ecgi

Business Groups and Employment

Finance Working Paper N° 539/2017
October 2017

Mara Faccio
Krannert School of Management, Purdue University; Asian Bureau of Finance and Economics Research (ABFER); National Bureau of Economic Research (NBER) and European Corporate Governance Institute (ECGI)

William O'Brien
School of Business Administration, The University of Illinois at Chicago

ECGI Working Paper Series in Finance

Business Groups and Employment

Working Paper N° 539/2017

October 2017

Mara Faccio
William O'Brien

We thank Rajesh Aggarwal, Heitor Almeida, Giacinta Cestone, Christopher Hartwell, Kate Holland, Soojin Kim, Francis Kramarz, John McConnell, David Parsley, Geoffrey Tate, Deniz Yavuz, and seminar participants at the 2016 American Economic Association Meeting, the 2017 Western Finance Association Meeting, and at the University of Illinois at Chicago for comments.

Abstract

Using a newly assembled 50 country firm-level database spanning 19 years, we document that business group affiliated firms display substantially less pronounced fluctuations in employment than unaffiliated firms in response to economic shocks. The results are robust to a variety of tests designed to mitigate a variety of endogeneity concerns, including placebo tests of failed mergers and acquisitions that would have created new group affiliations. We find no evidence that internal capital markets, agency problems, or a different performance sensitivity to economic shocks in groups are responsible for these results. Rather, the results appear to be consistent with the presence of internal labor markets.

Keywords: G3, J6, K31, E32

JEL Classifications: Business Groups, Employment, Business Cycles

Mara Faccio*
Professor of Finance
Purdue University, Krannert School of Management
403 W. State Street
West Lafayette, IN 47907, United States
phone: +1 765 496 1951
e-mail: mfaccio@purdue.edu

William O'Brien
Assistant Professor of Finance
The University of Illinois at Chicago, School of Business Administration
601 South Morgan Street
Chicago, IL 60612-7124, United States
e-mail: obrienw@uic.edu

*Corresponding Author

BUSINESS GROUPS AND EMPLOYMENT

Mara Faccio* and William O'Brien**

ABSTRACT

Using a newly assembled 50 country firm-level database spanning 19 years, we document that business group affiliated firms display substantially less pronounced fluctuations in employment than unaffiliated firms in response to economic shocks. The results are robust to a variety of tests designed to mitigate a variety of endogeneity concerns, including placebo tests of failed mergers and acquisitions that would have created new group affiliations. We find no evidence that internal capital markets, agency problems, or a different performance sensitivity to economic shocks in groups are responsible for these results. Rather, the results appear to be consistent with the presence of internal labor markets.

JEL Classifications: G3; J6; K31; E32

Keywords: Business Groups; Employment; Business Cycles

***** Krannert School of Management, Purdue University, 403 W. State Street, West Lafayette, IN 47907, U.S.A. E-mail: mfaccio@purdue.edu; Asian Bureau of Finance and Economics Research (ABFER); European Corporate Governance Institute (ECGI); and National Bureau of Economic Research (NBER).

** The University of Illinois at Chicago, School of Business Administration, University Hall, Room 2424, 601 South Morgan Street, Chicago, IL 60612-7124, U.S.A. E-mail: obrienw@uic.edu.

Acknowledgments: We thank Rajesh Aggarwal, Heitor Almeida, Giacinta Cestone, Christopher Hartwell, Kate Holland, Soojin Kim, Francis Kramarz, John McConnell, David Parsley, Geoffrey Tate, Deniz Yavuz, and seminar participants at the 2016 American Economic Association Meeting, the 2017 Western Finance Association Meeting, and at the University of Illinois at Chicago for comments.

Employment is a primary concern for politicians, individuals, and economists alike. For over half a century since Okun's (1962) seminal work, 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.[1] A large literature has highlighted a number of "dark sides" of group affiliation, including the expropriation of minority shareholders (e.g., 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), and the concentration of economic power in the hands of a few influential tycoons along with the possible negative implications for competition (Kandel, Kosenko, Morck, and Yafeh, 2015). While some studies have also highlighted "bright sides" of group affiliation, including access to internal capital markets (Hoshi, Kayshap and Scharfstein, 1991, Boutin, Cestone, Fumagalli, Pica, and Serrano-Velarde, 2013, Gopalan, Nanda and Seru, 2014, and Almeida, Kim, and Kim, 2015) and the potential to reallocate workers across firms for the benefit of the firm's owners (Belenzon and Tsolmon, 2016, and Cestone, Fumagalli, Kramarz, and Pica., 2016), this literature predominantly, if not exclusively, focuses on a shareholders' perspective. However, the prevalence and persistence of business groupsis difficult to reconcile with a framework in which the only agents who appear to systematically benefit from group affiliation are the controlling shareholders. In this paper we extend this literature by examining the relationship between employment and output from the perspective of a key stakeholder: the employees.

To investigate our question, we construct a new database of group affiliation among publicly traded firms from 50 countries during the period 1993-2011. Our results show that business group affiliated firms display substantially less pronounced fluctuations in employment than unaffiliated firms in response to economic shocks. We find these results using both a narrow

[1] 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."

definition of group affiliation (where we require an ownership connection between two or more sample firms) and a broader definition where we assume that controlling ownership stakes by entities with corporate names signifies business groups.

This result is present after taking numerous precautions to mitigate a variety of endogeneity concerns. First, in our models, identification comes from the different response of different firms (group affiliated vs. unaffiliated firms) to the *same* economic shock, which we capture through the inclusion of country-year fixed effects. These fixed effects have the added benefit of controlling for any 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. To further improve on identification, we also include firm fixed effects to control for time-invariant firm level omitted variables and industry-year fixed effects to control for industry specific shocks. Additionally, 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. In some specifications, we further include interactions between the changes in GDP and each one of our control variables, as well as interaction between the firm fixed effects and GDP growth. These interactions control for the possibility that economic shocks might affect firms through a channel other than group affiliation. Across all regressions, we consistently document that group affiliated firms on average display less pronounced fluctuations in employment following shifts in the business cycle. Placebo tests, including tests based on merger and acquisition deals that failed for exogenous reasons, further mitigate the concern that our evidence might be explained by a selection story.

The implications of our 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.[2] (In our sample, about one-third of the firms are classified as group affiliated using our most broad definition of affiliation.

[2] See, for example, Almeida, Park, Subrahmanyam and Wolfenzon (2011), Almeida and Kim (2015), Colpan (2010), Faccio, Lang, and Young (2001), Gopalan, Nanda and Seru (2007, 2014), Khanna and Yafeh (2005, 2007), Masulis, Pham and Zein (2011), and Polsiri and Wiwattanakantang (2006).

Similarly, about one-third of the workers are employed by group affiliated firms.) The decreased sensitivity of employment growth to economic shocks in group affiliated firms thus encompasses a large share of worldwide economic activity and employment. Our results suggest a new "bright side" of business groups that pertains to both shareholders and employees: reducing fluctuations in employment in response to economic shocks.

We investigate four possible explanations for our evidence. Perhaps the most natural explanation is that the results reflect the well-documented phenomenon of internal capital markets. The employment dynamics observed might, in this perspective, simply be the byproduct of capital reallocation within business groups. The value of access to internal capital markets is presumably greater when external capital is more costly. However, in contrast to a greater use of internal capital markets when external capital is more costly, we find our results not to be more pronounced in recessions, during financial crises, when restrictions on cross-border financial transactions are greater, or when firms face more pronounced financial constraints. These results suggest that internal capital markets are not solely (or even mostly) responsible for the employment dynamics documented in our study.

A second explanation is that our results may arise because of internal labor markets within business groups. More specifically, business groups may possess a unique ability to relocate employees across firms as the business cycle fluctuates. Indeed, starting with Coase (1937, 1960) and Williamson (1981, 1985), a number of economists have highlighted the benefits that organizations 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). The relocation of employees within group affiliated firms has been noted in a number of popular press articles that cite specific examples of this phenomenon from companies including Corporacion Mondragon, Daiei, Nokia, Royal Philips Electronics NV, Samsung, Siemens, and Toshiba. (Appendix A reports these examples in greater detail.) Recent academic papers have investigated internal labor markets within firms (Tate and Yang, 2014, and

Giroud and Mueller, 2015) and within groups concentrated in a particular geographic area (Belenzon and Tsolmon, 2016, and Cestone *et al.*, 2016).

We assume that moving employees across firms is costly; examples of such costs include both tangible costs (such as relocation expenses) and intangible costs (employee resistance to moving). These costs are presumably likely to increase as the distance of the move increases. As a consequence, the internal labor market hypothesis would suggest that mitigated employment dynamics should be more strongly impacted among same-country groups. Consistent with an internal labor market story, we find the sensitivity of employment changes to economic shocks to be more mitigated in same-country (relative to cross-country) groups. Importantly, we also document that our main results are not driven by labor reallocation across diverse business segments within a firm (as in Tate and Yang, 2014).

A third alternative hypothesis is that our results may be explained by the *performance* of group firms being less sensitive to economic shocks than that of non-group firms. We address this concern directly, by substituting GDP growth (or economy-wide shock proxy) with industry-level and firm-level shocks, thus allowing the impact of macroeconomic shocks to vary across firms. We find our main results to be robust to these changes, mitigating the concern that they be a mere reflection of differences in the sensitivity to economic shocks.

Last, but not least, we investigate the possibility that the lower sensitivity of employment changes to economic growth in group affiliated firms may be the result of agency/shareholder conflicts in business groups. Specifically, we investigate whether group firm managers to make suboptimal hiring and firing decisions at the shareholders' expense. Three sets of results suggest a rejection of this possibility. First, we find that the base employment *levels* of firms (relative to firm sales) are not any different in group-affiliated and non-affiliated firms, suggesting that any reduced employment sensitivity to economic shocks in group firms is not a result of over-hiring or "padding" of employment levels in general. Second, we find our results to be stronger in countries with relatively high outside investor protection (i.e. in countries in which the dominant shareholders' ability to expropriate minority shareholders is more constrained by the law). Finally, we document that the extent to which employees appear to move from less profitable (or

lower valued) firms to more profitable (or higher valued) companies is similar between group and non-group firms. Thus, the reallocation of labor does not appear to be less efficient in business groups.

Our paper is closely related to recent studies by Tate and Yang (2014), Giroud and Mueller (2015), Belenzon and Tsolmon (2016), and Cestone *et al*. (2016). 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, 2015). Cestone *et al*. (2016) find evidence of internal labor markets in French firms specifically within business groups using employee level data and information on firm ownership, while Belenzon and Tsolmon (2016) examine how labor markets function in western European countries in the presence of strict employment protection laws. All four 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 in two key ways: 1) we document that *how employment fluctuates with the business cycle* (a question dating back to Okun, 1962) differs significantly across firms as a function of group affiliation, and 2) we provide evidence consistent with the presence of internal labor markets in business groups across a much larger sample of firms and countries.

Our paper also contributes to the literature investigating the relation between employment and output. A number of authors have investigated how this relation 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, and Section IV concludes.

I. Data and Variables

I.A. Group Classification

Data on group affiliation are constructed using information from two *Thomson Reuters* databases. We use the *Worldscope* database to gain data for years 1993 through 2008 and the *Thomson Reuters Ownership* database for 2004 through 2011.[3] 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. A 20% stake typically triggers the obligation to disclose.)

Using these data, we classify firms in our sample to be group affiliated in two different ways. For the majority of the tests in our paper, we consider a firm to be affiliated with a business group if at least one of the following four criteria is met: (i) the firm's largest shareholder has a 20% or greater stake in more than one firm in our sample, (ii) the firm's largest shareholder is another firm in our sample, and this other firm has a 20% or greater ownership stake in the firm in question, (iii) the firm itself is the largest shareholder of another firm in our sample with a 20% or greater ownership stake, and (iv) the firm is identified as belonging to a large business group in Claessens, Djankov, and Lang (2000) and its largest shareholder has 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, with La Porta, Lopez-de-Silanes, and Shleifer (1999) as one notable example.

Thus, we define business groups as a collection of legally independent firms that are bound together by equity ties. Other studies that use the concept of "common ownership" to define business groups include Johnson, La Porta, Lopez-de-Silanes, and Shleifer (2000), Faccio, Lang and Young (2001), Bae, Kang, and Kim (2002), Bertrand, Mehta, and Mullainathan (2002), Baek, Kang, and Lee (2006), and Masulis, Pham and Zein (2011).

This definition of group affiliation requires a direct ownership link between two or more of the firms in our sample in a particular year. In order to properly account for firms that may be

[3] *Worldscope* CDs were discontinued in early 2010. The *Thomson Reuters Ownership* database is no longer available for purchase.

affiliated with a business group composed of firms *outside* of our sample, in certain tests we expand our definition of "group affiliated" to include firms where the largest shareholder is *any* corporate entity with a 20% or greater ownership stake. To identify if a particular shareholder is 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".[4] We use a list of 45 words and 145 abbreviations in this process.[5]

For the purposes of our tests, we characterize the former definition of group affiliation (where firms meet one or more of the four criteria listed above) as our "narrow" definition of affiliation. We further characterize the latter definition of group affiliation (expanded to include any sample firm whose largest shareholder is a corporate entity with a 20% or greater stake) as our "broad" definition of affiliation. We classify any remaining firms that do not meet at least one of the three criteria above as unaffiliated. We recognize that some of the firms that are classified as unaffiliated might be corporate owners themselves. However, this misclassification, if present, will only introduce attenuation bias in our tests. When the narrow definition of group affiliation is used in our tests, any firm that meets the broad definition of group affiliated but not the narrow definition is dropped from our sample. Given the relatively large fraction of firms that are classified as group affiliated using the broad definition (but not according to the narrow definition), classifying those firms as unaffiliated would introduce an undesirable amount of attenuation bias. By removing these firms from the sample we minimize this unnecessary bias.

After this identification process, we merge the data from the two sources, *Worldscope* and *Thomson Reuters Ownership*. The data are then checked for conflicting information between

[4] 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.

[5] Some words and abbreviations for corporate entities were gathered from Appendix A in Marchica and Mura (2013) 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.

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.[6]

(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. We also create two additional group indicator variables related to our narrow definition of group affiliation. *Same-Country Group* is an indicator equal to one if *Group Affiliated* is equal to one (using the narrow definition of affiliation) and all of the firms we identify as belonging to this firm's particular business group are located in the same country (and equal to zero in all other cases). In a similar fashion, *Cross-Country Group* is an indicator equal to one if *Group Affiliated* is equal to one and at least two of the firms we identify as belonging to this firm's particular business group are located in different countries (and equal to zero in all other cases).[7]

In the analyses that follow, we restrict our sample to 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.

---

[6] We also check for how typographical errors might affect our classification process, as illustrated by the following example. Largest shareholder data for the firm "Coca Cola Amatil Limited" is available for 15 years using our two sources. During 1993-1995, 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 this section's second 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.

[7] Using the narrow definition of group affiliation, approximately 78% of the group affiliated firms in our sample are classified as part of "same-country groups" and the remainder is classified as part of "cross-country groups".

After the classification procedure, we further restrict our sample based on both the quality and the availability of the data. Since group affiliation is fairly persistent in firms, we drop any firms whose affiliation status changes more than twice in our 19-year sample, as we postulate that the classifications for these firms are more likely than normal to be erroneous. Our tests also require firms to have *Datastream* data available for at least two years prior to the current year to be included in our tests. Finally, if fewer than ten observations are present in a particular country and year, we drop those observations. However, our results and conclusions are robust to the inclusion of all of these data in our tests.

I.B. Firm- and Country-Level Variables

Accounting and stock price data are obtained from *Worldscope* and *Datastream*. Our dependent variable in most regressions is *Employment Growth*, calculated by dividing the current year's number of employees by the prior year's number of employees and subtracting one. The values of *Employment Growth* (and all other variables listed below) are trimmed at the 1st and 99th percentiles in the sample. To proxy for economic shocks, in the majority of our tests 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 *one-year lagged* values of several changes in firm characteristics. *Sales Growth* is calculated by dividing the current year sales by the prior year's sales and subtracting one. Other change variables are calculated by subtracting prior year values of these variables from the current year values. These change variables include changes 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), changes in *Debt Ratio*, where *Debt Ratio* is calculated as the book value of debt divided by assets, the 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, the change in capital expenditures or *CapEx*, where *CapEx* is calculated as firm capital expenditures divided by the book value of assets, and the change 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. We denote one-year lagged values of these variables with the word *Lag* in our tests.

I.C. Summary Statistics

Table 1 presents, by country, the total number of observations and the fraction of firm-year observations that are classified as group affiliated over our entire sample period. The first column presents the total number of observations with ownership data available from 1993-2011. When we examine only firm-years where data on GDP growth, employment growth (both current and lagged), and two years of lagged data is available to create our control variables, our sample is reduced to 68,428 firm-years, as shown in the second column. Using our "narrow" classification, we classify 8.2% of our firm-year observations as group affiliated (third column), and using our "broad" classification, 31.2% of our firm-year observations are group affiliated (fourth column).

By defining group affiliation in these two different ways, we are able to better match our sample to similar data used in other studies of group firms, while allowing us to conduct specific tests with our "narrow" sample of group firms that could not be performed with our "broad" sample. For example, our broad classification process produces country-level results that are 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, Gopalan, Nanda, and Seru, 2007, 2014), 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).

At the same time, our narrow classification procedure allows us to classify group-affiliated firms with greater certainty, since we can observe two or more of the directly affiliated firms in our sample. Since we have information on each firm's country of incorporation, the

narrow classification also allows us to identify whether firms within a particular group are located in the same country or different countries, a key variable we use in later tests to separate the effects of internal labor markets (to the extent they exist) from internal capital markets. Because of these empirical advantages, most of our tests utilize the narrow definition of group affiliation. However, we also use the broad definition for the sake of robustness.

(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. 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. 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, and Khanna and Yafeh, 2007). 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 any time-invariant firm-level attributes through the use of firm fixed effects. We also use country-year and industry-year fixed effects in several specifications to control for any other unobservable time-varying country and industry-level influences on employment growth.

II. Main 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:

$$Employment\ Growth_{\ i,c,t} = \alpha + \beta \times GDP\ Growth_{c,t} + \gamma \times Group\ Affiliated_{i,c,t} +$$
$$+ \delta \times GDP\ Growth_{c,t} \times Group\ Affiliated_{i,c,t} +$$
$$+ \zeta \times Lag\ Controls_{i,c,t} + F_i + C_{c,t} + I_t + \varepsilon_{i,c,t}$$

In the model, i identifies firms, c identifies countries, and t identifies years. The coefficient of interest is δ, 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.

Our specifications generally include a number of firm-level lagged change control variables (including the lagged value of employment growth) along with firm fixed effects, F_i, country-year fixed effects, $C_{c,t}$, and industry-year fixed effects, I_t. These fixed effects account for any firm, country-year, and industry-year level observable and unobservable shocks, thus mitigating concerns with omitted variables. Because of the inclusion of fixed effects, we exclude firms that appear in the sample only in one year, as those do not contribute to identification. In unreported tests, we confirm that our conclusions remain unchanged if those observations are not dropped from the sample.

As observed in Table 2, group affiliated and unaffiliated firms differ in terms of many firm characteristics. Therefore, in our tests we control for those characteristics. While we include all the variables in Table 2 as controls, we acknowledge that this step alone is insufficient and omitted variable effects may remain. Ideally, our empirical methodology would allow us not only to control for any differing firm characteristics but should also let us measure the effect of a change in group affiliation status within a particular firm on employment sensitivity to economic

shocks. To accomplish this, we include firm fixed effects, which capture firm-level observable and unobservable time invariant variables in our tests. With firm fixed effects included, our results indicate how the sensitivity of employment to economic shocks changes as a firm's group affiliation status changes.

In certain tests, we also include interactions between *GDP Growth* and each one of the control variables in our tests. 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. Additionally, in some robustness tests we alternatively include control variables measured in levels (as opposed to changes) or add interactions between the firm fixed effects and GDP growth. Those latter tests address the concern that different sets of firms might be differently sensitive to economic shocks regardless of their group affiliation. More in general, all those tests further limit the effects of potential sources of confounding variation.

When all the controls, fixed effects and interactions listed above are included, including the country-year fixed effects, the coefficient δ in equation (1) above isolates the different response of group firms to the same shock to GDP, after accounting for any time-invariant as well as for a multitude of time-varying firm-, country- and industry-specific factors.

II.B. Main Results

Specification (1) in Table 3, Panel A presents a simple model, without control variables, of the relationship between employment and GDP growth. In all specifications in this panel, we use our narrow definition of group affiliation. 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). When compared to unaffiliated firms (using the 0.646 coefficient of *GDP* Growth), the response of employment growth to economic shocks appears to be only half as sensitive in group affiliated firms (evidenced by the -0.312 coefficient of the interaction term, producing an overall sensitivity of 0.646 – 0.312 = 0.334). Importantly,

these 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*).

(INSERT TABLE 3 ABOUT HERE)

In specification (2), we include our firm-level lagged change variables as controls, along with firm and industry-year fixed effects. The inclusion of these control variables strengthens the results from the previous panel; not only do group affiliated firms exhibit lower sensitivity of employment growth to economic shocks, their employment appears to be almost entirely *insensitive* to those shocks (with a sensitivity coefficient of 0.712 – 0.635 = 0.077). In specification (3), we include all of these controls along with country-year fixed effects. Although we can no longer observe the uninteracted *GDP Growth* variable, since it is absorbed by the country-year fixed effects, the coefficient of *GDP Growth * Group Affiliated* remains negative and significant in this specification. Those results corroborate the less pronounced fluctuations in employment in response to economic shocks for business group affiliated firms.

One concern with these results is that the different employment dynamics attributed to group affiliation do not occur because of firms' organizational structure, but instead because of other factors that correlate with it. To address this concern, in specification (4) 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 trends in response to economic shocks. As seen in the results, the majority of these interactions lack statistical significance. More importantly, the key interaction (*GDP Growth * Group Affiliation*) remains significant and virtually unchanged after including those additional controls. This is consistent with our results occurring because of differences in firms' organizational structure as opposed to differences in the myriad of trends used as control variables in our regressions.

In Table 3, Panel B, we repeat the tests in Panel A using our broad definition of group affiliation. Although this broad definition more than triples the number of firms we classify as

group affiliated, our results and inferences are consistent with the Panel A results that use the more narrow definition of group affiliation. These results indicate that, on average, group affiliated firms display less pronounced fluctuations in employment following economic shocks.

II.C. Robustness Tests

Before examining the potential explanations for these less pronounced fluctuations, we examine the robustness of our key result in a variety of ways. First, in Table 4, specifications (1) and (2), we examine whether the reduced sensitivity of group-firm employment changes to economic shocks is present in both economic booms and recessions. To test this idea, we introduce two new GDP related variables: *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, and *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 in specification (1) (which includes control variables along with firm and industry-year fixed effects) suggest that the decreased sensitivity of employment growth to economic shocks in group affiliated firms is found using both positive and negative economic shocks, as the coefficients of both *GDP Growth Positive * Group Affiliated* and *GDP Growth Negative * Group Affiliated* variables are negative and significant. When combined with the coefficients of the uninteracted coefficients of the GDP variables, these results suggest a much smaller sensitivity to both positive and negative shocks in group affiliated firms. When country-year fixed effects are additionally included in specification (2), the coefficient of *GDP Growth Negative * Group Affiliated* loses significance but remains negative, while the coefficient of *GDP Growth Positive * Group Affiliated* is similar in both magnitude and significance.[8] These results suggest that the mechanism responsible for these group firm dynamics is likely present in both good and bad economic times.

[8] The loss of significance of the coefficient of *GDP Growth Negative * Group Affiliated* may be driven by power issues related to the relatively small number of negative GDP Growth observations; among all of the country-years in our sample, only 11% have *GDP Growth Ratio* values less than zero.

Although our Table 2 tests included a number of control variables, *GDP Growth* interactions with these variables, and industry-year, country-year, and firm fixed effects, in specification (3) we also interact each firm fixed effect with *GDP Growth.* These additional interactions control for difference across firms in how they respond to economic shocks on average and therefore allow us to identify whether a change in group affiliation status affects the sensitivity of employment growth to GDP growth *within firms*. The coefficient of the interaction *GDP Growth * Group Affiliated* remains negative and statistically significant using this change, indicating that our earlier results were not the product of the different average sensitivity of various firms to economic shocks.

Specification (4) uses level rather than change control variables (along with fixed effects) to ensure that our main results are not driven by deviations of firm characteristics from their average levels. In a similar fashion as specification (4) in Table 3, all level controls are included individually and also interacted with *GDP Growth* as separate controls. Once again, the coefficient of the interaction *GDP Growth * Group Affiliated* remains negative and statistically significant. Overall, the results in this section further limit the possible sources of confounding variation.

II.D. Placebo Tests

Although we use a variety of methods to control for the heterogeneous characteristics of group-affiliated and unaffiliated firms, the possibility remains that firm-level differences that correlate with group affiliation (rather than affiliation itself) are responsible for our results. In order to investigate this alternative explanation, in Table 5 we construct a sample of firms that were close to becoming part of a business group without actually joining the group. More specifically, we examine all failed acquisitions from the Thomson One (formerly Securities Data Corporation) Mergers and Acquisitions database where the acquisition target is a firm in our sample (and, thus, ownership data are available). We treat these targets of failed acquisitions as "placebo" group firms and set a variable *Placebo Group* equal to one in the year of the failed acquisition and all years afterward. *Placebo Group* is set equal to zero for these firms in the

years before the acquisition, and is left missing for all firm observations that were not the target in a failed acquisition. To ensure that our sample is not affected by instances of *actual* group affiliation, we remove any observations where *Group Affiliatied* = 1 immediately prior to the acquisition attempt. We match 222 SDC-listed firms with failed acquisitions to *Worldscope* and *Datastream* to construct this firm-year sample.

(INSERT TABLE 5 ABOUT HERE)

If some omitted characteristic (correlated with group membership) that is common to failed and successful ownership transitions explains the diminished sensitivity of group firm employment fluctuations to economic shocks than group membership itself, we would expect the coefficient of the interaction *GDP Growth * Placebo Group* to load negatively and significantly also in the placebo test. Focusing on failed buyouts helps us isolate a source of presumably exogenous variation in group affiliation. If the differences in the sensitivity to business cycles documented earlier would have happened anyway, then they should also be evident among targets of failed acquisition attempts. However, the results in Table 5 show that this is not the case. In specification (1) we include the usual control variables and fixed effects, and in specification (2) we exclude country-year fixed effects in order to observe the coefficient of the uninteracted *GDP Growth* variable in this placebo-treated sample. *GDP Growth * Placebo Group* loads insignificantly and *positively* in both specifications, while *GDP Growth* also loads insignificantly and positively. In specification (3) we exclude all control variables and fixed effects; while *GDP Growth* is positive and closer to statistical significance (t-stat = 1.39), the coefficient of *GDP Growth * Placebo Group* remains insignificant and positive (t-stat = 1.48). Finally, to test whether the lack of results in these specification is due to a lack of power related to small sample size, in specification (4) we additionally include placebo sample observations that are missing data for one or more control variables (a criterion for inclusion in all other tests in this study, which typically include all controls). This nearly double the number of firm-year observations for our placebo tests, and *GDP Growth* now loads positively at the 5% level of statistical significance, with a similar coefficient as our Panel 3, Table A tests. However, *GDP*

*Growth * Placebo Group* remains more or less unchanged for previous specifications, both in terms of sign and statistical (in)significance.

While the previous results further reduce the scope for possible omitted variables, we recognize that the reasons for the failure of acquisition attempts may itself be endogenous. This endogeneity could potentially affect the inferences from our placebo tests. To address this concern, in specification (5) we include only acquisitions fail due to exogenous factors beyond firm control, namely (i) government or regulatory intervention or (ii) changes in market conditions. To identify and isolate acquisitions that failed for presumably exogenous reasons (i.e., according to criteria (i) and (ii) above) we conduct comprehensive news searches in Factiva to determine the cause of the failure of each transaction. We find 81 such acquisitions in SDC. After removing observations without *Worldscope*/*Datastream* matches and acquirers that were already classified as group affiliated, we construct a sample of 39 firms (consisting of 207 firm-year observations) with failed acquisitions during our sample due to government or regulatory intervention or changes in market conditions. The results in specification (5) are based on this sample. Those results once again show no similarity with our group-affiliated results in Tables 3 and 4; the coefficient of *GDP Growth * Placebo Group* is in fact *positive* and significant in specification (5), suggesting that our earlier results in Tables 3 and 4 are unlikely to be driven by an omitted factor that *correlates* with group membership (rather than membership itself).

From the perspective of current employees, this diminished employment sensitivity to economic represents a bright side of group affiliation. However, a question arises: why is this occurring? In the next section of our paper we examine a variety of explanations for the group firm dynamics we document and conduct a number of additional tests intended to investigate the extent to which these explanations match the data. Each subsection is devoted to one particular potential explanation and the corresponding tests of that explanation.

III. Tests of Explanations for Group Employment Dynamics

III.A. Internal Capital Markets

The first potential explanation for our results is internal capital markets (ICMs) in business groups. As discussed previously, there is a well-documented use of ICMs in groups (Hoshi, Kashyap and Scharfstein, 1991, Boutin, Cestone, Fumagalli, Pica and Serrano-Velarde, 2013, Gopalan, Nanda and Seru, 2014, and Almeida, Kim, and Kim, 2015). More specifically, the employment dynamics we observed may be a byproduct of capital reallocation within business groups; since these groups allow capital to move more freely and help blunt the impact of negative economic shocks on firm investment (Almeida, Kim, and Kim, 2015), it may follow that labor patterns have a similar diminished sensitivity to economic shocks. However, for an ICM explanation to be a good fit for our results we should expect the results to be more pronounced in recessions (where credit markets are more likely to be constrained), among financially constrained firms (which ICMs are more likely to add value the firm), and in environments where raising external capital is difficult. Nevertheless, to further test whether this explanation fits our results, in Table 6 we repeat the regression specification in Table 3, panel A, specification (3) in a variety of subsamples constructed using well-known factors that correlate with the use of ICMs.

(INSERT TABLE 6 ABOUT HERE)

The first two tests in Table 6 focus on different subsamples of years where ICMs are more likely (or less likely) to play a greater or lesser role in group firm dynamics. In specification (1), we exclude three years from our sample: 1997 (the Asian financial crisis), 2008, and 2009 (the two years most affected by the recent global financial crisis). Since certain credit markets stopped functioning in the wake of these crises, these should be periods when ICMs were likely to be especially active within business groups (for example, Almeida *et al*. (2015) find evidence that Korean *chaebol* were especially active in the post-Asian financial crisis period). Our key result, the negative and significant coefficient on *GDP Growth * Group Affiliated*, remains robust to the exclusion of those years in both specifications. In contrast, specification (2) uses *only* the three sample years where credit markets were constrained, and the

coefficient of *GDP Growth * Group Affiliated* becomes insignificant. While the smaller number of observations in specification (2) might contribute to the lack of significance of this coefficient, the magnitude of the coefficient is also greatly reduced from its value in the previous specification. Overall, these tests show that the group dynamics we document are *concentrated* in periods where credit markets are functioning normally, which is inconsistent with an ICM story for our earlier results.

In specifications (3) and (4), we construct subsamples using for firm-level financial constraints found in other studies. More specifically, we construct the Size-Age (or SA) index from Hadlock and Pierce (2010) for firms where information on firm age is available from *Capital IQ*, and we construct the Whited-Wu (or WW) index using the methodology in Whited and Wu (2006) where *Datastream* accounting data necessary to construct the index is available.[9] In both indexes, higher values indicate more financially constrained firms. We follow Hadlock and Pierce (2010) and classify firms in the top tercile of each of the indices as financially constrained and drop them from our sample. In specification (3), we use the subsample of firms that are *not* financially constrained using both indices, and in specification (4) we use firms that are constrained using one or both indices. (We exclude any firms where data is not available to construct either index). If the employment dynamics we observe are a byproduct of ICMs within business groups, we would expect our results to be significantly weakened by excluding the firms that would benefit the most from capital transfers. However, the *GDP Growth * Group Affiliated* coefficient remains negative and significant in specification (3), and the coefficient of that interaction term is notably similar in terms of magnitude and statistical significance in specifications (3) and (4). Thus, once again, the results do not appear to be more pronounced when the need for ICMs is greater.

Finally, in Tables 5 and 6, we examine whether our results differ by the capital account openness of different countries in our sample. Boutin, Cestone, Fumagalli, Pica and Serrano-

[9] The SA Index is constructed as (-0.737* ln(Assets)) + (0.043* ln(Assets)^2) - (0.040* FirmAge), and the WW Index is constructed as = (-0.091 * EBITDA/Assets) - (0.062 * Dividend Increase Indicator) + (0.021 * Long Term Debt Ratio) - (0.044 * ln(Assets)) + (0.102 * 3-digt SIC industry Sales Growth) - (0.035 * Firm Sales Growth).

Velarde (2013) show that ICMs are especially useful in environments where raising external capital is difficult. We proxy for such environments using the Chinn-Ito Index of Capital Account Openness (available at http://nber.org/data/international-finance/), constructed as in Chinn and Ito (2006, 2008). This variable is based on dummy variables that codify the restrictions on cross-border financial transactions reported in the IMF's AREAER (Annual Report on Exchange Arrangements and Exchange Restrictions). The index becomes higher as a country becomes more open to cross-border capital transactions. Specification (5) includes only firm-year observations in country-years where the value of the Chinn-Ito Index of capital openness is equal to its maximum value of one (the case in the majority of our observations), while specification (6) includes all other observations. The coefficient of *GDP Growth * Group Affiliated* is negative and of similar magnitude in these two tests, and only the coefficient in the sample of *more* open capital access (specification (5)) is significant (although sample and power issues may play a role in this difference).

Overall, the results of Table 6 and our earlier tests examining economic boom and recession periods separately provide very little evidence that ICM is the best explanation for the less pronounced fluctuation in employment following economic shocks displayed by group affiliated firms. In the next section, we explore another potential internal market in groups that might affect employment dynamics in both good times and bad.

III.B. Internal Labor Markets

This next explanation posits that business groups have a unique ability to relocate employees across firms as the business cycle changes (the "internal labor markets" or ILM hypothesis). Specifically, in the presence of transaction costs related to labor for both hiring and layoffs[10] business groups' internal *labor* markets may allow group affiliated firms to adjust employment at a lower cost (compared with unaffiliated firms) in response to economic shocks. For example, some employees may possess group-specific human capital and skills (e.g., they

[10] See, for example, Williamson, 1981, Tziner and Birati, 1996, Abowd and Kramarz, 2003, Blatter, Muehlemann, and Schenker, 2012, Belenzon and Tsolmon, 2016, and Cestone, Fumagalli, Kramarz, and Pica, 2016

are familiar with the business group and its culture) that are costly to develop. This makes retaining employees valuable for both the employees and the business group. Additionally, the business group might possess superior knowledge of the employees' skills and productivity or may be better able to identify employees who are likely to need less training and development. As a consequence, group affiliated firms will possess a better ability than unaffiliated firms in matching vacancies with the specific skills required (Greenwald, 1986). Transferring employees "internally" may also be easier administratively. Consequently, as with conglomerates (e.g., Tate and Yang, 2014), business groups may be able to move labor more aggressively across firms in response to changes in business conditions. (Cestone *et al*., 2016, and Belenzon and Tsolmon, 2016, report direct evidence of ILMs within groups concentrated in a particular geographic area).

A "bright side" view of business groups postulates that groups' ILMs will *mitigate* employment fluctuations in both good and bad times, creating greater job stability for employees. Indisputably, some firms will be hit harder than others by economic booms and busts. During good times, business groups may be able to transfer (at least some) workers from declining firms to expanding firms, avoiding frictions in the external market. Similarly, during bad times, business groups may be able to redeploy employees from firms that are more negatively affected by the shock to other group firms that present better opportunities. In other words, costly dismissals can be turned into less costly reallocations of workers within the business group. If these internal reallocations of labor are sufficiently sizeable, business groups will exhibit, on average, less pronounced fluctuations in employment in response to changes in the business cycle than unaffiliated firms in both good times and bad. This is similar to what we observe in the *GDP Growth Positive* and *GDP Growth Negative* tests in Table 4. (In contrast, it is difficult to reconcile how internal capital markets would lead to smaller employment fluctuations in good times.)

We explore this ILM hypothesis in greater detail in Table 7. Our first test exploits the heterogeneity of geographical concentration among our groups to try and tests for the possible presence of ILM. Since moving employees across firms is likely to be costly, both in terms of tangible costs (such as relocation expenses) and intangible costs (employee resistance to moving

is likely to increase as the distance of the move increases), the ILM hypothesis would suggest that employment dynamics should be more strongly impacted among same-country groups, given the lower "costs" of employee reallocation when compared to cross-country moves. In contrast, an ICM explanation suggests there would be little to no difference in the employment dynamics of same-country and cross-country groups (to the extent that the movement of capital over long distances is relatively less costly than the movement of labor over those same distances).

(INSERT TABLE 7 ABOUT HERE)

In specification (1), we decompose our group affiliation variable into two additional variables, *Same-Country Group* (equal to one if all of the sample firms within a particular business group reside in the same country, and zero otherwise) and *Cross-Country Group* (equal to one if at least two firms within a particular business group reside in different countries, and zero otherwise), and we interact these two variables with *GDP Growth*. The results of specification (1) are more consistent with the ILM hypothesis, as the coefficient of *GDP Growth * Same-Country Group* is negative, statistically significant, and more than twice the magnitude of the (insignificant) coefficient of *GDP Growth * Cross-Country Group.* Although the firms affiliated to same-country groups are going to be all exposed to the same systematic GDP shock, their reaction is on average less pronounced (i.e., less positive) than that of firms affiliated to cross-country groups.[11] Both results are consistent with an ILMs story, while they are not consistent with a risk-sharing/diversification argument.

We also explore whether ILM dynamics *other than group-level dynamics* can explain our results. More specifically, Giroud and Mueller (2015) document ILM across plants within a firm, and Tate and Yang (2014) document ILM within diverse business segments of a single firm. It could be the case that groups are more likely to contain firms with these particular dynamics, and it is instead these *intra-firm* dynamics (rather than group-level dynamics) that are responsible for the diminished employment sensitivity to economic shocks.

[11] Recall that, as shown in Regression (1) of Table 3, for unaffiliated firms employment significantly increases during expansions and declines during recessions.

First, we address the Giroud and Mueller (2015) result in the context of our data. While Giroud and Mueller document spillovers of positive shocks to investment opportunities from one plant to another (within the same firm), their evidence is specific to financially constrained firms. As shown in Table 6, we document that our results extend to group affiliated firms that do not appear to be financially constrained, no matter whether such constraints are measured at the firm, country, or worldwide level. This suggests that the specific effect documented by Giroud and Mueller, while interesting and noteworthy in its own right, is unlikely to explain our findings.

Second, we test whether or not labor reallocation across diverse business segments within a firm (as in Tate and Yang, 2014) better explains our results than ILM at the group level. In Table 7, specification (2), we create a new variable *Diversified* that is equal to one if a firm has more than one distinct product segment listed in *Datastream* (and zero otherwise). In addition to the inclusion of *Group Affiliated* and its interaction with *GDP Growth*, this specification includes *Diversified* and its interaction with *GDP Growth*. As shown by the results, the inclusion of this new variable leaves the coefficient and significance of *GDP Growth * Group Affiliated* virtually unchanged from the results of the Table 3 specification that it mirrors (Panel A, specification (3)). Importantly, the coefficient of the interaction term *GDP Growth * Diversified* also loads negatively and significantly, consistent with Tate and Yang's findings. Once again, while the results of Tate and Yang are interesting and consistent with our findings using *Diversified*, they do not explain the group employment dynamics we observe.

We recognize that our test only provides indirect evidence of ILMs. Absent a very long time series, a sample spanning many (geographically diverse) countries is a necessary condition to investigate the interaction between fluctuations in the business cycle and group affiliation; however, the cross-country nature of such a sample is likely not compatible with tracking the movements of specific employees (indeed, our specific data sources do not provide data on individual employees). We instead exploit the variability in the international presence of business groups to corroborate the "ILM" interpretation of our results. To the extent that the ILM interpretation is plausible, our results complement and extend Cestone *et al*. (2016), which finds detailed evidence of ILM using employee-level data in French business groups. In this paper, we

further *add* to their evidence by showing that this is a possible/likely explanation for the less pronounced fluctuations in employment exhibited by business groups *in response to shifts in the economic cycle.* In the next section, we examine whether our results can be attributed to more broad (non-labor-related) differences in group and non-group firms.

III.C. Group Firm Performance Insensitivity to Economic Shocks

The next alternative hypothesis we test is whether the *performance* of group firms is less sensitive to economic shocks than that of non-group firms (see, for example, Bertrand, Mehta and Mullainathan, 2002). A similar alternative explanation is that changes in employment reflect different responses in overall firm *growth opportunities* to economic shocks between group and non-group firms. If positive economic shocks lead to relatively fewer growth opportunities for group firms than non-group firms (and negative economic shocks are less harmful to growth opportunities for group firms than non-group firms), and if negative economic shocks lead to performance "propping" in less profitable or lower valued group firms by better performing firms in the group, we would expect group firms' hiring to also be less sensitive to GDP changes. Put more simply, if group firms are more insensitive *in general* to economic shocks, this would reduce the need to hire/fire employees as macroeconomic conditions change.

To test this idea, we examine whether with the use of *GDP Growth* is an inappropriate proxy for economic shocks, since changes in country-level growth are likely to affect firms within that country in heterogeneous ways. If this were the case, our earlier results could plausibly be explained as the product of some firms' hiring and firing being relatively more or less sensitive to macroeconomic shocks and group affiliation being more common in the latter, less sensitive group. If this reduced sensitivity is responsible for our earlier results, we would not expect to see any differences in employment sensitivity to more industry- or firm-specific output measures in group affiliated and unaffiliated firms (i.e., after we hold the shock "constant").

(INSERT TABLE 8 ABOUT HERE)

In our prior tests, we accounted for the possible differences in the sensitivity of group firms' performance to economic shocks in multiple ways, including interactions between *GDP*

Growth and firm level profitability (ROA), interactions between *GDP Growth* and changes in firm level profitability, as well as interactions between *GDP Growth* and firm fixed effects. However, a perhaps more subtle explanation is that the magnitude of the shock to which each firm is exposed might itself be different, with business groups being exposed to less pronounced shocks on average. In Table 8 we investigate this alternative explanation by focusing on industry-level and firm-level shocks, thus allowing the impact of macroeconomic shocks to vary across firms. In a similar fashion to our prior tests, we interact these more narrowly defined measures of shocks with group affiliation. In Table 8, we replace *GDP Growth* as a proxy for economic shocks with firm-level *Sales Growth* (specification (1)) and industry-country-level *Sales Growth* (specification (2)) to examine whether our main conclusions still hold. The two specifications used in Table 6 mirror the Table 3, Panel A, specification (3), which includes firm, industry-year, and country-year 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).

The final subsection examines whether a well-known feature of business groups – the separation of ownership in control that gives group managers disproportionate power relative to minority shareholders – can explain the employment dynamics we observe.

III.D. Agency Conflicts in Group Firms

Our last hypothesis is that the diminished sensitivity of employment changes to economic growth in group affiliated firms is the result of agency conflicts present in group affiliated firms, leading group firm managers to make suboptimal hiring and firing decisions at the shareholder's expense. Many studies of group firms (including 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) document how group firm managers are able to take advantage of minority shareholders due to the unique ownership structure of

groups. In this section, we explore this hypothesis further by test whether potential managerial inefficiency or malfeasance can explain our results.

We begin with a simple question: could the diminished employment sensitivity to shocks in group firms simply reflect *over-hiring* on the part of group-firm managers? Put another way, if group firm managers are more weakly governed by shareholders (and face less fear of replacement) than non-group-firm managers, these group firm managers might care more about empire building or keeping their employees happy than maximizing shareholder value. These preferences may lead the group firm managers to set sub-optimally high base levels of employment, and it is this over-staffing that may drive the (relative) insensitivity of staffing changes to economic shocks.

To tests this, Table 9, specification (1) changes the dependent variable of interest to firm employees (scaled by sales) rather than changes in employment. If group firms have sub-optimally high staffing levels when compared to non-group firms, we would expect the coefficient of *Group Affiliated* to be positive and significant after controlling for other potential determinants of employment. However, the coefficient of *Group Affiliated* is highly insignificant (t-stat = 0.64) in this test, suggesting that base staffing levels are not materially different between group and non-group firms (and therefore unlikely to explain the employment dynamics we observe).

(INSERT TABLE 9 ABOUT HERE)

In our next two tests of this agency hypothesis, we segment our sample into two categories: firms in countries with an above-median (specification (2)) or below-median (specification (3)) 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 more pronounced in firms located in countries with relatively weak outside investor protection (i.e. below median ASDI). Instead, we find that our results are

instead stronger in countries with relatively high outside investor protection (i.e. above-median ASDI).

Finally, we examine whether labor shifts in group firms are inefficient when compared to shifts in non-affiliated firms. If agency problems are present in group affiliated firms, their managers 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 is 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* labor dynamics, but instead to result of *inefficient* conflicts between insiders and outsiders (or an inefficient, value-destroying ILM).

We formally test this idea by investigating whether employees appear to move from less profitable (or lower valued) firms to more profitable (or higher valued) companies in a different manner in group and non-group firms. We do this by current year ROA (in specification (4)) and Q (in specification (5)) and interactions of these terms with *Group Affiliated* in our standard change regression specification. As we would expect, employment levels in unaffiliated firms correlate positively and strongly with both ROA and Q. If group firms re-allocate employment less efficiently, we would expect the coefficients interaction terms (*Group Affiliated * ROA* and *Group Affiliated * Q*) to load negatively and significantly. However, both interaction coefficients are insignificant, and the coefficient magnitudes are quite small when competed to the (uninteracted) magnitudes of the ROA and Q coefficients.

Overall, while our tests and results don't comment directly on the presence or absence of agency conflicts in group firms, they show that such conflicts are unlikely to explain the diminished sensitivity of employment to economic shocks in group firms.

IV. Conclusions

We document a new "bright side" of business groups: reducing fluctuations in employment following changes in the business cycle. In particular, we document that group

affiliated firms decrease employment less than similar unaffiliated firms during downturns, while they increase employment less during economic expansions.

We show that the results, based on a new database of group affiliation encompassing publicly traded firms from 50 countries during 1993-2011, are robust to the inclusion of a battery of controls, country-year, industry-year, and firm fixed effects, and interactions between the control variables (and the firm fixed effects) and GDP growth. Placebo tests of failed merger and acquisition attempts (including tests based on transactions that failed for presumably exogenous reasons) show that the same results do not obtain when the change in group status did not materialize.

Consistent with an ILMs story, we find that the results are more pronounced among group members operating in the same country compared to group members operating in different countries; to the extent that worker relocations are responsible for our results, workers on average appear to move from relatively unprofitable to more profitable firms. Overall, the results provide evidence consistent with group affiliated firms enjoying superior access not only to ICMs (as documented in the previous literature) but also to other factor markets as well, as suggested by Coase (1937, 1960), Stein (1997), and Williamson (1981, 1985). In contrast, we find no evidence that the different response of group affiliated firms is a reflection of ICMs, agency problems, intra-group "propping", or a different sensitivity of firm-level performance or growth to changes in the business cycle in group firms.

Our results have important implications. While business groups have been criticized by a number of academics, politicians, and in the press, it is hard to explain why they remain so prevalent in so many countries absent any major benefits to a multitude of their stakeholders.[12] By documenting higher job security and a greater within-group range of job opportunities for employees of group affiliated firms, we point to a non-trivial set of stakeholders who appear to enjoy a bright side of group affiliation.

[12] In the 1930s, the U.S. introduced a number of policies (including the introduction of an intercorporate dividend tax) aimed at eliminating pyramidal business groups (Morck, 2005).

References

Abowd, John M., and Francis Kramarz, 2003, The Costs of Hiring and Separations, *Labour Economics* 10, 499-530.

Almeida, Heitor, Chang-Soo Kim, and Hwanki Brian Kim, 2015, Internal Capital Markets in Business Groups: Evidence from the Asian Financial Crisis, *Journal of Finance* 70, 2539-2586.

Almeida, Heitor, Sang-Yong Park, Marti Subrahmanyam, and Daniel Wolfenzon, 2011, The Structure and Formation of Business Groups: Evidence from Korean Chaebols, *Journal of Financial Economics* 99, 447-475.

Bae, Kee-Hong, Jun-Koo Kang, and Jin-Mo Kim, 2002, Tunneling or Value Added? Evidence from Mergers by Korean Business Groups, *Journal of Finance* 57, 2695-2740.

Baek, Jae-Seung, Jun-Koo Kang, and Inmoo Lee, 2006, Business Groups and Tunneling: Evidence from Private Securities Offerings by Korean Chaebols, *Journal of Finance* 61, 2415-2449.

Ball, Laurence M., Daniel Leigh, and Prakash Loungani, 2013, Okun's Law: Fit at Fifty? NBER working paper # 18668.

Ball, Laurence M., Joao Tovar Jalles, and Prakash Loungani, 2014, Do Forecasters Believe in Okun's Law? An Assessment of Unemployment and Output Forecasts, IMF Working Paper # WP/14/24.

Belenzon, Sharon, and Ulya Tsolmon, 2016, Market Frictions and the Competitive Advantage of Internal Labor Markets, *Strategic Management Journal* 37, 1280-1303.

Bertrand, Marianne, Paras Mehta, and Sendhil Mullainathan, 2002, Ferreting Out Tunneling: An Application to Indian Business Groups, *Quarterly Journal of Economics* 117, 121-148.

Blatter, Marc, Samuel Muehlemann, and Samuel Schenker, 2012, The Costs of Hiring Skilled Workers, *European Economic Review* 56, 20-35.

Boutin, Xavier, Giacinta Cestone, Chiara Fumagalli, Giovanni Pica, and Nicolas Serrano-Velarde, 2013, The Deep-Pocket Effect of Internal Capital Markets, *Journal of Financial Economics* 109, 122-145.

Cestone, Giacinta, Chiara Fumagalli, Francis Kramarz, and Giovanni Pica, 2016, Insurance Between Firms: The Role of Internal Labor Markets, City University London working paper.

Cheung, Yan-Leung, Raghavendra P. Rau, and Aris Stouraitis, 2006, Tunneling, Propping, and Expropriation: Evidence from Connected Party Transactions in Hong Kong, *Journal of Financial Economics* 82, 343-386.

Chinn, Menzie D. and Hiro Ito, 2006, What Matters for Financial Development? Capital Controls, Institutions, and Interactions, *Journal of Development Economics* 81, 163-192.

Chinn, Menzie D. and Hiro Ito, 2008, A New Measure of Financial Openness, *Journal of Comparative Policy Analysis* 10, 309 - 322.

Claessens, Stijn, Simeon Djankov, and Larry H.P. Lang, 2000, The Separation of Ownership and Control in East Asian Corporations, *Journal of Financial Economics* 58, 81-112.

Coase, Ronald H., 1937, The Nature of the Firm, *Economica* 4, 386-405.

Coase, Ronald H., 1960, The Problem of Social Costs, *Journal of Law and Economics* 3, 1-44.

Colpan, Asli M., 2010, Business Groups in Turkey, in Asli M. Colpan, Takashi Hikino, and James R. Lincoln (editors.), Oxford Handbook of Business Groups. Oxford University Press, Oxford.

Faccio, Mara, Larry H. P. Lang, and Leslie Young, 2001, Dividends and Expropriation, *American Economic Review* 91, 54-78.

Giroud, Xavier, and Holger M. Mueller, 2015, Capital and Labor Reallocation within Firms, *Journal of Finance* 70, 1767-1804.

Gopalan, Radhakrishnan, Vikram K. Nanda, and Amit Seru, 2007, Affiliated Firms and Financial Support: Evidence from Indian Business Groups, *Journal of Financial Economics* 86, 759-795.

Gopalan, Radhakrishnan, Vikram K. Nanda, and Amit Seru, 2014, Internal Capital Markets and Dividend Policy: Evidence from Business Groups, *Review of Financial Studies* 27, 1102-1142.

Greenwald, Bruce C., 1986, Adverse Selection in the Labour Market, *The Review of Economic Studies* 53, 325-347.

Hadlock, Charles J., and Joshua R. Pierce, 2010, New Evidence on Measuring Financial Constraints: Moving beyond the KZ index, *Review of Financial Studies* 23, 1909-1940.

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1991, Corporate Structure, Liquidity and Investment: Evidence from Japanese Industrial Groups, *Quarterly Journal of Economics* 106, 33-60.

Johnson, Simon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2000, Tunneling, *American Economic Review* 90, 22-27.

Kandel, Eugene, Kosenko, Konstantin, Randall Morck, and Yishay Yafeh, 2015, The Great Pyramids of America: A Revised History of US Business Groups, Corporate Ownership and Regulation, 1930-1950, NBER Working Paper No. w19691.

Khanna, Tarun, and Yishay Yafeh, 2005, Business Groups and Risk Sharing around the World, *Journal of Business* 78, 301-340.

Khanna, Tarun, and Yishay Yafeh, 2007, Business Groups in Emerging Markets: Paragons or Parasites? *Journal of Economic Literature* 45, 331-372.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 1999, Corporate Ownership around the World, *Journal of Finance* 54, 471-517.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2006, What Works in Securities Laws?, *Journal of Finance* 61, 1-32.

Larrain, Borja, and Francisco Urzua I., 2013, Controlling Shareholders and Market Timing in Share Issuance, *Journal of Financial Economcics* 109, 661-681.

Mankiw, N. Gregory, 2012, *Principles of Macroeconomics*, 6th edition.

Marchica, Maria-Teresa, and Roberto Mura, 2013, Returns and Risks to Private Equity, Purdue University working paper.

Masulis, Ronald W., Peter Kien Pham, and Jason Zein, 2011, Family Business Groups around the World: Financing Advantages, Control Motivations and Organizational Choices, *Review of Financial Studies* 24, 3556-3600.

Meyer, Brent, and Murat Tasci, 2012, An Unstable Okun's Law, Not the Best Rule of Thumb, Federal Reserve Bank of Cleveland Economic Commentary # 2012-08.

Morck, Randall, 2005, How To Eliminate Pyramidal Business Groups: The Double Taxation of Intercorporate Dividends and Other Incisive Uses of Tax Policy, *Tax Policy and the Economy* 19, 135-179.

Okun, Arthur M., 1962, Potential GNP: Its Measurement and Significance, reprinted as *Cowles Foundation Paper* # 190.

Polsiri, Piruna, and Yupana Wiwattanakantang, 2006, Thai Business Groups: Crisis and Restructuring, in Sea-Jin Chang (editor), Business Groups in East Asia: Financial Crisis, Restructuring, and New Growth, Oxford University Press, Oxford.

Romer, David, 2012, *Advanced Macroeconomics*, 4th edition, McGraw-Hill.

Stein, Jeremy C., 1997, Internal Capital Markets and the Competition for Corporate Resources, *Journal of Finance* 52, 111-134.

Tate, Geoffrey, and Liu Yang, 2014, The Bright Side of Corporate Diversification: Evidence from internal labor markets, *Review of Financial Studies* 28, 2203-2249.

Tziner, Aharon, and Assa Birati, 1996, Assessing Employee Turnover Costs: A Revised Approach, *Human Resource Management Review* 6, 113-122.

Whited, Toni M., and Guojun Wu, 2006, Financial Constraints Risk, *Review of Financial Studies* 19, 531-559.

Williamson, Oliver E., 1981, The Economics of Organization: The Transaction Cost Approach, *American Journal of Sociology* 87, 548-577.

Williamson, Oliver E., 1985, The Economic Institutions of Capitalism, New York, NY: The Free Press.

Table 1: Data on Group Affiliation by Country and Year

	Total Firm-Year Observations with Ownership Data	Total Firm-Year Observations with Data Needed for Tests	Percentage of Firm-Years that Are Group Affiliated, Narrow Definition	Percentage of Firm-Years that Are Group Affiliated, Broad Definition
Australia	1,506	838	2.4%	31.1%
Austria	603	369	16.8%	62.3%
Belgium	838	534	15.0%	60.7%
Bermuda	43	9	0.0%	66.7%
Brazil	1,105	388	5.1%	46.9%
Canada	2,285	1,147	3.3%	28.5%
Chile	377	191	14.0%	74.3%
China	10,314	4,086	7.6%	55.7%
Colombia	108	55	0.0%	61.8%
Czech Republic	166	31	14.3%	80.6%
Denmark	932	631	1.8%	20.0%
Egypt	85	7	0.0%	14.3%
Finland	897	541	0.0%	20.0%
France	4,810	3,174	8.1%	43.3%
Germany	5,014	3,101	13.4%	55.1%
Greece	662	259	1.4%	19.7%
Hong Kong	4,303	1,967	16.6%	65.7%
Hungary	105	61	0.0%	44.3%
Iceland	10	6	0.0%	66.7%
India	2,000	823	8.3%	44.0%
Indonesia	1,718	770	20.5%	61.3%
Ireland	518	265	0.8%	11.7%
Israel	570	201	23.3%	67.2%
Italy	1,852	1,121	9.9%	62.0%
Japan	26,702	16,014	16.8%	29.4%
Jordan	83	24	0.0%	33.3%
Korea (South)	3,451	1,998	10.1%	31.1%
Luxembourg	81	42	18.8%	69.0%
Malaysia	1,518	732	14.0%	44.7%
Mexico	466	212	0.6%	27.8%
Netherlands	1,259	848	7.7%	29.2%
New Zealand	99	68	0.0%	67.6%
Norway	912	451	4.2%	44.8%
Pakistan	168	82	4.4%	20.7%
Peru	243	98	4.9%	60.2%
Philippines	561	327	21.9%	59.6%
Poland	881	350	12.4%	53.7%
Portugal	394	244	6.0%	61.5%
Russian Federation	903	91	7.1%	57.1%
Singapore	922	431	31.7%	68.4%
Slovenia	114	62	4.5%	32.3%

South Africa	1,588	942	20.7%	56.6%
Spain	1,289	750	20.9%	55.1%
Sri Lanka	58	36	0.0%	0.0%
Sweden	1,722	1,002	7.6%	34.4%
Switzerland	1,733	1,162	3.7%	36.7%
Thailand	1,296	716	5.6%	26.8%
Turkey	880	369	12.9%	37.9%
United Kingdom	9,485	4,878	1.4%	13.5%
USA	26,748	15,924	0.8%	7.8%
Total	**124,377**	**68,428**	**8.2%**	**31.2%**

Table 2: Descriptive Statistics for Group Affiliated and Unaffiliated 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. A firm is defined as group affiliated using our narrow definition if one of the following four criteria are met: (i) the firm's largest shareholder has a 20% or greater stake in more than one firm in our sample, (ii) the firm's largest shareholder is another firm in our sample, and this other firm a 20% or greater ownership stake in the firm in question, (iii) the firm itself is the largest shareholder of another firm in our sample with a 20% or greater ownership stake, and (iv) the firm is identified as belonging to a business group in Claessens, Djankov, and Lang (2000) and its largest shareholder has a 20% or greater ownership stake. A firm is classified as group affiliated using our broad definition is a firm is identified as group affiliated in our narrow definition or if a firm's largest owner of shares is a corporate entity with 20% or greater stake in the company. 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, fifth, ninth, and tenth columns, and ***, **, * denote statistical significance of these differences at the 1%, 5%, and 10% levels, respectively.

	Means							Medians						
	Non-Group	Group (Narrow)	Group (Broad)	T-stat Non-Group - Group (Narrow)		T-stat Non-Group - Group (Broad)		Non-Group	Group (Narrow)	Group (Broad)	Z-stat Non-group - Group (Narrow)		Z-stat Non-group - Group (Broad)	
Employment Growth	0.056	0.032	0.047	7.82	***	5.43	***	0.018	0.004	0.010	11.54	***	11.09	***
GDP Growth	0.025	0.021	0.032	8.35	***	-26.95	***	0.026	0.018	0.025	15.47	***	-14.54	***
Sales Growth	0.103	0.066	0.101	11.49	***	1.21		0.083	0.054	0.080	12.11	***	3.14	***
Δ *ROA*	-0.001	-0.001	-0.002	-0.46		1.23		0.000	0.000	0.000	0.24		1.57	
Δ *Debt Ratio*	-0.001	-0.003	-0.001	2.26	**	0.80		-0.001	-0.002	-0.001	1.31		-0.52	
Δ *Q*	-0.027	-0.016	-0.021	-1.80	*	-1.85	*	-0.007	-0.009	-0.006	0.54		-1.07	
Δ *Capex/Assets* (%)	-0.153	-0.216	-0.243	1.09		2.92	***	-0.010	-0.060	-0.050	3.00	***	3.77	***
Δ *RetVol*	0.000	0.000	0.000	0.10		0.44		-0.001	-0.001	-0.001	0.99		1.19	

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, we use a narrow definition of group affiliation, where Group Affiliated = 1 for firms where one of the following four criteria are met: (i) the firm's largest shareholder has a 20% or greater stake in more than one firm in our sample, (ii) the firm's largest shareholder is another firm in our sample, and this other firm a 20% or greater ownership stake in the firm in question, (iii) the firm itself is the largest shareholder of another firm in our sample with a 20% or greater ownership stake, and (iv) the firm is identified as belonging to a business group in Claessens, Djankov, and Lang (2000) and its largest shareholder has a 20% or greater ownership stake. This narrow definition excludes firms where the largest owner of shares is a corporate entity with 20% or greater stake in the company but is otherwise not directly affiliated with a different firm in our sample. In Panel B, we use a "broad" definition of group affiliation, where Group Affiliated = 1 when a firm is identified as group-affiliated in our "narrow" definition and also when a firm's largest owner of shares is a corporate entity with 20% or greater stake in the company. In specification (4) of each panel, GDP Growth is additionally interacted with all other control variables (other than lagged Employment Growth). 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.

Table 3: Regressions of Employment Growth on GDP Growth and Controls (Cont'd)

Panel A: Narrow Definition of Group Affiliated

Specification	(1)	(2)	(3)	(4)	
GDP Growth	0.646	0.712	---	---	
	[6.82]***	[4.22]***	---	---	
Group Affiliated	-0.015	0.006	0.005	0.004	
	[-2.52]**	[0.70]	[0.59]	[0.47]	
GDP Growth * Group Affiliated	**-0.312**	**-0.635**	**-0.489**	**-0.483**	
	[-2.57]* **	**[-4.65]*** **	**[-3.28]*** **	**[-3.26]*** **	
Lag Employment Growth		-0.124	-0.127	-0.128	
		[-5.24]***	[-6.28]***	[-6.24]***	
				Uninteracted	Interacted w/ GDP Growth
Lag Sales Growth		0.072	0.063	0.065	-0.060
		[4.39]***	[5.43]***	[4.05]***	[-0.19]
Δ *Lag ROA*		0.102	0.106	0.161	-2.224
		[3.84]***	[4.23]***	[5.56]***	[-2.81]***
Δ *Lag Debt Ratio*		-0.036	-0.010	0.005	-0.568
		[-1.39]	[-0.46]	[0.19]	[-0.84]
Δ *Lag Q*		0.021	0.017	0.020	-0.101
		[5.82]***	[5.35]***	[5.04]***	[-0.99]
Δ *Lag Capex/Assets*		0.001	0.001	0.001	0.000
		[2.80]***	[2.80]***	[2.34]**	[0.00]
Δ *Lag RetVol*		-0.219	-0.192	-0.237	2.109
		[-2.98]***	[-2.88]***	[-2.58]***	[0.96]
Intercept	0.040	---	---	---	
	[8.41]***	---	---	---	
N	51,255	48,954	48,934	48,934	
Fixed Effects	No	Firm, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	
R-Squared	0.011	0.360	0.399	0.399	

Table 3: Regressions of Employment Growth on GDP Growth and Controls (Cont'd)

Panel B: Broad Definition of Group Affiliated

Specification	(1)	(2)	(3)	(4)	
GDP Growth	0.646	0.683	---	---	
	[6.82]***	[4.62]***	---	---	
Group Affiliated	-0.006	0.003	0.002	0.002	
	[-1.83]*	[0.58]	[0.39]	[0.39]	
GDP Growth * Group Affiliated	**-0.234**	**-0.225**	**-0.175**	**-0.177**	
	[-2.96]* **	**[-2.58]*** **	**[-2.15]** **	**[-2.14]** **	
Lag Employment Growth		-0.112	-0.117	-0.118	
		[-6.24]***	[-7.81]***	[-7.72]***	
				Uninteracted	Interacted w/ GDP Growth
Lag Sales Growth		0.060	0.052	0.055	-0.091
		[4.12]***	[5.57]***	[4.12]***	[-0.38]
Δ *Lag ROA*		0.127	0.131	0.155	-0.907
		[5.22]***	[6.09]***	[5.72]***	[-1.28]
Δ *Lag Debt Ratio*		-0.009	0.016	0.011	0.151
		[-0.38]	[0.82]	[0.49]	[0.24]
Δ *Lag Q*		0.021	0.018	0.021	-0.088
		[6.10]***	[6.28]***	[5.88]***	[-0.97]
Δ *Lag Capex/Assets*		0.001	0.001	0.002	-0.003
		[3.47]***	[3.53]***	[5.51]***	[-0.39]
Δ *Lag RetVol*		-0.183	-0.151	-0.150	0.151
		[-2.76]***	[-2.83]***	[-2.06]**	[0.08]
Intercept	0.040	---	---	---	
	[8.41]***	---	---	---	
N	68,428	65,991	65,985	65,985	
Fixed Effects	No	Firm, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	
R-Squared	0.010	0.335	0.370	0.370	

Table 4: Robustness Tests

The dependent variable is Employment Growth, calculated by dividing the current year employees by the prior year's employees and subtracting one. Group Affiliated is an indicator variable equal to one if we classify a firm as part of a business group in a particular year (and equal to zero otherwise), using the narrow definition of business groups, as defined in Table 3. In specifications (1)-(4), GDP Growth is the annual change in Gross Domestic Product by country, adjusted for inflation. In specifications (1) and (2), 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 GDP Growth variables are also interacted with Group Affiliated. Specification (3) includes GDP Growth, firm fixed effects, and the interaction of GDP Growth with the firm fixed effects. In specification (4), level control variables (rather than change control variables) are included, and GDP Growth is additionally interacted with these level control variables. 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)	(4)	
GDP Growth	0.711	---	---	---	
	[4.19]***	---	---	---	
Group Affiliated	0.007	0.009	0.014	0.007	
	[0.75]	[1.04]	[1.19]	[0.83]	
GDP Growth Positive * Group Affiliated	**-0.653**	**-0.618**			
	[-3.03]* **	**[-2.70]*** **			
GDP Growth Negative * Group Affiliated	**-0.595**	**-0.297**			
	[-2.50] **	**[-1.57]**			
GDP Growth * Group Affiliated			**-0.576**	**-0.390**	
			[-2.49] **	**[-2.59]*** **	
Lag Employment Growth	-0.124	-0.127	-0.115	-0.131	
	[-5.24]***	[-6.28]***	[-4.39]	[-6.33]***	
				Uninteracted	Interacted w/ GDP Growth
Lag Sales Growth	0.072	0.063	0.069		
	[4.37]***	[5.43]***	[4.94]***		
Δ *Lag ROA*	0.102	0.106	0.107		
	[3.84]***	[4.23]***	[2.90]***		
Δ *Lag Debt Ratio*	-0.036	-0.010	-0.029		
	[-1.39]	[-0.46]	[-0.95]		
Δ *Lag Q*	0.021	0.017	0.016		
	[6.04]***	[5.35]***	[3.85]***		
Δ *Lag Capex/Assets*	0.001	0.001	0.001		
	[2.80]***	[2.80]***	[2.25]**		

Δ *Lag RetVol*	-0.225	-0.192	-0.114		
	[-3.09]***	[-2.78]***	[-1.43]		
Lag Log Sales				-0.113	1.001
				[-12.11]***	[4.09]***
Lag ROA				0.438	-2.707
				[10.40]***	[-3.54]***
Lag Debt Ratio				-0.066	-0.290
				[-3.43]***	[-0.50]
Lag Q				0.037	-0.088
				[9.84]***	[-1.02]
Lag Capex/Assets				0.001	0.006
				[2.38]**	[0.64]
Lag RetVol				-0.489	0.908
				[-4.71]***	[0.50]
Intercept	---	---	---	---	
	---	---	---	---	
N	48,594	48,394	48,010	47,431	
Fixed Effects	Firm, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year, *Firm interacted with GDP Growth*	Firm, Country-Year, Industry-Year	
R-Squared	0.360	0.399	0.579	0.429	

Table 5: Placebo Tests

This table includes all firm-year observations for sample firms that were the target firm of withdrawn merger or acquisitions from 1995 to 2011. 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. Placebo Group is an indicator variable equal to zero (one) in the period before (after) the withdrawn merger or acquisition. Specifications (1)-(3) use only observations where data is available for all control variables, specification (4) uses observations where data on Employment Growth and GDP Growth is available, and specification (5) uses the same sample as specification (4) but restricts the sample to merger and acquisition failures that stemmed from factors outside of firm control (changed market conditions or regulatory intervention). 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)	(4)	(5)
Sample	Observations with data for all control variables	Observations with data for all control variables	Observations with data for all control variables	All placebo observations	Exogenous reasons for failed M&A only; All placebo observations
GDP Growth	---	0.571	0.462	0.675	-0.701
	---	[0.40]	[1.39]	[2.43]**	[-0.72]
Placebo Group	-0.195	-0.065	0.000	0.015	-0.076
	[-0.89]	[-0.71]	[0.02]	[0.82]	[-1.43]
GDP Growth * Placebo Group	**0.608**	**0.937**	**0.833**	**0.471**	**2.661**
	[0.12]	**[1.02]**	**[1.48]**	**[0.92]**	**[1.86]***
Lag Employment Growth	-0.004	0.000			
	[-0.88]	[0.00]			
Lag Sales Growth	0.254	-0.092			
	[0.54]	[-0.60]			
Δ *Lag ROA*	0.363	0.528			
	[0.36]	[2.12]**			
Δ *Lag Debt Ratio*	0.568	0.239			
	[0.58]	[0.89]			
Δ *Lag Q*	-0.010	-0.017			
	[-0.06]	[-0.50]			
Δ *Lag Capex/Assets*	-0.003	0.001			
	[-0.12]	[0.27]			

Δ *Lag RetVol*	0.574	0.732			
	[0.17]	[0.71]			
Intercept	---	---	0.032	0.030	0.111
	---	---	[1.85]*	[2.02]*	[3.13]*
N	634	635	657	1,175	207
Fixed Effects	Firm, Country-Year, Industry-Year	Firm, Industry-Year	No	No	No
R-Squared	0.923	0.761	0.026	0.020	0.024

Table 6: Internal Capital Markets 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 one if we classify a firm as part of a business group in a particular year (and equal to zero otherwise), using the narrow definition of business groups, as defined in Table 3. In specification (1) the sample excludes firm-year observations from periods where credit markets were constricted (the Asian Financial Crisis of 1997 and the Worldwide Recession of 2008 and 2009), while specification (2) includes only these credit constriction years. In specification (3) the sample excludes firm-year observations from financially constrained firms, where we define "financially constrained" as having a value in the top third of either the Whited-Wu or Hadlock-Pierce (size-age) financial constraints indices, while specification (4) includes only firms that are financial constrained. In specification (5) the sample include only observations where the value of the Chinn-Ito Index of capital openness is equal to its maximum value of one, while specification (6) includes only firms with a Chinn-Ito Index value of less than one. Details on the computation of these indices are provided in the Data section of this study. All firm-level non-indicator variables are trimmed at the 1st and 99th percentiles. 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 1997, 2008, 2009	1997, 2008, 2009 only	Excluding financially constrained firms	Financially constrained firms only	High capital access countries	Low capital access countries
Specification	(1)	(2)	(3)	(4)	(5)	(6)
GDP Growth	---	---	---	---	---	---
	---	---	---	---	---	---
Group Affiliated	0.013	-0.034	-0.002	-0.017	0.013	-0.016
	[1.44]	[-0.78]	[-0.14]	[-0.68]	[1.17]	[-0.74]
GDP Growth * Group Affiliated	**-0.583**	**-0.152**	**-0.463**	**-0.508**	**-0.443**	**-0.447**
	[-2.89]* **	**[-0.39]**	**[-2.29]** **	**[-2.24]** **	**[-2.42]** **	**[-1.44]**
Lag Employment Growth	-0.136	-0.321	-0.135	-0.155	-0.123	-0.216
	[-4.69]***	[-4.48]***	[-4.61]***	[-5.05]***	[-5.23]***	[-5.59]***
Lag Sales Growth	0.070	0.076	0.047	0.042	0.065	0.054
	[5.18]***	[1.87]*	[2.63]***	[1.84]*	[4.42]***	[2.36]**
Δ *Lag ROA*	0.084	0.195	0.123	0.046	0.116	0.033
	[2.80]***	[2.29]**	[2.93]***	[0.91]	[4.25]***	[0.44]
Δ *Lag Debt Ratio*	-0.022	0.024	0.036	-0.046	-0.025	0.018
	[-0.83]	[0.34]	[1.06]	[-0.88]	[-0.98]	[0.35]

Δ *Lag Q*	0.017	0.016	0.011	0.010	0.019	0.000
	[4.49]***	[2.03]**	[2.28]**	[1.40]	[5.45]***	[0.00]
Δ *Lag Capex/Assets*	0.001	0.001	0.001	0.002	0.002	0.000
	[2.29]**	[0.96]	[1.84]*	[3.10]***	[4.94]***	[0.00]
Δ *Lag RetVol*	-0.140	-0.343	-0.172	-0.182	-0.194	-0.122
	[-1.98]**	[-1.51]	[-1.74]*	[-1.44]	[-2.47]**	[-0.85]
Intercept	---	---	---	---	---	---
	---	---	---	---	---	---
N	39,791	6,032	24,589	10,207	39,407	9,018
Fixed Effects	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year
R-Squared	0.424	0.678	0.458	0.563	0.403	0.510

Table 7: Internal Labor Markets 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. In specification (1), Same-Country Group is an indicator variable equal to one if all firm members of a particular group are incorporated in the same country (and equal to zero otherwise), and Cross-Country Group is an indicator variable equal to one if at least two firm members of a particular group are incorporated in different countries (and equal to zero otherwise). In specification (2), Group Affiliated is an indicator variable equal to one if we classify a firm as part of a business group in a particular year (and equal to zero otherwise), using the narrow definition of business groups, as defined in Table 3. In specification (2), Diversified is an indicator variable equal to one if a firm has two or more distinct product segments listed in Datastream (and zero 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.

	Same-country vs. Cross-country groups	*Diversified* = 1 if firm has more than one sales segment
Specification	(1)	(2)
GDP Growth	---	---
	---	---
Group Affiliated	0.004	0.005
	[0.47]	[0.58]
GDP Growth * Same-Country Group	**-0.557**	
	[-3.11]* **	
GDP Growth * Cross-Country Group	**-0.267**	
	[-1.43]	
GDP Growth * Group Affiliated		**-0.484**
		[-3.28]* **
Diversified		0.006
		[1.02]
GDP Growth * Diversified		**-0.182**
		[-1.77]*
Lag Employment Growth	-0.127	-0.127
	[-6.28]***	[-6.28]***
Lag Sales Growth	0.063	0.063
	[5.43]***	[5.43]***
Δ *Lag ROA*	0.106	0.106
	[4.23]***	[4.23]***
Δ *Lag Debt Ratio*	-0.011	-0.011
	[-0.50]	[-0.50]
Δ *Lag Q*	0.017	0.017
	[5.35]***	[5.34]
Δ *Lag Capex/Assets*	0.001	0.001
	[2.81]***	[2.80]***

Δ *Lag RetVol*	-0.192	-0.193
	[-2.88]***	[-2.90]***
Intercept	---	---
	---	---
N	48,934	48,934
Fixed Effects	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year
R-Squared	0.399	0.399

Table 8: Tests for Group-Affiliated Firm Insensitivity to Shocks

The dependent variable is Employment Growth, calculated by dividing the current year's employees by the prior year's employees and subtracting one. Group Affiliated is an indicator variable equal to one if we classify a firm as part of a business group in a particular year (and equal to zero otherwise), using the narrow definition of business groups, as defined in Table 3. In specification (1), the key independent variable proxying for a growth shock is a firm's current year sales growth, calculated by dividing current year's sales by prior year sales and subtracting one for individual firms. In specification (2), the key independent variable proxying for a growth shock is a firm's current year 3-digit SIC code industry-level sales growth. 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.

Proxy for Growth Shock	Firm-level sales growth	Industry-level sales growth
Specification	(1)	(2)
Growth Shock	0.413	0.146
	[17.16]***	[7.46]***
Group Affiliated	0.003	0.001
	[0.35]	[0.11]
Growth Shock * Group Affiliated	**-0.082**	**-0.076**
	[-2.07]**	**[-2.88]*****
Lag Employment Growth	-0.186	-0.129
	[-10.18]***	[-6.28]***
Lag Sales Growth	0.106	0.064
	[8.63]***	[5.54]***
Δ *Lag ROA*	0.073	0.104
	[3.30]***	[4.17]***
Δ *Lag Debt Ratio*	-0.046	-0.013
	[-2.09]**	[-0.59]
Δ *Lag Q*	0.000	0.016
	[0.00]	[5.06]***
Δ *Lag Capex/Assets*	0.001	0.001
	[2.97]***	[2.81]***
Δ *Lag RetVol*	-0.133	-0.187
	[-2.29]**	[-2.83]***
Intercept	---	---
	---	---
N	48,934	48,856
Fixed Effects	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year
R-Squared	0.487	0.403

Table 9: Tests for Agency/Self-Dealing Explanations

The dependent variable in specification (1) is firm employees divided by firm sales (in $ millions), and the dependent variable in specifications (2)-(5) 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 one if we classify a firm as part of a business group in a particular year (and equal to 0 otherwise), using the narrow definition of business groups, as defined in Table 3. In specification (2), the sample consists only of firms with above-sample-median values of the Anti-Self-Dealing Index (ASDI) developed by Djankov, La Porta, Lopez de Silanes, Shleifer, and Vishny (2008), while specification (3) consists only of firms with below-sample-median values of ADSI. Specifications (4) and (5) include current year firm-level ROA and q (respectively) as additional control variables. 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	Full Sample	Above-Median ASDI	Below-Median ASDI	Full Sample	Full Sample
Dependent Variable	*Employees/Sales ($M)*	*Employment Growth*	*Employment Growth*	*Employment Growth*	*Employment Growth*
Specification	(1)	(2)	(3)	(4)	(5)
GDP Growth	---	---	---	---	---
	---	---	---	---	---
Group Affiliated	**0.109**	0.017	0.004	-0.005	0.006
	[0.64]	[0.60]	[0.38]	[-0.50]	[0.46]
GDP Growth * Group Affiliated	-3.113	**-0.655**	**-0.425**	**-0.456**	**-0.481**
	[-0.68]	**[-1.70]***	**[-2.37]****	**[-2.98]*****	**[-3.25]*****
ROA				**0.363**	
				[11.23]***	
Group Affiliated * ROA				**-0.034**	
				[-0.43]	
Q					**0.026**
					[8.78]***
Group Affiliated * Q					**-0.004**
					[-0.43]
Lag Employment Growth	0.947	-0.126	-0.135	-0.130	-0.129
	[4.09]***	[-4.37]***	[-4.19]***	[-6.21]***	[-6.21]***
Lag Sales Growth	-1.431	0.056	0.069	0.056	0.059

	[-6.38]***	[3.77]***	[3.99]***	[4.79]***	[5.06]***
Δ Lag ROA	-0.454	0.098	0.118	0.070	0.094
	[-1.17]	[2.95]***	[3.22]***	[2.82]***	[3.72]***
Δ *Lag Debt Ratio*	-0.576	-0.024	0.007	0.005	-0.008
	[-1.54]	[-0.78]	[0.23]	[0.23]	[-0.36]
Δ *Lag Q*	-0.193	0.018	0.013	0.012	0.011
	[-3.09]***	[4.66]***	[2.25]**	[3.77]***	[3.58]***
Δ *Lag Capex/Assets*	-0.001	0.002	0.001	0.001	0.001
	[-0.21]	[4.09]***	[1.93]*	[2.84]***	[2.80]***
Δ *Lag RetVol*	-0.394	-0.265	-0.125	-0.177	-0.193
	[-0.45]	[-2.46]**	[-1.54]	[-2.73]***	[-2.87]***
Intercept		---	---	---	---
		---	---	---	---
N	40,969	23,559	25,247	48,720	48,720
Fixed Effects	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year	Firm, Country-Year, Industry-Year
R-Squared	0.959	0.388	0.442	0.403	0.401

Appendix A: Employee Relocations within Business Groups: Anecdotal Evidence.

"Dutch consumer electronics group **Royal Philips Electronics NV** (PHG) told its French employee representatives that it will cut 1,235 jobs in France, the French daily Le Monde reported Tuesday.
… However, the French subsidiary's management has committed to relocating some of the workers hit by the restructuring in other subsidiaries of the group, the report added."[13]

"Debt-hobbled **Daiei Inc**, Japan's largest supermarket operator, said on Tuesday it aimed to cut 1,400 jobs in its parent company through voluntary retirement, 400 more than originally planned.
… Job cuts at the parent could reach as many as 2,000 including natural attrition and the relocation of employees to group companies, Daiei said."[14]

"Finnish telecoms solutions provider **Nokia**'s multimedia division in Finland has reportedly concluded its personnel negotiations.
As a result the company would dismiss 106 employees, down from the 250 announced at the beginning of the negotiations.
Nokia said in a statement that it had managed to relocate employees within the group better than earlier estimated, reported the Finnish news agency STT."[15]

"**Siemens Austria**, a subsidiary of German engineering group Siemens, will cut up to 250 jobs in its building services engineering unit Elin EBG Gebaeudetechnik, Siemens Austria CEO Brigitte Ederer said on May 3, 2006.
Siemens will seek to relocate some of the laid-off workers to other units within the group, a Siemens spokesperson said."[16]

"Japanese consumer electronics company **Toshiba** has announced it will close down or sell some of its overseas television plants over the next six months. Thousands of jobs will be lost in a bid to raise profitability.
… Toshiba said it would also try and relocate 1,000 workers in Japan itself within the group as a result of the structural reform in the visual products business, including liquid crystal display TVs and Blu-ray players and recorders."[17]

---

[13] Dow Jones International News, 06/26/2001, "Philips to cut more than 1,200 jobs in France – Report."
[14] Reuters News, 02/12/2002, "Daiei aims to cut 1,400 parent jobs."
[15] Nordic Business Report, 02/25/2005, "Nokia multimedia division to cut 106 jobs in Finland – Report."
[16] APA Economic News Service, 05/03/2006, "Siemens Austria to cut 250 jobs."

"Spanish industrial group **Corporacion Mondragon** has managed to relocate 980 employees of its insolvent member Fagor Electrodomesticos so far.
… Corporacion Mondragon intends to relocate the bulk of the 2,000 employees affected by the insolvency of Fagor Electrodomesticos and to increase its combined workforce in the next three or four years."[18]

"**Samsung** is set to have wider-than-expected reshuffle on executives and business units of its affiliates focusing on the conglomerate's technology units for leaner business structure, according to officials, Wednesday.
… "A process to relocate employees is also a part of group-wide efforts for better efficiency. Some researchers will be moved to a newly-opened building in Yangjae, southern Seoul," said another official."[19]

[17] Deutsche Welle, 06/30/2013, "Toshiba to cut thousands of jobs at foreign TV plants."
[18] Spanish Collection, 05/19/2014, "Mondragon relocates 980 employees of Fagor Electrodomesticos."
[19] The Korea Times, 11/18/2015, "Samsung plans major executive reshuffle."

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

ECGI Working Paper Series in Finance

www.ecgi.org\wp

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (www.ecgi.org/wp) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html