm sales or Q differ significantly between group vs. non-group firms following economic shocks. Each panel in Table 7 uses one of these three measures of performance and growth as a dependent variable. The results are presented using sets of five different specifications; each of them provides slightly different information. The first specification in each panel uses *GDP Growth* and *Group Affiliated* separately. We do so to assess whether GDP growth itself is related to the y variable of interest before incorporating any

interactions. This appears to be the case only with *Sales Growth*.<sup>12</sup> The second and third specifications in each panel present the “effective” coefficient of GDP growth for a particular subsample of firms (group affiliated or non-group affiliated). The top row in each specification (2) presents the effective GDP growth coefficient for non-group firms (since the group firms are captured by *GDP Growth Ratio \* Group Affiliated*), while the top row in each specification (3) presents the effective GDP growth coefficient for group firms (since the non-group firms are captured by *GDP Growth Ratio \* Not Group Affiliated*). In Panel B, *Sales Growth* shows significantly positive sensitivity to GDP changes in both groups and non-groups.

(INSERT TABLE 7 ABOUT HERE)

The fourth and fifth specifications in each panel attempt to quantify whether the difference in performance and growth sensitivity to GDP is significantly different between groups and non-groups (this should be captured by including the group dummy separately and examining the significance and coefficient of *GDP Growth Ratio \* Group Affiliated*). If group hiring and firing is less sensitive to GDP because group *performance* is less sensitive to GDP, we would expect to see a negative and significant coefficient on this interaction. However, this is never the case in any of the panels in Table 7. Thus, it appears reasonable to argue that these “falsification tests” show that groups do not appear to have a significantly lower sensitivity of performance or overall firm growth to GDP changes.

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<sup>12</sup> If *Sales Growth* is not included as a control in panels A and C, then both changes in ROA and changes in Q become positively and significantly related to GDP growth in nearly all specifications. However, the *GDP Growth Ratio \* Group Affiliated* remains insignificant in these modified regressions across all specifications.

### III.C. Agency Problems and Self-Dealing as a Potential Explanation for Group Results

One additional possibility is that the reduced sensitivity of employment changes to economic shocks found in group-affiliated firms is the result of agency conflicts between controlling owners and minority shareholders. For example, group affiliated firms might be more likely to save employees during an economic downturn who are connected in some way (familial or otherwise) to the controlling owners, resulting in less-than-optimal employment decisions (from a shareholder perspective) in these firms during poor economic times. This explanation would suggest that the negative coefficient of *GDP Growth \* Group Affiliated* is not the result of “efficient” internal labor markets, but instead to result of “inefficient” conflicts between insiders and outsiders.

To test whether this alternative explanation is consistent with our results, in unreported tests we segment our sample into two categories: firms in countries with an above- or below-median value of the Anti Self Dealing Index, or ASDI (from La Porta *et al.* (2006)). If the value of the ASDI is above median, this suggests that the laws of a firm’s country do a relatively better job of protecting the rights of minority shareholders. If agency or self-dealing concerns are responsible for our results, we would expect the significance of the *GDP Growth \* Group Affiliated* coefficient to be concentrated in firms located in countries with relatively weak outside investor protection (i.e. below median ASDI). However, we find that our results are instead statistically stronger in countries with relatively high outside investor protection (i.e. above median ASDI).<sup>13</sup> It therefore seems implausible that agency or self-dealing concerns could be responsible for our main results.

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<sup>13</sup> These results are consistent with our earlier subsample results using employee protection laws; the correlation between low employee protection and high ASDI firms in our sample is 0.74.

## IV. Robustness Tests

### IV.A. Results Using Firm-Level Productivity Measures

One potential issue with the use of *GDP Growth* to proxy for economic shocks is that changes in country-level growth are likely to affect firms within that country in heterogeneous ways. For example, some firms' hiring and firing may be relatively more sensitive to macroeconomic shocks (regardless of group affiliation), while other firms' hiring and firing may be relatively less sensitive to these shocks. Although GDP changes are useful for our tests because they have a plausibly exogenous impact on each firm, this aforementioned heterogeneity could potentially introduce noise into our tests.

(INSERT TABLE 8 ABOUT HERE)

In Table 8, we replace *GDP Growth* as a proxy for economic shocks with firm-level *Sales Growth* to examine whether our main conclusions still hold. The four specifications used in Table 8 mirror the specifications used in Table 3, Panel A (including specifications with the use of country-year and firm fixed effects). We find that the coefficients of the interaction term *sales Growth \* Group Affiliated* are negative and highly significant in each specification, indicating once again that the sensitivity of employment growth to shocks to productivity is lower, on average, in group-affiliated firms (when compared to unaffiliated firms).

### IV.B. Alternative Samples and Specifications

In our final robustness tests, we investigate the extent to which the results are robust to different sample selection criteria. First, we start by excluding U.S. firms from our sample. We do so to address two potential concerns. First, U.S. firms represent a large fraction of the sample. This test thus enables us to rule out the possibility that the results might be entirely U.S.-driven. Second,

since group structures are the exception rather than the rule in the U.S., it is of particular interest to investigate the difference between group affiliated and unaffiliated firms in those countries in which these organizations are more prevalent. The results are reported in specification (1) of Table 9. Excluding U.S. firms has no material effect on the results.

(INSERT TABLE 9 ABOUT HERE)

Second, since our sample consists of firms with 500 or more employees, it may be interesting to see how our results change in an expanded sample that includes firms with smaller numbers of employees. In specification (2), we therefore focus on firms with at least 200 (rather than 500) employees. The main results using the key *GDP Growth \* Group Affiliation* variable are consistent with our earlier results.

Finally, specification (3) adds the current year *levels* of all our key change control variables (specifically, ROA, Debt Ratio, Q, Capex/Assets, Return Volatility, and the natural log of Sales) to our specifications. Although the inclusion of these level variable mean that our tests are no longer strictly “change” specifications, the observed differences between these characteristics in group-affiliated and non-affiliated firms (as shown in Table 2) suggests that controlling for these variables may reduce concerns about factors other than group affiliation driving our key results.<sup>14</sup> When these (unreported) level variables are included, the coefficient of *GDP Growth \* Group Affiliation* is negative and significant at the 5% level.

Finally, in unreported tests, we repeat all three robustness specifications in Table 9 for the subsample of firms in low employment protection countries (defined in the same way as the tests

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<sup>14</sup> Our use of firm fixed effects in several earlier specifications is an alternative method of addressing this concern.

in Table 5). As we would expect from the Table 5 results, the significance levels of the key *GDP Growth \* Group Affiliated* coefficients are much larger than in the full sample regressions.

## **V. Conclusions**

We document a new “bright side” of business groups: reducing fluctuations in employment. In particular, we document that group affiliated firms decrease employment less than similar unaffiliated firms during downturns, while increasing employment less during economic expansions. The results, based on a new database of group affiliation encompassing 23,548 publicly traded firms from 56 countries during 1991-2011, are robust to the inclusion of a battery of controls, country-year and firm fixed effects, and interactions between the control variables and GDP growth.

We further document that decreased sensitivity of employment growth to economic shocks is specific to countries with less stringent employment protection laws. This result might reflect the lesser frictions encountered by business groups when relocating workers from a group affiliated firm to another when employment protection laws are less stringent (the “internal labor markets” hypothesis). Within business groups, workers appear to move from relatively unprofitable to more profitable firms. Overall, the results provide indirect evidence consistent with group affiliated firms enjoying superior access to not only internal capital markets (as documented in the previous literature) but other factor markets as well. In contrast, there is no evidence that the different response of group affiliated firms is due to a different sensitivity of firm-level performance or growth to changes in the business cycle or that it reflects agency problems.

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**Table 1: Data on Group Affiliation by Country and Year**  
**Panel A: Number of observations by country and year**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
ARGENTINA					2	1	7	5	4	1	2
AUSTRALIA	19	35	44	45	61	57	61	57	50	28	50
AUSTRIA			1	3	11	18	22	28	27	35	28
BELGIUM	13	25	38	44	46	50	46	41	41	36	36
BERMUDA											
BRAZIL	4	1	10	15	36	34	13	7	6	43	50
CANADA	10	17	33	35	32	30	31	41	40	39	55
CAYMAN ISLANDS											
CHILE	1	5	6	7	22	25	32	41	37	31	41
CHINA						2	11	10	12	30	41
COLOMBIA										1	1
CZECH REPUBLIC							16	22	25	10	17
DENMARK	6	16	35	40	52	60	77	84	76	37	45
EGYPT								1	3	3	2
FINLAND	15	17	25	27	32	34	51	53	50	46	45
FRANCE	81	155	209	210	274	237	216	226	142	237	253
GERMANY	118	160	185	197	234	265	316	336	321	204	294
GREECE			1			2	2	11	7	25	37
HONG KONG	1	5	8	10	25	62	100	104	78	25	39
HUNGARY							1	1	1	4	4
ICELAND											
INDIA					1	4	5	6	7	9	10
INDONESIA					10	28	35	33	24	66	84
IRELAND	12	18	25	25	33	35	32	34	29	11	28
ISRAEL					1	5	3	3		5	9
ITALY	39	56	73	36	41	36	43	62	62	66	73
JAPAN	655	555	691	702	1,134	1,218	1,277	1,316	1,303	861	1,308
JORDAN								1	1	1	1
KOREA (SOUTH)	6	12	14	22	134	158	192	182	146	145	171
LUXEMBOURG					1	2	2	2	2	4	5
MALAYSIA	5	6	8	6	19	21	30	31	31	24	166
MEXICO					2	4	6	5	2	3	1
MOROCCO								3	3	4	4
NETHERLANDS	13	20	31	42	77	82	86	103	81	49	76
NEW ZEALAND	8	7	8	9	8	11	12	13	13	12	8
NORWAY	17	24	23	21	26	41	53	61	46	30	35
PAKISTAN					3	3	2	3	2	2	4
PERU					1	1	2	2	3	2	9
PHILIPPINES		1					1	17	25	23	38
POLAND						5	4	9	8	13	25
PORTUGAL	6	1	8	11	22	21	21	26	17	11	20
RUSSIAN FEDERATION							4	9	8	7	9
SINGAPORE	2	6	7	9	13	24	29	25	23	27	80
SLOVAKIA							2	2	3	5	6
SLOVENIA											
SOUTH AFRICA	15	37	50	52	72	75	80	79	67	51	72
SPAIN	13	26	51	47	66	72	71	79	70	62	77
SRI LANKA					3	3	3	3	3	4	2
SWEDEN	29	38	50	47	80	88	101	112	98	76	94
SWITZERLAND	5	15	29	43	52	60	81	89	89	62	83
THAILAND					2	4	5	21	24	50	74
TURKEY					8	17	15	23	20	28	38
UNITED KINGDOM	241	512	510	516	551	617	659	663	586	306	437
USA	384	537	792	884	935	864	999	155	236	157	207
VENEZUELA							1	1	1		1
ZIMBABWE											
TOTAL	1,718	2,307	2,965	3,105	4,122	4,376	4,858	4,241	3,953	3,011	4,295

	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>All years</u>
ARGENTINA	3	3	5	7	6	9	8	8	8	12	91
AUSTRALIA	108	135	108	109	65	117	77	79	87	103	1,495
AUSTRIA	27	30	41	40	42	59	53	51	50	51	617
BELGIUM	40	37	32	30	35	58	42	46	45	39	820
BERMUDA			5	9	9	9	6	6	6	5	55
BRAZIL	50	45	58	87	95	143	118	140	143	136	1,234
CANADA	61	89	202	201	216	223	195	221	226	244	2,241
CAYMAN ISLANDS			1								1
CHILE	21	7	9	12	12	6	3	26	32	42	418
CHINA	71	100	759	1,043	1,140	1,196	1,297	1,374	1,631	1,695	10,412
COLOMBIA	2	10	9	4	5	13	15	21	22	29	132
CZECH REPUBLIC	14	11	7								122
DENMARK	55	51	43	38	34	60	29	45	40	39	962
EGYPT	1		4	2		3	6	15	32	38	110
FINLAND	44	43	45	43	49	82	46	64	59	56	926
FRANCE	248	247	264	233	254	351	235	281	268	263	4,884
GERMANY	258	242	269	245	234	322	233	261	242	243	5,179
GREECE	44	47	53	45	51	86	63	62	60	62	658
HONG KONG	96	179	301	305	334	461	426	530	561	579	4,229
HUNGARY	4	4	20	18	16	13	11	13	13	13	136
ICELAND			6	6	10	7	3	2	3	3	40
INDIA	13	24	93	104	120	278	305	318	350	365	2,012
INDONESIA	133	137	99	57	120	132	166	187	201	207	1,719
IRELAND	32	28	21	21	20	27	23	20	21	22	517
ISRAEL	12	15	26	29	58	79	74	82	90	99	590
ITALY	74	71	134	133	138	171	141	155	146	146	1,896
JAPAN	1,281	1,311	1,514	1,449	1,498	2,192	1,509	1,625	1,584	1,583	26,566
JORDAN	1		4	9	10	7	11	13	24	24	107
KOREA (SOUTH)	196	189	195	204	283	275	180	280	261	251	3,496
LUXEMBOURG	5	6	12	9	8	11	13	14	15	15	126
MALAYSIA	275	273	202	187	95	38	22	41	36	31	1,547
MEXICO	8	9	58	51	59	43	37	87	89	86	550
MOROCCO	2	2	5	5	8	6	4	3	3	3	55
NETHERLANDS	76	73	63	60	58	99	58	61	57	60	1,325
NEW ZEALAND	11	8	5	2	4	9	4	9	9	10	180
NORWAY	42	39	47	47	48	77	68	68	65	66	944
PAKISTAN	5	10	17	16	12	18	25	26	22	20	190
PERU	11	15	13	5	13	29	35	40	44	38	263
PHILIPPINES	54	54	50	43	23	49	59	63	63	40	603
POLAND	33	34	55	71	88	88	102	126	131	131	923
PORTUGAL	26	26	24	18	19	29	20	25	25	25	401
RUSSIAN FEDERATION	13	21	37	38	84	86	93	188	191	168	956
SINGAPORE	141	156	160	75	19	21	15	33	36	44	945
SLOVAKIA	6	7	6	6	9	6	8	5	5	7	83
SLOVENIA			8	6	12	19	20	21	20	21	127
SOUTH AFRICA	70	76	87	84	83	115	93	121	113	118	1,610
SPAIN	75	78	70	55	53	101	68	73	69	65	1,341
SRI LANKA	3	5	6	4	16	8	9	11	15	14	112
SWEDEN	96	96	81	75	89	134	97	102	102	102	1,787
SWITZERLAND	95	96	112	109	114	149	106	123	129	128	1,769
THAILAND	88	90	163	140	197	191	96	83	29	22	1,279
TURKEY	53	55	59	46	99	102	81	82	84	80	890
UNITED KINGDOM	445	424	411	337	375	514	320	425	344	346	9,539
USA	251	271	2,575	2,558	2,668	2,651	1,942	2,517	2,461	2,389	26,433
VENEZUELA			4	4	5	3	2	3	4	5	34
ZIMBABWE					2	3					5
TOTAL	4,773	4,979	8,657	8,534	9,114	10,978	8,672	10,275	10,366	10,383	125,682

**Panel B: Fraction of group affiliated firms by country and year**

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>
ARGENTINA					1.00	1.00	0.86	0.80	1.00	1.00	1.00
AUSTRALIA	0.53	0.31	0.39	0.36	0.34	0.33	0.30	0.33	0.36	0.29	0.32
AUSTRIA			1.00	0.67	0.73	0.78	0.82	0.71	0.74	0.66	0.71
BELGIUM	0.69	0.64	0.68	0.70	0.72	0.74	0.70	0.71	0.66	0.69	0.58
BERMUDA											
BRAZIL	0.00	0.00	0.30	0.47	0.33	0.47	0.69	0.43	0.17	0.65	0.62
CANADA	1.00	0.65	0.61	0.57	0.50	0.57	0.58	0.59	0.48	0.54	0.44
CAYMAN ISLANDS											
CHILE	0.00	0.60	0.83	0.57	0.55	0.72	0.75	0.80	0.84	0.87	0.93
CHINA						0.00	0.45	0.60	0.75	0.67	0.73
COLOMBIA										1.00	1.00
CZECH REPUBLIC							0.69	0.68	0.76	0.80	0.88
DENMARK	0.83	0.56	0.29	0.25	0.29	0.32	0.25	0.21	0.24	0.41	0.33
EGYPT							0.00	0.67	1.00	0.50	0.50
FINLAND	0.33	0.24	0.32	0.33	0.31	0.26	0.33	0.38	0.28	0.33	0.27
FRANCE	0.48	0.51	0.58	0.60	0.54	0.57	0.52	0.49	0.56	0.49	0.52
GERMANY	0.75	0.67	0.68	0.73	0.71	0.65	0.66	0.65	0.68	0.59	0.67
GREECE			1.00			0.50	0.50	0.18	0.29	0.40	0.41
HONG KONG	0.00	0.60	0.50	0.50	0.64	0.77	0.79	0.81	0.79	0.84	0.67
HUNGARY							1.00	1.00	1.00	0.50	0.50
ICELAND											
INDIA					1.00	1.00	1.00	0.83	0.86	0.67	0.80
INDONESIA					0.80	0.75	0.63	0.70	0.75	0.71	0.82
IRELAND	0.17	0.33	0.40	0.32	0.30	0.23	0.19	0.15	0.17	0.18	0.25
ISRAEL					0.00	0.60	0.67	0.33		0.40	0.33
ITALY	0.67	0.71	0.62	0.78	0.83	0.92	0.84	0.69	0.69	0.61	0.68
JAPAN	0.26	0.25	0.25	0.25	0.32	0.34	0.35	0.35	0.36	0.35	0.33
JORDAN								0.00	0.00	0.00	0.00
KOREA (SOUTH)	0.00	0.17	0.21	0.18	0.13	0.15	0.16	0.18	0.18	0.19	0.32
LUXEMBOURG					1.00	1.00	1.00	1.00	1.00	0.75	0.20
MALAYSIA	0.80	0.83	1.00	1.00	0.68	0.81	0.77	0.77	0.68	0.50	0.61
MEXICO					1.00	1.00	0.83	0.80	0.50	0.33	1.00
MOROCCO								0.33	0.67	0.75	0.75
NETHERLANDS	0.54	0.65	0.58	0.43	0.27	0.33	0.34	0.29	0.27	0.37	0.36
NEW ZEALAND	0.50	0.57	0.38	0.67	0.75	0.82	0.92	0.92	0.77	0.42	0.63
NORWAY	0.47	0.38	0.43	0.33	0.35	0.37	0.43	0.44	0.57	0.50	0.37
PAKISTAN					0.67	0.67	0.50	0.67	0.50	0.50	0.75
PERU					1.00	1.00	0.50	1.00	0.67	0.50	0.78
PHILIPPINES		0.00					1.00	0.65	0.80	0.74	0.79
POLAND						0.40	0.50	0.11	0.50	0.69	0.60
PORTUGAL	0.33	0.00	0.50	0.55	0.36	0.38	0.43	0.54	0.53	0.73	0.80
RUSSIAN FEDERATION							0.25	0.44	0.38	0.86	0.56
SINGAPORE	1.00	0.83	0.57	0.67	0.77	0.88	0.90	0.96	0.91	0.85	0.83
SLOVAKIA							1.00	0.50	0.33	0.40	0.50
SLOVENIA											
SOUTH AFRICA	0.87	0.92	0.88	0.92	0.94	0.91	0.91	0.90	0.85	0.76	0.82
SPAIN	0.69	0.77	0.69	0.74	0.71	0.75	0.72	0.70	0.63	0.71	0.70
SRI LANKA					0.33	0.33	0.00	0.00	0.33	0.50	0.50
SWEDEN	0.45	0.45	0.60	0.47	0.40	0.41	0.31	0.34	0.31	0.20	0.27
SWITZERLAND	0.60	0.67	0.62	0.60	0.54	0.48	0.52	0.51	0.52	0.45	0.46
THAILAND					0.50	1.00	1.00	0.81	0.83	0.64	0.61
TURKEY					0.75	0.88	0.73	0.87	0.95	0.93	0.87
UNITED KINGDOM	0.19	0.15	0.16	0.16	0.17	0.18	0.17	0.15	0.14	0.14	0.17
USA	0.12	0.10	0.10	0.10	0.11	0.11	0.11	0.02	0.03	0.02	0.03
VENEZUELA							1.00	1.00	1.00		1.00
ZIMBABWE											
TOTAL	0.30	0.29	0.31	0.30	0.33	0.35	0.35	0.40	0.39	0.41	0.43

	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>All years</u>
ARGENTINA	1.00	1.00	0.20	0.14	0.33	0.44	0.75	0.75	0.75	0.58	0.65
AUSTRALIA	0.38	0.39	0.48	0.42	0.35	0.20	0.26	0.23	0.20	0.17	0.32
AUSTRIA	0.81	0.77	0.49	0.50	0.43	0.47	0.43	0.53	0.50	0.49	0.58
BELGIUM	0.60	0.54	0.50	0.47	0.46	0.47	0.45	0.41	0.44	0.41	0.58
BERMUDA			0.80	0.67	0.67	0.67	0.33	0.67	0.67	0.60	0.64
BRAZIL	0.68	0.71	0.50	0.32	0.25	0.40	0.39	0.41	0.43	0.40	0.43
CANADA	0.34	0.37	0.22	0.24	0.20	0.22	0.26	0.26	0.22	0.24	0.29
CAYMAN ISLANDS			1.00								1.00
CHILE	0.86	0.86	0.67	0.50	0.67	0.83	1.00	0.62	0.59	0.57	0.73
CHINA	0.80	0.84	0.39	0.73	0.67	0.66	0.65	0.63	0.59	0.59	0.62
COLOMBIA	0.00	0.50	0.33	0.25	0.20	0.46	0.53	0.67	0.73	0.66	0.57
CZECH REPUBLIC	0.86	0.82	0.86								0.78
DENMARK	0.22	0.29	0.37	0.42	0.29	0.25	0.31	0.27	0.33	0.36	0.30
EGYPT	0.00		0.00	0.00		0.00	0.00	0.13	0.16	0.16	0.17
FINLAND	0.25	0.21	0.20	0.14	0.18	0.15	0.20	0.22	0.17	0.29	0.25
FRANCE	0.51	0.51	0.33	0.36	0.32	0.31	0.35	0.33	0.33	0.30	0.44
GERMANY	0.67	0.64	0.49	0.44	0.36	0.39	0.38	0.41	0.36	0.31	0.56
GREECE	0.45	0.49	0.15	0.11	0.06	0.06	0.13	0.37	0.38	0.29	0.26
HONG KONG	0.80	0.77	0.71	0.72	0.66	0.63	0.66	0.64	0.63	0.60	0.67
HUNGARY	0.75	0.75	0.35	0.50	0.44	0.62	0.64	0.62	0.62	0.46	0.54
ICELAND			0.00	0.00	0.70	0.57	0.67	0.50	0.00	0.33	0.38
INDIA	0.69	0.54	0.10	0.09	0.03	0.44	0.46	0.47	0.47	0.48	0.41
INDONESIA	0.86	0.85	0.61	0.19	0.14	0.08	0.65	0.63	0.60	0.65	0.59
IRELAND	0.22	0.25	0.19	0.14	0.15	0.19	0.13	0.20	0.24	0.14	0.22
ISRAEL	0.50	0.47	0.54	0.48	0.45	0.56	0.58	0.57	0.58	0.57	0.54
ITALY	0.66	0.70	0.57	0.55	0.51	0.56	0.53	0.56	0.51	0.55	0.61
JAPAN	0.34	0.32	0.35	0.36	0.33	0.28	0.34	0.33	0.31	0.32	0.32
JORDAN	0.00		0.00	0.00	0.00	0.00	0.27	0.46	0.38	0.38	0.25
KOREA (SOUTH)	0.27	0.28	0.38	0.41	0.33	0.32	0.37	0.45	0.45	0.49	0.31
LUXEMBOURG	0.20	0.33	0.58	0.33	0.75	0.55	0.69	0.64	0.60	0.60	0.59
MALAYSIA	0.55	0.53	0.34	0.33	0.12	0.11	0.55	0.68	0.72	0.65	0.49
MEXICO	0.50	0.56	0.07	0.06	0.15	0.33	0.32	0.31	0.36	0.37	0.29
MOROCCO	0.50	0.50	0.20	0.20	0.63	0.50	0.50	1.00	1.00	0.33	0.55
NETHERLANDS	0.32	0.33	0.33	0.27	0.29	0.21	0.26	0.26	0.25	0.28	0.31
NEW ZEALAND	0.64	0.50	0.20	0.00	0.00	0.00	0.50	0.44	0.44	0.40	0.56
NORWAY	0.33	0.44	0.36	0.49	0.48	0.52	0.60	0.59	0.63	0.58	0.48
PAKISTAN	0.60	0.60	0.41	0.38	0.08	0.17	0.16	0.19	0.18	0.20	0.29
PERU	0.64	0.60	0.23	0.00	0.31	0.66	0.71	0.63	0.70	0.76	0.63
PHILIPPINES	0.80	0.74	0.68	0.58	0.09	0.04	0.78	0.78	0.71	0.05	0.61
POLAND	0.55	0.56	0.22	0.54	0.51	0.45	0.55	0.57	0.56	0.54	0.52
PORTUGAL	0.65	0.62	0.71	0.72	0.68	0.69	0.45	0.56	0.64	0.64	0.59
RUSSIAN FEDERATION	0.38	0.52	0.14	0.03	0.32	0.40	0.48	0.62	0.59	0.59	0.50
SINGAPORE	0.73	0.71	0.67	0.73	0.63	0.71	0.80	0.67	0.58	0.55	0.73
SLOVAKIA	0.83	0.71	0.83	1.00	0.78	0.83	0.63	1.00	1.00	0.86	0.76
SLOVENIA			0.00	0.00	0.17	0.37	0.45	0.57	0.65	0.62	0.44
SOUTH AFRICA	0.70	0.63	0.37	0.38	0.35	0.36	0.37	0.39	0.40	0.46	0.61
SPAIN	0.60	0.59	0.59	0.49	0.42	0.42	0.37	0.36	0.35	0.42	0.58
SRI LANKA	0.33	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
SWEDEN	0.27	0.24	0.32	0.32	0.31	0.29	0.37	0.35	0.32	0.34	0.33
SWITZERLAND	0.47	0.45	0.31	0.35	0.27	0.30	0.30	0.28	0.25	0.24	0.38
THAILAND	0.53	0.48	0.19	0.02	0.03	0.05	0.43	0.40	0.59	0.50	0.28
TURKEY	0.83	0.87	0.59	0.24	0.21	0.22	0.25	0.22	0.21	0.18	0.43
UNITED KINGDOM	0.16	0.17	0.21	0.21	0.17	0.14	0.21	0.18	0.19	0.20	0.17
USA	0.02	0.04	0.12	0.12	0.12	0.13	0.15	0.13	0.12	0.12	0.12
VENEZUELA			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
ZIMBABWE					0.00	0.00					0.00
TOTAL	0.43	0.43	0.30	0.33	0.30	0.31	0.38	0.37	0.37	0.36	0.35

**Table 2: Descriptive statistics for group-affiliated and non-group-affiliated firms**

This table presents information on the characteristics (and changes in characteristics) of our sample firms. Data for all sample firms are obtained from *Worldscope* and *Datastream*. Sample firms are classified as "non-group" or "group" firms based on the process outlined in Section I.A. All firm characteristics (and changes in firm characteristics) are trimmed at the 1st and 99th percentiles. t-statistics for mean differences between non-groups and groups and z-statistics (using Wilcoxon-Mann-Whitney tests) are presented in the fourth and seventh columns, respectively, and \*\*\*, \*\*, \* denote statistical significance of these differences at the 1%, 5%, and 10% levels, respectively.

	Means				Medians			
	N	Non-group	Group	<u>diff</u> t-stat	Non-group	Group	<u>diff</u> z-stat	
Employment Growth	125,682	0.069	0.063	4.73 ***	0.019	0.012	11.41 ***	
GDP Growth	125,682	0.026	0.036	-47.41 ***	0.026	0.029	-32.69 ***	
Sales Growth	123,662	0.119	0.122	-1.69 *	0.089	0.091	0.47	
Change in Return on Assets	119,772	-0.002	-0.002	1.23	0.000	0.000	2.40 **	
Change in Debt Ratio	123,178	0.000	0.000	-0.20	-0.001	-0.001	-1.24	
Change in Q	107,403	-0.044	-0.045	0.47	-0.010	-0.011	1.37	
Change in Scaled CapEx	111,859	-0.289	-0.415	4.67 ***	-0.030	-0.070	5.11 ***	
Change in Return Volatility	106,020	0.000	-0.001	1.21	-0.001	-0.001	1.71 *	
Sales	123,195	2,465,033	1,639,905	27.34 ***	570,960	442,951	28.93 ***	
Return on Assets	123,203	0.037	0.033	8.51 ***	0.032	0.028	10.14 ***	
Debt Ratio	124,330	0.235	0.239	-3.54 ***	0.215	0.221	-3.05 ***	
Q	109,726	1.441	1.395	9.31 ***	1.178	1.142	13.05 ***	
Scaled Capital Expenditures	115,198	5.474	6.074	-9.18 ***	4.040	4.250	-8.33 ***	
Return Volatility	107,844	0.055	0.058	-16.01 ***	0.050	0.053	-18.03 ***	

**Table 3: Regressions of Employment Growth on GDP Growth and Controls**

The dependent variable is *Employment Growth*, calculated by dividing the current year employees by the prior year's employees and subtracting one. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). In Panel A, the GDP Growth variables are interacted with *Group Affiliated*. In Panel B, the GDP growth variables are interacted with all control variables (including *Group Affiliated*). All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

**Panel A: GDP Growth Interacted with *Group Affiliated***

Specification	(1)	(2)	(3)	(4)
N	125,682	70,493	70,493	70,175
<i>GDP Growth</i>	0.803 [9.48]***	-0.025 [-0.22]	---	---
<i>Group Affiliated</i>	-0.004 [1.38]	-0.002 [-0.68]	0.000 [-0.13]	0.003 [0.68]
<i>GDP Growth * Group Affiliated</i>	-0.297 [-4.88]***	-0.178 [-2.73]***	-0.107 [-1.75]*	-0.126 [-1.72]*
<i>Lag Employment Growth</i>		0.007 [0.59]	-0.017 [-1.64]*	-0.170 [-11.51]***
<i>Sales Growth</i>		0.359 [22.04]***	0.427 [23.69]***	0.390 [19.13]***
$\Delta$ ROA		-0.159 [-5.22]***	-0.220 [-8.07]***	-0.181 [-6.34]***
$\Delta$ Debt Ratio		0.307 [9.99]***	0.274 [12.50]***	0.282 [10.83]***
$\Delta$ Q		-0.006 [-1.50]	-0.021 [-6.16]***	-0.017 [-5.28]***
$\Delta$ Capex/Assets		0.003 [8.86]***	0.003 [11.43]***	0.003 [9.79]***
$\Delta$ RetVol		-0.269 [-3.71]***	-0.173 [-3.44]***	-0.042 [-0.73]
<i>Lag Sales Growth</i>		0.086 [6.34]***	0.089 [12.10]***	0.091 [9.50]***
$\Delta$ Lag ROA		-0.037 [-1.38]	-0.011 [-0.55]	0.019 [0.79]
$\Delta$ Lag Debt Ratio		-0.035 [-1.20]	-0.005 [-0.27]	0.043 [2.19]**
$\Delta$ Lag Q		0.000 [0.04]	-0.002 [-0.62]	0.001 [0.43]
$\Delta$ Lag Capex/Assets		0.001 [4.93]***	0.001 [5.05]***	0.002 [5.87]***
$\Delta$ Lag RetVol		-0.211 [-2.74]***	-0.238 [-5.19]***	-0.119 [-2.33]**
Intercept	0.048 [10.15]***	0.010 [2.03]**	---	---
Fixed Effects?	No	No	Country-Year	Firm, Country-Year
R-Squared	0.011	0.191	0.268	0.490



**Panel B: GDP Growth Interacted with *Group Affiliated* and Control Variables**

Specification	(1)		(2)		(3)	
N	70,493		70,493		70,175	
<i>GDP Growth</i>	0.108 [1.01]		---		---	
<i>Group Affiliated</i>	-0.002 [0.73]		0.000 [-0.06]		0.003 [0.70]	
<i>GDP Growth * Group Affiliated</i>	-0.148 [-2.24]**		-0.113 [-1.94]*		-0.137 [-1.82]*	
<i>Lag Employment Growth</i>	0.004 [0.38]		-0.019 [-1.90]		-0.171 [-11.52]***	
		Interacted w/			Interacted w/	
	Uninteracted		GDP Growth		Uninteracted	
<i>Sales Growth</i>	0.380 [18.72]***	-0.599 [-1.87]*	0.477 [19.02]***	-1.342 [-2.89]***	0.436 [15.76]***	-1.266 [-2.40]**
$\Delta$ <i>ROA</i>	-0.128 [-3.26]***	-1.508 [-1.86]*	-0.205 [-5.36]***	-0.951 [-1.10]	-0.155 [-4.24]***	-1.474 [-1.83]*
$\Delta$ <i>Debt Ratio</i>	0.296 [8.23]***	0.166 [0.31]	0.290 [11.80]***	-0.541 [-1.11]	0.306 [9.85]***	-0.840 [-1.15]
$\Delta$ <i>Q</i>	-0.014 [-2.65]***	0.177 [2.43]**	-0.023 [-5.03]***	0.080 [0.84]	-0.021 [-4.26]***	0.121 [1.31]
$\Delta$ <i>Capex/Assets</i>	0.003 [5.94]***	0.002 [0.30]	0.003 [7.51]***	0.004 [0.61]	0.003 [6.70]***	0.001 [0.16]
$\Delta$ <i>RetVol</i>	-0.211 [-2.23]**	-2.246 [-1.17]	-0.174 [-3.61]***	0.542 [0.33]	-0.070 [-1.09]	1.504 [0.80]
<i>Lag Sales Growth</i>	0.111 [6.00]***	-0.643 [-2.79]***	0.094 [9.49]***	-0.141 [-0.80]	0.096 [7.44]***	-0.159 [-0.76]
$\Delta$ <i>Lag ROA</i>	-0.047 [-1.27]	0.040 [0.06]	-0.015 [-0.63]	-0.106 [-0.18]	0.033 [1.08]	-0.798 [-1.10]
$\Delta$ <i>Lag Debt Ratio</i>	-0.068 [-1.83]*	1.093 [1.85]*	-0.024 [-1.19]	0.620 [1.07]	0.047 [1.99]**	-0.137 [-0.21]
$\Delta$ <i>Lag Q</i>	0.002 [0.51]	-0.022 [-0.34]	-0.002 [-0.60]	0.016 [0.20]	0.002 [0.57]	-0.019 [-0.22]
$\Delta$ <i>Lag Capex/Assets</i>	0.001 [3.62]***	0.001 [0.19]	0.001 [3.51]***	0.005 [0.89]	0.001 [4.09]***	0.005 [0.64]
$\Delta$ <i>Lag RetVol</i>	-0.112 [-1.09]	-1.365 [-0.59]	-0.237 [-4.54]***	0.611 [0.44]	-0.091 [-1.49]	-0.453 [-0.30]
Intercept	0.007 [1.24]		---		---	
Fixed Effects?	No		Country-Year		Firm, Country-Year	
R-Squared	0.193		0.271		0.491	

**Table 4: Regressions of Employment Growth on Positive and Negative GDP Growth and Controls**

The dependent variable is *Employment Growth*, calculated by dividing the current year employees by the prior year's employees and subtracting one. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *GDP Growth Positive* is a variable equal to *GDP Growth* if the value of that variable is positive and 0 if the value of *GDP Growth* is negative. *GDP Growth Negative* is a variable equal to 0 if the value of *GDP Growth* is positive and *GDP Growth* if the value of that variable is negative. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). The GDP Growth variables are also interacted with *Group Affiliated*. All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Specification	(1)	(2)	(3)
N	125,682	70,493	70,493
<i>GDP Growth Positive</i>	0.695 [5.78]***	-0.145 [1.03]	---
<i>GDP Growth Negative</i>	1.165 [4.23]***	0.343 [1.17]	---
<i>Group Affiliated</i>	-0.007 [-1.92]*	-0.004 [-1.23]	-0.002 [-0.76]
<i>GDP Growth Positive * Group Affiliated</i>	-0.214 [-2.77]***	-0.092 [-1.00]	-0.062 [-0.72]
<i>GDP Growth Negative * Group Affiliated</i>	-0.521 [-3.36]***	-0.357 [-2.44]**	-0.279 [-3.60]***
<i>Lag Employment Growth</i>		0.006 [0.50]	-0.017 [-1.65]*
<i>Sales Growth</i>		0.359 [22.29]***	0.427 [23.69]***
$\Delta ROA$		-0.164 [-5.56]***	-0.220 [-8.08]***
$\Delta Debt Ratio$		0.306 [10.02]***	0.274 [12.50]***
$\Delta Q$		-0.006 [-1.43]	-0.021 [-6.17]***
$\Delta Capex/Assets$		0.003 [8.74]***	0.003 [11.43]***
$\Delta RetVol$		-0.279 [-4.03]***	-0.174 [-3.44]***

Specification	(1)	(2)	(3)
<i>Lag Sales Growth</i>		0.088	0.089
		[6.31]***	[12.10]***
$\Delta$ <i>Lag ROA</i>		-0.040	-0.011
		[-1.47]	[-0.55]
$\Delta$ <i>Lag Debt Ratio</i>		-0.033	-0.005
		[-1.15]	[-0.27]
$\Delta$ <i>Lag Q</i>		0.000	-0.002
		[-0.09]	[-0.62]
$\Delta$ <i>Lag Capex/Assets</i>		0.001	0.001
		[4.80]***	[5.05]***
$\Delta$ <i>Lag RetVol</i>		-0.168	-0.238
		[-2.44]**	[-5.19]***
Intercept		0.015	---
		[2.12]**	---
Fixed Effects?	No	No	Country-Year
R-Squared	0.011	0.191	0.268

**Table 5: Employment Growth, GDP, and Employment Protection**

The dependent variable is *Employment Growth*, calculated by dividing the current year employees by the prior year's employees and subtracting one. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). "Low (High) Protection Countries" are all countries where the value of the Employment Laws Index (from Botero et al. (2004)) is below-median (above-median) relative to all countries used in that study. All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Sample	Low Protection Countries			High Protection Countries		
Specification	(1)	(2)	(3)	(4)	(5)	(6)
N	97,262	54,230	54,230	28,198	16,159	16,159
<i>GDP Growth</i>	0.784 [8.06]***	-0.041 [-0.32]	---	0.921 [9.11]***	0.025 [0.18]	---
<i>Group Affiliated</i>	0.000 [-0.03]	0.001 [0.22]	0.001 [0.59]	-0.011 [-3.17]***	-0.005 [-1.42]	-0.005 [-2.14]**
<i>GDP Growth * Group Affiliated</i>	-0.349 [-5.04]***	-0.207 [-2.97]***	-0.138 [-2.06]**	-0.042 [0.40]	-0.044 [-0.33]	0.033 [0.29]
<i>Lag Employment Growth</i>		0.007 [0.53]	-0.011 [-0.87]		0.000 [0.02]	-0.041 [-2.52]**
<i>Sales Growth</i>		0.350 [16.61]***	0.405 [18.58]***		0.387 [22.48]***	0.507 [19.69]***
$\Delta$ <i>ROA</i>		-0.159 [-4.09]***	-0.215 [-6.42]***		-0.146 [-4.00]***	-0.229 [-5.83]***
$\Delta$ <i>Debt Ratio</i>		0.280 [6.65]***	0.243 [9.09]***		0.400 [12.70]***	0.369 [9.47]***
$\Delta$ <i>Q</i>		-0.006 [-1.23]	-0.019 [-4.92]***		-0.004 [-0.66]	-0.027 [-4.83]***
$\Delta$ <i>Capex/Assets</i>		0.003 [7.00]***	0.003 [10.05]***		0.003 [5.83]***	0.003 [5.52]***
$\Delta$ <i>RetVol</i>		-0.281 [-3.27]***	-0.209 [-3.47]***		-0.252 [-2.37]**	-0.052 [-0.59]
<i>Lag Sales Growth</i>		0.094 [5.23]***	0.087 [10.27]***		0.067 [6.41]***	0.100 [7.29]***
$\Delta$ <i>Lag ROA</i>		-0.047 [-1.41]	-0.017 [-0.75]		-0.010 [-0.26]	0.015 [0.39]
$\Delta$ <i>Lag Debt Ratio</i>		-0.058 [-1.48]	-0.017 [-0.79]		0.032 [1.08]	0.034 [1.16]
$\Delta$ <i>Lag Q</i>		0.001 [0.27]	0.000 [-0.04]		-0.006 [-0.94]	-0.007 [-1.11]
$\Delta$ <i>Lag Capex/Assets</i>		0.001 [3.62]***	0.001 [4.03]***		0.001 [3.73]***	0.001 [3.13]***
$\Delta$ <i>Lag RetVol</i>		-0.289 [-3.12]***	-0.295 [-5.29]***		0.101 [1.05]	-0.036 [-0.53]
Intercept	0.049 [8.38]***	0.010 [1.78]*	---	0.045 [13.96]***	0.007 [1.67]*	---
Fixed Effects?	No	No	Country-Year	No	No	Country-Year
R-Squared	0.011	0.179	0.255	0.012	0.239	0.322

**Table 6: Regressions of Group-Affiliated Firms using Firm-Country Relative ROA**

The dependent variable is *Employment Growth*, calculated by dividing the current year employees by the prior year's employees and subtracting one. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *GDP Growth Positive* is a variable equal to *GDP Growth* if the value of that variable is positive and 0 if the value of that variable is negative. *GDP Growth Negative* is a variable equal to 0 if the value of *GDP Growth* is positive and *GDP Growth* if the value of that variable is negative. *Above-Median ROA* is an indicator variable equal to 1 if the firm-year observation has an above-median ROA (relative to all group and non-group firm observations in the same country and year) and 0 otherwise. All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Specification	(1)	(2)
N	44,318	23,476
<i>GDP Growth Positive</i>	0.117 [1.25]	-0.269 [-3.18]***
<i>GDP Growth Positive</i> * <i>Above-Median ROA</i>	1.101 [3.77]***	0.258 [1.05]
<i>GDP Growth Negative</i>	0.737 [12.66]***	0.267 [3.96]***
<i>GDP Growth Negative</i> * <i>Above-Median ROA</i>	-0.851 [-3.89]***	-0.330 [-1.85]*
<i>Lag Employment Growth</i>		0.017 [1.47]
<i>Sales Growth</i>		0.317 [20.11]***
$\Delta$ ROA		-0.166 [-4.50]***
$\Delta$ Debt Ratio		0.273 [7.71]***
$\Delta$ Q		0.001 [0.31]
$\Delta$ Capex/Assets		0.003 [7.81]***
$\Delta$ RetVol		-0.118 [-1.42]
<i>Lag Sales Growth</i>		0.065 [5.16]***
$\Delta$ Lag ROA		-0.023 [-0.58]
$\Delta$ Lag Debt Ratio		0.032 [0.97]
$\Delta$ Lag Q		-0.004 [-0.88]
$\Delta$ Lag Capex/Assets		0.001 [5.10]***
$\Delta$ Lag RetVol		-0.109 [-1.26]
Intercept	0.045 [7.47]***	---
Fixed Effects?	No	Country-Year
R-Squared	0.015	0.159

**Table 7: Regression of Firm Performance Measures on GDP Growth and Group Affiliation**

The dependent variables are firm change in Return on Assets (Panel A), firm sales growth (Panel B), and firm change in Q (Panel C). ROA is calculated by dividing net income by the average book value of assets (the sum of end of current year assets and end of prior year assets, all divided by two), and the change in ROA is calculated by subtracting the prior year ROA from the current year ROA. Sales growth is calculated by dividing the current year sales by the prior year's sales and subtracting one. Q is calculated by dividing the sum of book liabilities and market equity by book assets, and the change in Q is calculated by subtracting the prior year Q from the current year Q. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). *Not Group Affiliated* is an indicator variable equal to 1 if we classify a firm as *not being* part of a business group in a particular year (and equal to 0 otherwise). All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

**Panel A: Dependent Variable = Change in ROA**

Specification	(1)	(2)	(3)	(4)	(5)
N	70,493	70,493	70,493	70,493	70,493
<i>GDP Growth</i>	-0.006 [-0.21]	0.002 [0.06]	-0.015 [-0.51]	0.002 [0.06]	---
<i>Group Affiliated</i>	-0.001 [-0.91]			0.000 [0.02]	0.000 [-1.00]
<i>GDP Growth * Group Affiliated</i>		-0.017 [-1.15]		-0.017 [-1.00]	0.006 [0.51]
<i>GDP Growth * Not Group Affiliated</i>			0.017 [1.15]		
Fixed Effects?	No	No	No	No	Country-Year
R-Squared	0.218	0.218	0.218	0.218	0.254

all control variables from prior regressions are also used (omitted for space)

**Panel B: Dependent Variable = Sales Growth**

Specification	(1)	(2)	(3)	(4)	(5)
N	70,493	70,493	70,493	70,493	70,493
<i>GDP Growth</i>	1.225	1.270	1.154	1.224	---
	[5.13]***	[4.68]***	[5.40]***	[4.52]***	---
<i>Group Affiliated</i>	-0.008			-0.008	-0.003
	[-2.16]**			[-2.05]**	[-1.65]*
<i>GDP Growth * Group Affiliated</i>		-0.116		0.002	-0.048
		[-1.00]		[0.01]	[-0.67]
<i>GDP Growth * Not Group Affiliated</i>			0.116		
			[1.00]		
Fixed Effects?	No	No	No	No	Country-Year
R-Squared	0.177	0.177	0.177	0.177	0.338

all control variables from prior regressions are also used (omitted for space)

**Panel C: Dependent Variable = Change in Q**

Specification	(1)	(2)	(3)	(4)	(5)
N	70,493	70,493	70,493	70,493	70,493
<i>GDP Growth</i>	0.706	0.669	0.729	0.629	---
	[0.78]	[0.96]	[0.64]	[0.92]	---
<i>Group Affiliated</i>	-0.003			-0.008	-0.003
	[-0.21]			[-0.45]	[-0.88]
<i>GDP Growth * Group Affiliated</i>		0.060		0.165	0.220
		[0.12]		[0.25]	[1.30]
<i>GDP Growth * Not Group Affiliated</i>			-0.060		
			[-0.12]		
Fixed Effects?	No	No	No	No	Country-Year
R-Squared	0.085	0.085	0.085	0.085	0.298

all control variables from prior regressions are also used (omitted for space)

**Table 8: Regressions of Employment Growth on Sales Growth**

The dependent variable is *Employment Growth*, calculated by dividing the current year's employees by the prior year's employees and subtracting one. *Sales Growth* is calculated by dividing current years sales by prior year sales and subtracting one. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Specification	(1)	(2)	(3)	(4)
N	123,662	70,493	70,493	70,175
<i>Sales Growth</i>	0.412	0.381	0.446	0.409
	[28.20]***	[20.82]***	[23.80]***	[18.91]***
<i>Group Affiliated</i>	0.003	-0.001	0.002	0.004
	[1.42]	[-0.33]	[1.13]	[1.04]
<i>Sales Growth * Group Affiliated</i>	-0.088	-0.067	-0.053	-0.049
	[-6.91]***	[-3.96]***	[-2.73]***	[-2.26]**
<i>Lag Employment Growth</i>		0.007	-0.018	-0.170
		[0.59]	[-1.73]*	[-11.47]***
$\Delta$ ROA		-0.163	-0.223	-0.184
		[-5.35]***	[-8.19]***	[-6.42]***
$\Delta$ Debt Ratio		0.305	0.273	0.281
		[9.93]***	[12.43]***	[10.77]***
$\Delta$ Q		-0.007	-0.021	-0.017
		[-1.58]	[-6.17]***	[-5.34]***
$\Delta$ Capex/Assets		0.003	0.003	0.003
		[8.91]***	[11.44]***	[9.75]***
$\Delta$ RetVol		-0.266	-0.176	-0.045
		[-3.80]***	[-3.50]***	[-0.79]
<i>Lag Sales Growth</i>		0.083	0.088	0.091
		[6.06]***	[12.04]***	[9.49]***
$\Delta$ Lag ROA		-0.036	-0.012	0.018
		[-1.35]	[-0.60]	[0.75]
$\Delta$ Lag Debt Ratio		-0.035	-0.005	0.043
		[-1.19]	[-0.25]	[2.18]**
$\Delta$ Lag Q		-0.001	-0.002	0.001
		[-0.22]	[-0.69]	[0.35]
$\Delta$ Lag Capex/Assets		0.001	0.001	0.002
		[5.09]***	[5.09]***	[5.87]***
$\Delta$ Lag RetVol		-0.184	-0.236	-0.117
		[-2.42]**	[-5.14]***	[-2.30]**
Intercept	0.018	0.007	---	---
	[4.85]***	[2.10]**	---	---
Fixed Effects?	No	No	Country-Year	Country-Year, Firm
R-Squared	0.168	0.192	0.268	0.490



**Table 9: Robustness Tests**

The dependent variable is *Employment Growth*, calculated by dividing the current year employees by the prior year's employees and subtracting one. *GDP Growth* is the annual change in Gross Domestic Product by country, adjusted for inflation. *Group Affiliated* is an indicator variable equal to 1 if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise). In each panel, Specification (1) excludes firm observations from the United States. Specifications (2) includes firm-year observations with 200 or more employees. Specification (3) includes current year levels of all control variables (along with the current year and lagged year change variables found in all other specifications). All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. Standard errors are double clustered at the firm and country-year levels. t-statistics are presented in parentheses below each coefficient. \*\*\*, \*\*, \* denote statistical significance of the coefficients at the 1%, 5%, and 10% levels, respectively.

Sample	Excluding USA	Employees >= 200 only	Level control vars included
Specification	(1)	(2)	(3)
N	54,446	88,761	26,793
<i>GDP Growth</i>	---	---	---
<i>Group Affiliated</i>	0.000 [0.08]	-0.002 [-1.14]	0.001 [0.74]
<i>GDP Growth * Group Affiliated</i>	-0.112 [-1.83]*	-0.095 [-1.76]*	-0.128 [-2.09]**
<i>Lag Employment Growth</i>	0.002 [0.19]	-0.012 [-1.33]	-0.025 [-2.44]**
<i>Sales Growth</i>	0.395 [21.19]***	0.406 [24.03]***	0.418 [22.67]***
$\Delta$ <i>ROA</i>	-0.223 [-7.81]***	-0.196 [-8.35]***	-0.345 [-10.60]***
$\Delta$ <i>Debt Ratio</i>	0.249 [11.03]***	0.254 [13.59]***	0.295 [12.34]***
$\Delta$ <i>Q</i>	-0.018 [-4.37]***	-0.022 [-7.65]***	-0.021 [-6.30]***
$\Delta$ <i>Capex/Assets</i>	0.003 [10.13]***	0.003 [12.84]***	0.002 [8.58]***
$\Delta$ <i>RetVol</i>	-0.119 [-2.10]**	-0.144 [-3.30]***	-0.333 [-4.85]***
<i>Lag Sales Growth</i>	0.088 [10.68]***	0.081 [11.84]***	0.078 [11.01]***
$\Delta$ <i>Lag ROA</i>	-0.003 [-0.13]	0.019 [0.99]	-0.072 [-3.36]***
$\Delta$ <i>Lag Debt Ratio</i>	0.027 [1.32]	0.001 [0.08]	0.010 [0.55]
$\Delta$ <i>Lag Q</i>	-0.003 [-0.93]	-0.002 [-0.86]	-0.003 [-1.29]
$\Delta$ <i>Lag Capex/Assets</i>	0.001 [4.79]***	0.001 [5.24]***	0.001 [3.62]***
$\Delta$ <i>Lag RetVol</i>	-0.185 [-3.81]***	-0.194 [-4.86]***	-0.317 [-5.96]***
Fixed Effects?	Country-Year	Country-Year	Country-Year
R-Squared	0.258	0.268	0.276