Running to Stand Still: Dimensions of Firm Growth and Governance

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ABSTRACT

Using establishment-level micro data on Compustat firms, we develop a novel decomposition of firm employment growth. Our decomposition reveals that on average, firms in this sample rely more on growth from acquiring and founding new establishments than on growth of existing establishments. Importantly, closures and sales of establishments make a significant negative growth contribution that more than offsets the growth of existing establishments. We then examine how the quality of governance, as measured by the strength of protection from takeovers, is associated with the various components of firm growth. In line with the literature, we find that poor governance is associated with lower firm growth. However, this lower growth for poorly governed firms appears to be the result of both a lower growth rate for existing and new establishments, and a significantly greater rate of establishment closures and sales. We do not find any significant differences in the contribution of acquisitions to growth. Together, our results suggest that well-governed firms are able to better manage growth through efficient investments and thus have a more balanced growth portfolio than poorly governed firms.

JEL Codes: L25, G34.

Keywords: Growth decomposition, empire-building, quiet life, establishment acquisitions, establishment sales and closures.

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1 INTRODUCTION

Firm growth is a composite outcome arising from several underlying processes. At the broadest level, firms can grow either internally or through acquisitions. Thus, two firms with identical overall growth rates could have different blends of these two components. Furthermore, internal growth is multidimensional — firms could grow by expanding their current establishments or by starting new establishments. More importantly, firms could sell or close their establishments, both of which affect their overall growth. So, for example, two firms with identical overall growth rates of, say, 5% could arrive at that growth rate very differently. One firm could generate 4% growth internally and acquire the remaining 1%, while another firm could generate an internal growth of 1%, acquire 7%, and close and sell establishments that reduce the growth rate by 3%. Thus, when firm growth is considered in terms of overall annual growth, it masks the underlying complexities of the growth process, and limits our understanding of how managers direct their efforts on the various underlying growth dimensions. Furthermore, examining some of these elements (e.g., acquisitions or plant closures and sales) while ignoring others provides us with only a partial picture of the growth process.

In this paper, we use detailed establishment-level U.S. Census Bureau microdata for Compustat firms and develop a novel granular decomposition of firm employment growth that extends the traditional high level view of firm growth based on sales, assets, or employment (e.g., Evans (1987); Demirguc-Kunt & Maksimovic (1998); Beck, Demirguc-Kunt, & Maksimovic (2005); McLean, Zhang, & Zhao (2012)), and builds on research about firm boundary management that uses establishment-level data (Maksimovic & Phillips (2001), Maksimovic, Phillips & Prabha (2008)). Drawing on the productivity decomposition literature (e.g., Baily et al. (1992); Gilriches & Regev (1995)), we decompose aggregate annual firm employment growth into two main components: internal growth of existing establishments and net growth from entry and exit of establishments. The first
component, net internal growth in existing establishments, is further decomposed into three subcomponents: (1) employment growth in establishments that were at least two years old; (2) employment growth in establishments that were founded exactly one year ago; and (3) employment growth in establishments that were acquired exactly one year ago, with respect to the current time period. Our second component, net growth in employment from entry and exit of establishments, is similarly decomposed into four subcomponents with respect to the current time period: (1) due to establishments acquired in the last year; (2) due to establishments that were founded in the last year; (3) due to establishments sold in the last year; and, finally, (4) due to establishments closed in the last year (with the last two components being negative by construction). This decomposition of employment growth enables us to better examine the different patterns of growth — internal vs. external growth, expansionary vs. contractionary activities, and growing new establishments vs. closing old establishments — than more aggregate measures, and also capture differences in the underlying growth dimensions of firms with similar overall growth rates.

We then use our growth decomposition to address an important gap in our understanding of the firm growth-governance relationship. Thus far, most studies of firm growth and governance have taken a high-level view of firm growth along the lines of Ijiri & Simon’s (1967) firm-growth model — typically in terms of sales growth, asset growth, or employment growth (e.g., Evans (1987); Demirguc-Kunt & Maksimovic (1998); Beck, Demirguc-Kunt, & Maksimovic (2005); McLean, Zhang, & Zhao (2012)). For example, in their seminal study, Gompers, Ishii, & Metrick (2003) use sales growth and provide evidence of a negative correlation between firm growth and the quality of governance. Furthermore, a majority of the studies have been in the context of mergers and acquisitions (M&A) (e.g., Billet, King, & Mauer, 2004; Hackbarth & Morellec, 2008; Moeller, Schlingemann, & Stulz, 2005) and have focused on empire building (e.g., mergers and acquisitions that increase

1Specifically, they found that the average year-on-year growth of a portfolio of poorly governed firms (G-index ≥ 14) had a significantly negative growth rate, while a portfolio of well-governed firms (G-index ≤ 5) was positive but insignificant.
firm size) by poorly governed managers. In line with this, Gompers et al. (2003) find that ineffective governance, as measured by the extent of protection from takeovers, is associated with increased M&A activity. Paul (2007) finds that certain board characteristics result in corrective action in the context of bad acquisition bids, thereby constraining (possibly value-destroying) firm growth. Gaspar, Massa, & Matos (2005) find that short-term institutional owners are associated with not only worse abnormal returns, but also worse long-term performance in the mergers. In sum, effective corporate governance appears to be associated with growth through efficient mergers and acquisitions. However, beyond the M&A context, to our knowledge, there are no in-depth studies that directly and comprehensively examine the association between firm growth and governance. In particular, the relationship between governance and internal growth has received very little attention, thus limiting a complete understanding of the growth-governance relationship.

Some recent research has taken a more fine-grained view of the firm but has generally focused on individual dimensions of firm growth, for example, the exit of establishments due to divestitures or closures. Maksimovic and Phillips (2001) find that close to seven percent of plants change ownership annually through mergers, acquisitions, and asset sales in peak expansion years, and that the probability of asset sales is related to firm organization and ex ante efficiency of buyers and sellers. In another study using establishment-level data, Bertrand and Mullainathan (2003) find that increases in antitakeover protections reduce managerial propensities to sell and close their existing plants, providing the managers with

Note though that starting with Gompers et al (2003), a rich literature in finance and economics has documented a positive relationship between market value and the quality of corporate governance (e.g., Bebchuk & Cohen, 2005; Faleye, 2007; Bebchuk, Cohen, & Ferrell, 2009). Gompers et al. (2003) developed the concept of a governance index (G-index) using twenty-four corporate governance provisions as a proxy for the strength of shareholder rights, and demonstrated that an investment strategy that purchased shares in firms with the strongest shareholder rights (i.e., least use of provisions) and sold shares in firms with the weakest shareholder rights (i.e., most use of the provisions) earned abnormal returns of 8.5% per year. They also found that each one-point increase in their G-index was associated with a decrease in Tobin’s q of 4.3 percent during the ten-year study period. Similarly, Bebchuk, et al., (2009) investigated the relative importance of the various provisions and concluded that a subindex of the G-index, referred to as the E-index comprising the key provisions of staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, and supermajority requirements, was associated in a similar manner with firm performance.
an opportunity to lead a quiet life (in contrast to the empire building perspective).

In sum, while the literature has undertaken high-level examinations of firm growth (e.g., sales growth or growth from mergers and acquisitions), and examined plant divestitures and closures, to our knowledge, there are no studies that simultaneously study the various dimensions of firm growth as part of a unified framework. This, in turn, implies that we are largely unaware if, and how, governance is associated with these dimensions of growth. For instance, both the empire-building (Gompers et al., 2003) and the quiet life views (Bertrand & Mullainathan, 2003) would suggest that poorly governed firms would engage in establishment closures to a lesser degree than well-governed firms. Thus far, it appears that this hypothesis has not been tested.

In this paper, we overcome some of these limitations by using our firm-growth decomposition to analyze how the various underlying dimensions of growth are associated with the quality of corporate governance, as measured by the extent of protection from takeovers. We then complement this analysis by directly testing the hypothesis that poor governance is associated with inefficient investments. In particular, we focus on recently acquired and newly founded establishments, and we investigate if their performance, as measured by their growth and probability of exit, is associated with the quality of corporate governance.

We use the US Census Bureau’s Longitudinal Business Database, which has data on employment for all establishments in all (non-agricultural) sectors of the US economy, for the period 1990 to 2005. Our annual employment growth decomposition reveals that firms in this sample rely more on growth from net entry (mean of 3.57% per year) than on growth of existing establishments (mean of 1.53% per year). Importantly, there is evidence of significant churning of establishments in this sample. The mean net entry of 3.57% is the result of increases of 4.89% through acquisitions and 3.25% through new establishment openings,
and declines of 2.22% through establishment sales and 2.66% through closures. Our three-year (and five-year) growth patterns are broadly similar, and indicate that growth through new establishments and establishment closures are the second (first) and third (third) most significant components of growth, something that has not been considered in detail by extant research.

Turning to the growth-governance association, we examine how the various components and subcomponents are associated with two measures of corporate governance: a broad G-index, based on Gompers et al. (2003), and a narrower E-index, based on Bebchuk & Cohen (2005). Our analyses show that under better governance, growth is not only higher but also more balanced. The unconditional average growth rate for firms in the lowest quartile of G-index (i.e., the best-governed firms) is 7.91% per year, while those in the highest quartile grow at only 2.69% per year. Interestingly, only a very small part of this difference between poorly governed and well-governed firms is attributable to growth through acquisitions (4.90% vs. 4.95%, respectively) and founding of new establishments (3.00% vs. 3.49%, respectively). A large share of the difference arises from the inability of poorly governed firms to grow their existing establishments (0.36% vs. 2.78%, respectively) and higher levels of establishment exit among such firms (-5.49% vs. -4.09%, respectively).

We repeat the analyses after controlling for several known determinants of firm growth and industry-year variations at the SIC three-digit level. In particular, we adopt a more conservative version of the pooled specifications adopted in Bebchuk et al. (2009) (Table IV) with growth and its underlying components and subcomponents as the dependent variables, and firm age, Delaware incorporation, return on assets (ROA), leverage, capital expenditure (capex) to sales, research and development (R&D) to sales, and SIC-3-year fixed effects as other controls. As before, we find that better governed firms grow faster than poorly governed firms. Unit increases in the G-index and E-index are associated with 0.2% and 1.1%

\[ \text{Note that the individual components do not exactly add up to the total due to winsorizing of growth rates at the top and bottom 1\%. For more details, refer to the Results section.} \]
reductions in overall annual firm growth, respectively. We also find that poor governance is associated with a lower contribution on each of the two major components of firm growth with the reduction in the net entry component being 1.5 to 2 times that of the net existing growth component. An examination of the individual subcomponents of net entry reveals very interesting and significant differences. We find that poorly governed firms not only have a lower contribution to growth from setting up new establishments but also have a greater (negative) contribution from closure and sale of establishments. In particular, a one-standard deviation increase in G-index (E-index) is associated with a 0.23% (0.17%) greater negative contribution to growth from establishment sales, and a 0.16% (0.07%) greater negative contribution to growth from establishment closures. As before, we do not find any significant differences in the growth contributions from acquisitions.

Next, we examine effectiveness of investments. We find that the performance of newly acquired and recently founded establishments is systematically and significantly positively correlated with the quality of corporate governance. Regressions of establishment performance on indices of governance show that a unit increase in G-index is associated with a 1.2% reduction in the one-year growth rate of these establishments and a 1.9% higher probability of the establishment being sold or closed within three years of its founding or acquisition. The corresponding numbers for a unit increase in E-index are a 1.6% reduction in the one-year growth rate and a 2.1% higher probability of establishment exit.

Our results are robust to alternative measures of growth including the use of three- and five-year growth rates. Our establishment-level results are also robust to including very conservative state-industry-year fixed effects, which control for all time-varying changes within an industry in a given state. Notwithstanding our fine-grained high-dimensional fixed effects, it is still possible that the indices of governance are correlated with a firm-level unobserved variable that is also correlated with growth. Since the governance indices change very little within a firm over the sample time period, the use of any firm fixed
effects specification including the use of difference- or system-GMM (generalized method of moments) estimators would not be very meaningful. To address this concern, we performed a deeper analysis of acquired establishments. In particular, we examined if firms with poor governance acquired slow-growing establishments. Establishment-level regressions of an establishment’s past growth rate on the measures of governance showed statistically insignificant, near-zero coefficients on both governance measures. Thus, results from this implicit difference-in-difference analysis strongly suggest that the observed decline in growth rate among establishments acquired by poorly governed firms occurs after the acquisition, and thus is likely caused by the poorly governed firm. This test also rules out the possibility that governance is associated with differences in the selection of acquisition opportunities based on prior growth trends. Nonetheless, this check focuses only on acquired establishment, and hence, our other results are better interpreted as how well-governed firms differ from poorly governed firms than as the causal effects of good governance.

Together, our results and methods make two important contributions to the literature. First, we offer a novel decomposition of firm growth that combines firm- and establishment level data and provides a considerably more granular decomposition of firm growth than examined in prior studies. This decomposition not only provides a better understanding of overall firm growth but also sheds light on growth-related managerial activities that are masked when growth is studied at the aggregate level. For instance, one of our salient findings — that selling and closing establishments has a significant impact on overall firm growth rate — has generally been ignored by prior research at the firm level. Second, our results strongly suggest that superior management of firm growth through efficient investments is an important channel through which better-governed firms create value for shareholders. In particular, it appears that better governance is associated with greater efficiency of

\[8\]

\[4\] However, this also means that the level of governance faced by managers was largely static during this time period and, accordingly, can potentially be thought of as an institutional constraint faced by managers rather than as a decision variable influenced by managers. Of course, this does not rule out the possibility that the factors that originally influenced the choice of governance before the sample time period are correlated with growth during the study.
investments, which is then reflected in more balanced and higher firm growth. Thus, our results are somewhat different from the two contrasting implications of governance in the extant literature — the empire-building found in Gompers et al. (2003) and the quiet life in Bertrand & Mullainathan (2003). In particular, we do not find any strong evidence that poorly governed firms grow more through acquisitions, as the empire-building view would suggest. In contrast to the quiet-life view, we find that establishments belonging to poorly governed firms have a greater probability of exit. Thus, at least with respect to annual employment growth, managers in poorly governed firms appear to be “running to stand still” — their growth performance from acquisitions is more than offset by relatively higher rate of establishment exits. Finally, our analysis of newly acquired and established plants uses direct measures of investment performance (growth and exit), which provide a good complement to prior studies that measure investment performance indirectly (for example, using abnormal returns).

The paper is organized as follows. In section 2, we derive a decomposition of overall firm growth. In section 3, we describe our data. In section 4, we present our results. Section 5 discusses and concludes.

2 DECOMPOSING FIRM GROWTH

Consider a firm with several establishments. We can write the firm’s total employment in period $t$ as:

$$\text{Firm Employment}_t \equiv E_t = \sum_{i \in S_t} E_{it}$$

where $S_t$ denotes the set of establishments in the firm in period $t$, and $E_{it}$ represents the employment in establishment $i$ in period $t$.

The change in the employment of the firm from period $t - k$ to period $t$ is then given
by: \[ \Delta E_t = E_t - E_{t-k} = \sum_{i \in S_t} E_{it} - \sum_{i \in S_{t-k}} E_{it-k} \]

As the first step, we can decompose the set of establishments in period \( t \) as follows:

\[ S_t = S_{existing} + S_{additions} \]

where \( S_{existing} \) is the set of establishments that survived from \( t-k \) to \( t \), and \( S_{additions} \) are new establishments that entered the firm between \( t-k \) and \( t \), including in period \( t \). Similarly, we can decompose the set of establishments in period \( t-k \) in the following way:

\[ S_{t-k} = S_{existing} + S_{exit} \]

where \( S_{existing} \), as before, comprises establishments that survived from \( t-k \) to \( t \), and \( S_{exit} \) is the set of establishments that exited from the firm between \( t-k \) and \( t \), including in period \( t-k \).

Together, we now have the following decomposition:

\[
\Delta E_t \equiv E_t - E_{t-k} = \sum_{i \in S_t} E_{it} - \sum_{i \in S_{t-k}} E_{it-k} = \sum_{i \in S_{existing}} (E_{it} - E_{it-k}) + \left( \sum_{i \in S_{additions}} E_{it} - \sum_{i \in S_{exit}} E_{it-k} \right)
\]

(1)

(2)

This equation represents the broadest level of decomposition used in our study. The first term in Equation 2 is the change in employment at the surviving establishments, while the second term denotes the net increase in employment arising from net entry of establishments.

Now, we can further decompose the first term of Equation 2 into the following groups:

\[ S_{existing} = S_{old} + S_{newlast} + S_{acqlast} \]

where \( S_{old} \) is the set of establishments belonging to the firm that were at least one year old
in year \( t - k \), \( S_{\text{newlast}} \) is the set of establishments that were established in year \( t - k \), and \( S_{\text{acqlast}} \) is the set of establishments that were acquired by the firm in year \( t - k \).

Similarly, we can decompose the newly added establishments as follows:

\[
S_{\text{additions}} = S_{\text{new}} + S_{\text{acq}}
\]  

where \( S_{\text{new}} \) is the set of establishments that were established between \( t - k \) and \( t \), and \( S_{\text{acq}} \) is the set of establishments that were acquired between \( t - k \) and \( t \). Repeating the above decomposition for exiting establishments, we get:

\[
S_{\text{exit}} = S_{\text{closed}} + S_{\text{sold}}
\]  

where \( S_{\text{closed}} \) is the set of establishments that were closed between \( t - k \) to \( t \), and \( S_{\text{sold}} \) is the set of establishments that were sold between \( t - k \) to \( t \).

Using the above decompositions and denoting \( E_{it} - E_{it-k} \) as \( \Delta E_{it} \), Equation 2 can now be fully expanded as:

\[
\Delta E_{it} = \sum_{i \in S_{\text{closed}}} \Delta E_{it} + \sum_{i \in S_{\text{newlast}}} \Delta E_{it} + \sum_{i \in S_{\text{acqlast}}} \Delta E_{it} \\
+ \sum_{i \in S_{\text{new}} \setminus S_{\text{newlast}}} \Delta E_{it} + \sum_{i \in S_{\text{acq}}} \Delta E_{it} \\
- \sum_{i \in S_{\text{sold}}} \Delta E_{it} - \sum_{i \in S_{\text{closed}}} \Delta E_{it}
\]  

(6)
Dividing throughout by $E_{t-k}$, we get the complete growth decomposition:

$$\frac{\Delta E_t}{E_{t-k}} = \frac{\sum_{i \in S_{old}} \Delta E_i}{E_{t-k}} + \frac{\sum_{i \in S_{newlast}} \Delta E_i}{E_{t-k}} + \frac{\sum_{i \in S_{acqlast}} \Delta E_i}{E_{t-k}} + \frac{\sum_{i \in S_{new}} \Delta E_i}{E_{t-k}} - \frac{\sum_{i \in S_{sold}} \Delta E_i}{E_{t-k}} - \frac{\sum_{i \in S_{closed}} \Delta E_i}{E_{t-k}}$$

(7)

To summarize, Equation 7 decomposes firm growth into seven components: (i) growth of old establishments, (ii) growth of newly acquired establishments, (iii) growth of newly established establishments, (iv) growth by simply acquiring establishments, (v) growth by setting up new establishments, (vi) optimizing size by selling some establishments, and (vii) optimizing size by closing some establishments. This decomposition forms the basis for the first part of our empirical work.

3 DATA, VARIABLES, EMPIRICS

3.1 Data

The main source of data for this study was the Longitudinal Business Database (LBD) from 1990 to 2005. This dataset, developed and maintained by the U.S. Census Bureau, contains employment and payroll information on all non-agricultural establishments in the U.S. that have at least one employee. These data also provide information on ownership, as well as on industry and geography. No information on sales or assets is included. A concordance file was used to link these data to Compustat and CRSP, which provided firm-level information on firm age, state of incorporation, profitability, leverage, capex, and R&D. We collected governance data from the RiskMetrics (formerly IRRC) database for firms. The RiskMetrics governance data are not available for all years. We therefore follow Bebchuk and Cohen (2005) to fill in the missing years. They assume that the governance provisions in any given
year are the same as those of the preceding year. For instance, the governance provisions in 1996 are assumed to be the same as those in 1995. In addition, following Bebchuk and Cohen (2005), we eliminate firms with a dual-class structure. Following Zhao and Chen (2008), we also eliminate observations in the financial services and insurance services (SIC codes 6000-6999). These procedures result in a sample of 16,966 firm-year observations, corresponding to a total of 2,065,032 establishment-year observations. Descriptive statistics for the firm-level and establishment-level samples are provided in Table 1.

### 3.2 Key Variables

The main dependent variable of interest was firm growth. *Firm Growth* was defined as the change in the total number of employees from last year divided by the total number of employees in the last year \( \left( \frac{\Delta E}{E_{t-1}} \right) \).\(^5\) To eliminate the influence of outliers, we winsorsized the growth variable at 1% on both tails. The two main measures of governance were G-index and E-index. *G-index* was defined as the GIM Index (Gompers et al., 2003), which was based on the presence or absence of 24 corporate governance provisions (categorized as delay, protection, voting, and other). Higher values of this index represent greater protection from the corporate control market. The second measure of governance was E-index, a strict subset of G-index, and a narrower measure of protection. *E-index* was defined as the Entrenchment Index proposed by Bebchuk et al. (2009). That index is based on the presence or absence of six provisions: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, supermajority requirements for mergers, and charter amendments. As with G-index, the higher the E-index, the greater the degree of protection. In line with Bebchuk et al. (2009), when using E-index in regressions, we included a variable *other provisions index*, which was defined as the difference between G-index and E-index.

\(^5\)As robustness checks, we varied the time period to three and five years. These results are discussed in the robustness checks section.
3.3 Empirics

The first part of our analysis, at the firm level, examined whether the quality of governance is associated with differences in the composition of firm growth. The second part of the analysis focused on investment performance (as measured by the performance of acquired and newly founded establishments) and its relationship to the quality of governance.

3.4 Composition of Firm Growth and Governance

To examine this question, we broadly followed the specification in Bebchuk et al. (2009), with one regression for each component of firm growth. Specifically, we estimated the following pooled OLS specification:

\[ \frac{\sum_{i \in S} \Delta E_i}{E_{jt-1}} = \alpha_1 G_{jt} + \alpha_2 O_{jt} + \alpha_3 y_{jt-1} + Z_{jt} + \nu_{mt} + \epsilon_{jt} \]  

(8)

where \( x \in \{ \text{old, newlast, acqlast, new, acq, sold, closed} \} \); \( i \) denotes establishments belonging to firm \( j \); \( G \) is a measure of governance, either G-index or E-index; \( O \) is the other provisions index included when E-index is the dependent variable; \( y_{jt-1} \) is log lagged employment; \( Z_{jt} \) is the vector of firm-year controls described below; and \( \nu_{mt} \) are SIC-3-year fixed effects.\(^6\) Note that these fixed effects are considerably more conservative than the SIC-2 digit industry-adjusted dependent variables used in Gompers et al. (2003) and other studies, and control for all time varying differences across SIC-3 digit industries. Turning to \( Z_{jt} \), following Bebchuk et al. (2009), we included log company age (from CRSP), a dummy for Delaware incorporation, ROA, leverage, capex to sales and R&D to sales as other controls.

\(^6\)The SIC-3 digit industry for a firm was defined as the modal SIC-3 code based on employment.
3.5 Investment Performance and Governance

To examine if investment performance is associated with the quality of governance, we used the following two pooled OLS specifications:

\[
\frac{\Delta E_{ij}}{E_{ijt_0-k}} = \alpha_1.G_{jt_0} + \alpha_2.O_{jt_0} + \alpha_3.y_{ijt_0} + Z_{jt_0} + \nu_{mt_0} + \epsilon_{ijt_0}
\]  

(9)

where the left-hand side represents the \(k\)-year growth of establishment \(i\) newly founded or acquired by firm \(j\) in year \(t_0\). Thus, the sample consists of one observation per establishment with all control variables pertaining to the year of acquisition or founding.

The second specification is a linear probability model with high-dimensional fixed effects, and it examines the probability of establishment exit, defined as the establishment being closed or sold within a certain period of time. As with the previous specification, we limit the sample to one observation per establishment, with all control variables based on the year of acquisition or founding.

\[
D^k_{ij} = \alpha_1.G_{jt_0} + \alpha_2.O_{jt_0} + \alpha_3.y_{ijt_0} + Z_{jt_0} + \nu_{mt_0} + \epsilon_{ijt_0}
\]  

(10)

where \(D^k_{ij}\) is 1 if the establishment was sold or closed within the first \(k\) years of founding or acquisition and 0 otherwise, and the other terms are as defined earlier.

4 RESULTS

4.1 Overall Firm Growth

Table 2 presents a decomposition of the mean one-year growth in firm employment into the two broad components — change in employment from existing establishments and
change in employment from net entry of new and acquired establishments — and into the seven subcomponents discussed earlier. In this sample of firms, net entry of establishments accounts for a major share of firm employment growth (3.57% of 5.42%); existing growth at existing establishments forms a considerably smaller portion (1.53%). Within existing establishments, on average, establishments that were new last year show the highest growth (0.98% per year), while establishments that were acquired a year ago exhibit no growth. The much larger net entry term hides an even larger churning of establishments within the firm. The mean firm growth in employment from net entry is 3.57%, but this is the result of a gross addition of about 8.14% from founding new establishments (3.25%) and acquisitions (4.89%) and a reduction of about 4.88% from closure (-2.22%) and sales (-2.66%) of establishments. In sum, growth in this sample of firms appears to be the result of not just acquisitions or founding of new establishments but also very active turnover of establishments. We now examine if the composition of growth varies with the quality of governance.

4.2 Firm Growth and Governance

Table 3 provides a breakdown of the decomposition presented in Table 2 by the quality of governance. Focusing on net firm growth (the last row), poorly governed firms exhibit a small increase of 2.69%, compared to a net increase of 7.91% for the best-governed firms. This large difference is consistent with the finding in Gompers et al. (2003) that firms with poor governance have lower growth rates. The patterns are similar when we focus on the two major components. Poorly governed firms show a significantly smaller increase in growth from the two main components: growth from existing establishments and growth from net entry. However, as before, the broad patterns conceal interesting and important differences. First, well-governed firms have a more balanced growth portfolio of existing establishment

\[ ^7 \text{We also performed similar analyses with the 3-year and 5-year growth; growth from existing establishments was still much smaller than growth from net entry. The mean growth from existing establishments was 6.1\% and 13.4\% for 3-year and 5-year growth. The corresponding mean growth from net entry were 19.7\% and 48.5\%. See the attached (online) Appendix for details.} \]
growth and net entry, while most of the growth of poorly governed firms comes from net entry. Net entry accounts approximately for 2.37% of the 2.69% mean total growth among poorly governed firms, but this component accounts (approximately) for only 4.70% of the 7.91% growth among well-governed firms. Second, poorly governed firms do not have a lower net entry component because they have lower levels of entry of establishments. In fact, the gross additions are similar. The contribution from acquired establishments is virtually identical for both these types of firms (4.90% and 4.95%), while the contribution from new establishments is only about 0.5% lower for poorly governed firms. In contrast, the negative contribution to growth from sales and closure is almost 1.65% higher for poorly governed firms (-5.74% vs. 4.09%). Thus, poorly governed firms have a lower growth rate because of their greater rate of churning of establishments than well-governed firms.

We test these results more formally in Tables 4-6. Table 4 presents the results of estimating Equation 8 with one-year firm growth – that is, \( \frac{E_t}{E_{t-1}} \) — as the dependent variable. Recall that all these regressions include SIC3-year fixed effects, thus eliminating any confounding effects of time-varying changes at the industry level. The results in Table 3 are in line with the findings in Gompers et al. (2003) and indicate that the quality of governance is positively associated with firm growth. The coefficients on G-index and E-index are negative and significant throughout. A unit increase in the G-index (at the mean G-index) is associated with a 0.2% reduction in firm growth. A unit increase in E-index is associated with a 1.1% reduction in firm growth. The coefficients on the control variables are generally in the expected direction. Profitability, leverage, and capital expenditure are positively associated with growth, while prior size and firm age are negatively related to growth.

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8 We also performed these analyses with the three-year and five-year changes, and found similar patterns.
9 Note that both measures of governance are constructed such that higher values of the measure indicate poorer quality of governance.
10 This negative association persisted with three-year and five-year growth rates, but the coefficients on G-index were insignificant. The coefficients on G-index in these regressions was about -0.3%. A unit increase in the E-index was associated with a 4.5% and 7.5% reduction in three and five-year firm growth, respectively.
Turning to the two main components of firm growth - growth from existing establishments and growth from net entry of new and acquired establishments, we reestimate the regressions in Table 5 with $\Delta E_{existing}^{t-1}$ and $\Delta E_{netentry}^{t-1}$ as the dependent variables. The results are similar to those in Table 4. Both these components of firm growth are negatively associated with the quality of governance. A unit increase in E-index is negatively associated with both components: 0.4% reduction in growth from existing establishments and 0.6% reduction in growth from net entry. The coefficients on most of the controls have similar signs as before, although the coefficients on leverage and capex show interesting differences. Greater leverage is associated with greater net entry but not with greater growth from existing establishments. Not surprisingly, capex is strongly associated with growth from existing establishments but not with growth from net entry. Profitability appears to have a larger impact on growth from existing establishments than on growth from net entry.

Table 6 presents a further disaggregation of the main components of growth and their link with governance. Of the three subcomponents of growth in existing establishments, growth of old establishments and growth of establishments founded last year are positively associated with the quality of governance (Panel A). As in Table 2, the growth of acquired establishments does not show any significant association with the quality of governance. Of the four subcomponents of net entry, growth through founding of new establishments is positively associated with the quality of governance. In line with the findings in Table 3, well-governed firms appear to have a significantly smaller negative contribution to growth from sale and closure of establishments (Panel B).

Together, the results in Tables 4-6 support the thesis that firm growth is positively related to the quality of governance. More importantly, governance appears to be associated differently with different subcomponents of growth. As seen by their higher contribution from existing growth and lower sales and closures, better-governed firms appear to be more capable of managing growth more effectively than their poorly governed counterparts.
4.3 Investment Performance and Governance

The analysis, thus far, has been on growth at the firm level. Since growth is ultimately determined by the performance of a firm’s investments, we now focus on new and acquired establishments and attempt to understand the impact of governance at the establishment level. We use two measures of investment performance: establishment growth and establishment exit (due to sales or closure). Table 7 presents the results of investment performance regressed on measures of governance. It is clear from the table that new and acquired establishments of poorly governed firms tend to have a slower growth rate than those of well-governed firms. The one-year growth is lower by 1.2-1.6% for every unit increase in the governance measures, while the three-year growth rate is lower by 1.4-2.9%. The five-year growth regressions also exhibit negative, but statistically insignificant, coefficients. Turning to exit, Panel B shows that establishments of poorly governed firms are significantly more likely to exit. The probability of exit within three years after they are established or acquired is higher by 1.9-2.1% for every unit increase in the governance measures; the corresponding figure for the five-year exit rate is 1.3-2.1%. Together, these results strongly indicate that the investment performance of better-governed firms is superior to that of poorly governed firms.

We then reestimate the regressions in Table 7 after limiting the sample to new establishments, and present the results in Table 8. The results are similar to those in Table 7, suggesting that well-governed firms invest in (or are able to create) better-performing establishments. Focusing on the performance of acquired establishments, the results on establishment growth are broadly similar to those in Tables 7 and 8. Based on the broader measure of governance, G-index, it appears that the growth rate of acquired establishments is lower at poorly governed firms. The lower growth rate appears to persist well into the fifth year after acquisition. Based on the narrower entrenchment measure, the correlation

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11 One possible explanation for is that the lowest-performing establishments have exited by this time. This is consistent with the evidence in Panel B.
between the quality of governance and growth rate of acquired establishments appears to be insignificant. The results on exit are similar to those in Tables 6 and 7 for both measures, and they suggest that the tendency of poorly governed firms to close their establishments extends to acquired establishments as well.

Together, the results in Tables 7-9 strongly suggest that controlling for industry-year factors, establishment size, and other firm characteristics such as firm age and profitability, well-governed firms exhibit better investment performance than poorly governed firms.

4.4 Robustness Checks

We performed several checks to ensure the robustness of our results. We discuss these below.

4.4.1 Alternative Growth Measures

We repeated the analyses in Tables 2-6 with three-year and five-year firm growth and found results similar to those with one-year growth (results presented in Appendix tables A1-A8). Specifically, growth from net entry continued to be the dominant way of growing a firm compared to the growth of existing establishments (19.75% vs. 6.13% respectively, with three-year growth rates, and 48.51% vs. 13.42%, respectively, with five-year growth rates). Entry of new establishments was also a significant contributor to firm growth in addition to acquisitions. Firms also exhibited significant churning of establishments (negative contributions of 14.05% and 21.16% from sales and closures to three- and five-year growth rates, respectively). The unconditional average growth rates were significantly higher for firms in the lowest quartile of G-index than for firms in the highest quartile (three-year growth rate: 45.57% vs. 13.62%; five-year growth rate: 112.12% vs. 29.41%). As with one-year growth rates, better governed firms had more balanced growth with a lower ratio of growth from net entry to total growth. They also had significantly fewer closures and
sales (-11.48% vs. -16.47% for three-year growth rates and -17.72% vs. -24.05% for five-year growth rates). Further, as in the baseline analysis, poorly governed firms do not appear to have a greater contribution from acquisitions.

Our analyses with the full set of controls show results that are qualitatively similar to the baseline results presented in Tables 4-6. These results are presented in Tables A5-A8. While G-index is still negatively related to overall growth, it is statistically insignificant. E-index, on the other hand, continues to be strongly and negatively correlated with overall growth. The relation between the governance indices and the individual components and subcomponents of growth is generally negative, although the results are considerably stronger when E-index is used as a measure of governance. We continue to find little evidence on the acquisition-based dimension of growth. Together, these results are in line with our baseline results: well-governed firms are better able to grow their existing establishments and have a lower (negative) contribution from establishment sales and closures.

4.4.2 Role of Opportunity Selection

We then checked if firms with poor governance acquire slow-growing establishments. If this were true, then the main problem with poorly governed firms would be more an inability to choose appropriate growth opportunities rather than problems with managing growth. Table 10 presents the results from establishment-level regressions of an establishment’s past growth rate on the measures of governance. All the coefficients on both governance measures are very close to zero and statistically insignificant. Thus, it appears that the observed decline in growth rate occurs after the acquisition of the establishment by poorly governed firms, indicating that the problem with poor governance likely lies in the process of managing growth. Also note that since we have industry-year fixed effects, our analysis has an implicit difference-in-difference structure, with the changes in establishment performance of poorly governed firms compared to changes in establishment performance of well-governed firms.
Similarly, we examined whether new establishments were started at a larger scale by poorly governed firms. This addresses the possibility that establishments of poorly governed firms may exhibit lower growth since they have a smaller gap between their initial and final size. The regression coefficients (not presented) were all small and insignificant, suggesting that the slower growth rate of new establishments is not due to a difference in the initial scale of the establishment.

### 4.4.3 Role of Omitted Input Factors and Productivity

We used employment growth as our measure of growth, primarily due to data constraints. While correlated with other measures of growth, it does omit other factor inputs, notably capital.\(^\text{12}\) This could lead to misleading conclusions if the governance indices were systematically correlated with the use of capital. For instance, if poorly governed firms tend to expand their capital stock relatively more than employment, then our analysis will spuriously suggest a negative correlation between governance and growth. To rule this out, we performed an in-depth analysis of the relation between productivity and governance. We restricted the analysis to manufacturing because the techniques for estimating productivity in this domain are well established. Moreover, we had access to data on capital and other inputs only for manufacturing. We used two commonly adopted measures of productivity — labor productivity and total factor productivity (TFP, calculated as the Solow residual) and estimated the same types of regressions as in Table 4. The results, presented in Table 11, do not show any significant association between governance and productivity. The coefficients on the governance indices in the labor productivity regressions are virtually zero and statistically insignificant. Thus, it is unlikely that poorly governed firms are substituting labor with capital in their growth processes. Similarly, the coefficients in the TFP regressions are also virtually zero. This largely rules out the effect of variables such

\(^{12}\)Based on Compustat data, the correlation between employment growth and asset growth was about 78%.
as unobserved differences in human capital, skill intensity, patent intensity, adoption of information technology, etc. In particular, these variables strongly influence TFP, and given that we do not find any differences on TFP, it is unlikely that those variables are the primary driver of our results. The productivity analysis also allays a broader theoretical concern. In models of industry equilibrium such as Jovanovic (1982) and Hopenhayn (1992), the ultimate size of a firm is determined by its productivity. Thus, in these models, differences in growth rates of firms could possibly be attributed to differences (or changes) in productivity. Put differently, some firms grow faster than others because they use their resources more efficiently, which provides them a cost (or differentiation) advantage over their competitors. As a consequence, in these models, productivity also determines profitability, and hence, the market value of the firm. Furthermore, these models also imply that more productive firms (and in turn, their establishments) are less likely to exit. Extending these arguments, it is conceivable that the lower growth of poorly governed firms and the higher exit rate of their establishments are the results of their lower productivity. That we find near-zero coefficients in productivity regressions provides greater confidence that the observed variations in growth and exit rates are not likely to be the result of productivity differences.

As additional robustness checks, primarily to rule out endogeneity in the estimation of productivity, we used four other measures of productivity and obtained the same results. These results are presented in Tables A11.

4.4.4 Broader Measure of Establishment Exit

Our baseline analysis considers only the closure of establishments as exits. As an additional robustness check, we expanded our definition of establishment exit to include those establishments that were sold to other firms and repeated the exit analyses in Tables 7-9. The results, presented in Table A9, are similar to the baseline results and confirm that
governance is negatively correlated with this broader definition of exit.

4.4.5 Additional Analysis of Acquisitions

In general, we do not find any significant association between acquisition-based growth and governance. This result is different from Gompers et al. (2003), which finds a positive correlation between the number of acquisitions and poor governance. To ensure that our results are not different solely due to the choice of growth measures, we performed some additional analyses. In particular, we examined whether the share of acquired (and new) establishments to the total number of establishments was associated with governance. The results are presented in Table A10. The correlation between the share of acquired to total establishments is weak, with only E-index exhibiting a mild positive correlation. In contrast, the share of new establishments shows a much stronger (and negative) correlation with the governance indices. Thus, this is in line with our baseline results that poorly governed firms tend to have a lower growth contribution from new establishments.

4.4.6 Other Checks

We repeated the analyses in Tables 7-10 with state-industry-year fixed effects instead of state-year fixed effects, thus controlling for time-varying changes within an industry in a state. Our results remained robust to this inclusion. We also repeated the analyses using G-index and E-index in the initial year (1990) and found similar results.

5 DISCUSSION AND CONCLUSION

At the broadest level, this paper is a commentary on firm growth. Our results suggest that it is important to understand overall firm growth as a composite process resulting from several underlying processes. This is in contrast to most of the literature, where firm growth has
been considered broadly at the firm level or in terms of M&A events that result in firm growth.

Our novel decomposition of firm growth reveals that on average, Compustat firms rely more on growth through acquisitions and starting new establishments (net entry) than through growing existing establishments (existing growth). The unconditional contribution from the former component is two to three times larger than from the latter. However, there is only a small difference in the contribution from growth through acquisitions and growth from starting new establishments (4.89% vs. 3.25%, respectively, with one-year growth, and 28.31% vs. 38.16%, respectively, with five-year growth). Thus, while previous research has focused on acquisition-based growth, it appears that starting new establishments is also a significant driver of overall firm growth. Another interesting finding is that selling and closing their current establishments account for a substantial reduction in overall firm growth (-4.88% and -21.16% with one- and five-year growth rates, respectively). Although it is known that firms close and sell establishments, our decomposition provides the first comprehensive look at the impact of these activities on firm growth.

At the next level, this paper contributes new empirical evidence on how the growth of a firm is associated with its quality of governance. When these growth-composition data are partitioned across governance quartiles (Table 3), it appears that the differences among these groups are not driven by the two growth components related to acquisitions: growth in recently acquired establishments and growth from acquiring establishments. Compared to other components, the differences among firms with poor, medium, and good governance on these two components are minimal (e.g., with one-year growth rates, the sum of these two components is 5.00%, 4.85%, and 5.02%, respectively). This is an interesting finding, as a large literature suggests that managers indulge in empire-building under poor governance regimes. In fact, with longer periods, we find that well-governed firms have a greater contribution from these two components, thus contradicting the empire-building argument.
Instead, we find that poorly governed firms exhibit limited growth their old establishments (-0.36%, 0.14%, and 0.83% over one, three and five years respectively), while well-governed firms appear to be able to generate modest growth from these establishments (1.44%, 3.76%, and 3.22%). In fact, the growth from just old establishments for well-governed firms is comparable (and with one-year growth rates even higher than) to the total growth of poorly governed firms. Similar conclusions can be drawn from our subsequent analysis, which controls for other potential factors, including industry-year effects. Finally, the most salient result of our study is the link between governance and establishment exit. We find that poorly governed firms have a much higher negative growth contribution from closing and selling establishments. This is consistent with the hypothesis that such firms make inefficient investments that do not result in growth. Further support for this argument is found in the establishment-level regressions; unit increases in G-index and E-index are associated with a higher probability of establishment exit (1.3% and 2.1%, respectively) within five years of founding or acquisition.\footnote{Furthermore, our results also highlight an interesting difference between the growth of new and acquired establishments. Among new establishments, the negative association of governance quality with growth is immediate; the one-year growth rate and the one-year exit rate are strongly associated with the quality of governance. The effect is not so pronounced in the case of acquired establishments, with only a small negative association between the quality of governance and one-year performance measures.}

Together, our results suggest that poorly governed firms are able to grow neither their existing establishments nor their new establishments. At the same time, they are involved in more selling or closing of establishments. Thus, our findings suggest that the inability to manage growth effectively may lie at the heart of why poor governance may reduce market value. Overall, well-governed firms appear to have a more balanced growth portfolio in contrast to poorly governed firms, which rely much more on acquisitions and new establishments to stimulate growth.

Our findings relate most directly to Gompers et al. (2003) and the related literature. In particular, they strongly support the conjecture in Gompers et al. (2003) that poorly
governed firms make inefficient investments. Our study also speaks to the broader literature on empire-building, which argues that poor governance results in increases in capital expenditures and merger and acquisition activities (Baumol, 1959; Williamson, 1964; Gompers et al., 2003). These studies argue that such investments, while expanding the size and scope of the firm, result in lower returns and reduced firm value because they are inefficient. Our findings, particularly on establishment growth and exit, support this argument. Nonetheless, not all our results are consistent with the premise of empire-building. First, our results do not suggest that poorly governed firms are associated with higher levels of acquisition-based growth. Second, poorly governed firms are also associated with higher levels of selling and closing establishments. This seems contrary to that managers are interested in “pure” empire-building when faced with limited threats of takeovers.

Our findings are also somewhat different from those of Bertrand & Mullainathan (2003) who find that increases in anti-takeover protections provide managers with an opportunity to enjoy the quiet life alluded to by Hicks (1935). Our data, albeit in a slightly different context, reveal that managers in poorly governed firms are perhaps as active as their counterparts in well-governed firms in acquiring and starting new establishments, and they are certainly more active in closing and selling establishments. Thus, their lower growth is conceivably not because of their lack of effort, but likely in spite of their higher levels of activity.

Before we turn to the limitations of this study, it is important to reiterate that some of our results should be primarily interpreted as to how well-governed firms differ from poorly governed firms, rather than as the causal effects of good governance. Even though our specifications include fine-grained, high-dimensional fixed effects and several time-varying firm-level correlates of firm growth, the use of pooled OLS specifications means that it is still possible that the indices of governance are correlated with a firm-level unobserved variable that is also correlated with growth. Nonetheless, our analysis of acquired establishments

\[ \text{Specifically, they used this conjecture to reconcile the findings of higher acquisition activity and lower sales growth among such firms.} \]
provides some confidence in the direction of causality. In particular, it does not appear that poorly governed firms buy slower-growing establishments. Thus, this implicit difference-in-difference analysis strongly suggests that the observed decline in growth rate among establishments acquired by poorly governed firms occurs after the acquisition and is thus likely caused by the poor firm governance.

Beyond the cautionary note on causality, our study has some limitations that deserve mention. First, profit growth, rather than employment growth, is the immediate determinant of firm value. Since we did not have data on profitability, assets, or revenues of individual establishments, we used employment growth. Even though employment growth is correlated with firm value and growth in other variables such as profits, revenues, and assets, (e.g., in many theoretical models of firm value such as Jovanovic (1982) and Hopenhayn (1992), profitability is a direct function of firm employment or size), there could be within-industry differences in the choice of capital-labor ratios that add noise to these correlations. If these differences are systematically correlated with governance, then our results on the employment growth-governance association cannot be extended to the profit growth-governance relationship. Second, our data do not include any data on global operations of these firms. Thus, there could be differences in the mix of foreign and domestic growth that are not examined in our study.

These limitations also suggest potential extensions. Assessing how these individual components of growth are associated with other measures of governance would be an interesting study. More broadly, relating the composition of growth to other firm characteristics beyond governance is also likely to yield potentially useful insights. Another potential direction of study is to examine the human capital aspects of firm growth. In

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15 Note that the use of industry-year fixed effects addresses any potential concerns with industry-wide changes in capital-labor ratios.

16 As a limited robustness check, we regressed the log of market value on firm employment growth and the governance indices along with other controls from Table 4. The coefficient on employment growth was always strongly positive suggesting that employment growth is correlated with firm value in our sample even after controlling for governance.
particular, data on employee characteristics (e.g., age, experience, skills, etc.) for employees at the various establishments may be valuable in analyzing the underpinnings of firm growth.

To conclude, the link between firm growth and governance has largely been a black box. This study is a first step to opening that box.
REFERENCES


