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CSEF - Centre for Studies in Economics and Finance
DEPARTMENT OF ECONOMICS AND STATISTICS – UNIVERSITY OF NAPLES FEDERICO II
80126 NAPLES - ITALY
Tel. and fax +39 081 675372 – e-mail: csef@unina.it
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Jan Bena*, Andrew Ellul†, Marco Pagano‡, and Valentina Rutigliano§

Abstract

Entrepreneurs with more diversified portfolios of private firms provide more insurance against labor income risk: in a sample of over 524,000 Canadian firms and 858,000 owners, firms owned by such entrepreneurs offer more stable jobs and earnings to employees. In firms whose owners' portfolios are one standard deviation more diversified, the passthrough rates of foreign sales shocks to layoffs and labor earnings are 13% and 41% lower, respectively. These entrepreneurs reduce their own compensation and increase firm leverage to fund labor income insurance. Enhanced insurance is associated with better retention of valuable human capital and fewer costly terminations, potentially improving firm performance.

JEL Classification: G32, J30, J63, L20.

Keywords: labor income risk; portfolio diversification; firm shocks.

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* Sauder School of Business, University of British Columbia. Email: jan.bena@sauder.ubc.ca.

† Kelley School of Business, Indiana University, CSEF, CEPR and ECGI. Email: anellul@iu.edu

‡ University of Naples Federico II, CSEF, EIEF, CEPR and ECGI. Email: pagano56@gmail.com

§ Sauder School of Business, University of British Columbia. Email: Valentina.Rutigliano@sauder.ubc.ca

1 Introduction

Labor income risk stems from the potential loss of employment or wage fluctuations that can affect workers' earnings. This type of risk is significant because most individuals rely on employment as their primary source of income. Due to frictions in labor markets, the consequences of dismissals may extend far beyond the temporary income loss experienced during unemployment spells: displaced workers often suffer persistent scarring effects, in the form of permanent earnings losses, and physical and mental health harm.[1] Labor market frictions also make it time-consuming and costly for workers to change jobs in the wake of a salary cut, which results in firms having significant latitude in setting their employees' wages.[2] Hence, in the presence of labor market frictions, firms can play a crucial role in providing implicit insurance to their employees (Azariadis, 1975; Baily, 1974) by absorbing shocks that hit them rather than passing them to employees via wage cuts or dismissals (Guiso et al., 2005; Ellul et al., 2018).

This paper is the first to examine whether entrepreneurs' risk-bearing capacity, resulting from their portfolio diversification, contributes to providing labor income insurance in closely held firms. An entrepreneur's ability to insulate employees from adverse shocks should primarily depend on the extent to which the entrepreneur's own income is exposed to these shocks, and therefore on the diversification of her equity stakes. In other words, risk sharing between workers and entrepreneurs should depend on entrepreneurs' portfolio diversification. For example, a negative shock to one of the entrepreneur's firms may be less likely to translate into layoffs and wage cuts in this firm if other firms owned by the

[1] Even upon re-joining the workforce, the unemployed frequently experience substantial, long-term earnings losses due to skill depreciation (Edin and Gustavsson, 2008), the loss of firm-specific human capital (Jacobson, LaLonde and Sullivan, 1993), and signaling-induced reputational damages (Gibbons and Katz, 1991). Unemployment is associated with a deterioration in physical and mental health conditions and increased mortality risk (Paul et al., 2018; Reeves et al., 2012; Roelfs et al., 2011). The harmful effects of job loss also extend to the households of displaced workers, whose families are more likely to experience financial hardship and divorce (McKee-Ryan and Maitoza, 2018). Youths are particularly vulnerable as parental job loss reduces children's educational attainments (Kalil and Wightman, 2011).

[2] A vast literature in labor economics by now recognizes that employers often have substantial monopsony power over their workers' salaries, and has proposed methods to estimate its magnitude (see, for instance, the surveys by Azar and Marinescu (2024), Card (2022), and Manning (2011)).

same entrepreneur are unaffected by the shock or are affected by the shock in the opposite way. Prior work provides no empirical evidence on the role of entrepreneurs' diversification in their firms' provision of such insurance.

The setting of closely held firms is highly relevant to studying this question. First, entrepreneurs typically hold most of their wealth as equity in their firms; their wealth tends to be highly concentrated, often in a single private company (Moskowitz and Vissing-Jørgensen, 2002). Entrepreneurs' frequent lack of diversification may thus limit the extent to which they can insulate their employees from firm shocks. Second, the vast majority of private sector employees works for closely held firms, most of which are small and medium-size enterprises (SMEs).[3] Entrepreneurs' diversification may thus be a crucial driver of labor income insurance provision for most employees.

We base our analysis on a sample of 524,000 Canadian private firms, their employees, and their 858,000 individual shareholders, drawn from the administrative Canadian Employer-Employee Dynamics Database (CEEDD). This dataset enables us to identify which firms are owned by the same shareholder, trace the income flowing from firms to each shareholder, and map the latter's equity stakes. Our sample consists of a firm-shareholder panel of 3.7 million observations with an average of 301,000 firms and 456,000 shareholders per year, and a firm-shareholder-employee panel of 26 million observations with an average of 1.8 million employees per year.

To develop our key measure of a business owner's capacity to provide labor income insurance—via her ability to absorb risk through portfolio diversification—we link CEEDD data to firm-level export records and construct firm-specific exchange rate shocks based on the firm's prior export sales distribution by country, following the approach of Bertrand (2004) and Caggese et al. (2019). Canadian firms in our sample export to 246 countries,

[3]SMEs, defined as firms with fewer than 500 employees, comprised 89.6% of the Canadian labor force in 2017 and accounted for 85.3% of net employment growth in the years 2013-2017 (Innovation, Science, and Economic Development Canada, 2019). In the European Union (EU), 67% of all workers were employed in firms with less than 250 employees in 2017 (Eurostat, 2020). In the United States (US), 47.1% of the private workforce was employed in firms with fewer than 500 employees in 2017 (U.S. Small Business Administration, 2020).

with the U.S. being the largest market and the euro area being the second largest. We define the risk absorption capacity that each owner can provide to the employees of a firm in which she invests as the extent to which her portfolio is insulated from the exchange rate shocks hitting the firm's sales. Specifically, for any entrepreneur j owning a stake in a given firm i, we measure j's risk absorption capacity as the difference between the variance of exchange-rate-driven sales shocks of firm i and the variance of the same shocks hitting all the companies present in owner j's portfolio. The former variance measures the exchange rate risk exposure of the employees of firm i, absent any risk sharing with the firm's owners, while the latter measures entrepreneur j's exchange rate risk exposure. This difference in exposure will be positive if, beside a significant stake in firm i, entrepreneur j owns stakes in other firms unaffected by exchange rate risk (e.g., non-exporters) or not exposed to exchange rate shocks hitting firm i (e.g., exporters to other countries), so that she has a lower exposure to exchange rate shocks than a single-firm owner. The difference between the two variances will instead be zero if j entirely owns firm i and has no stake in other firms: in this case, entrepreneur j cannot absorb exchange rate shocks affecting firm i, and will thus be forced to pass these shocks to the firm's employees. Hence, the difference between the two variances measures potential risk sharing between the employees of firm i and entrepreneur j.

To gain intuition about this measure, consider a shareholder owning two firms exporting to two different countries. As long as the exchange rates between these two countries' currencies and the Canadian dollar are not perfectly correlated, the return to the owner's portfolio will fluctuate less in response to exchange rate shocks than the returns to each of the two individual firms. Likewise, the portfolio of the owner of an exporting firm and a non-exporting one will be less sensitive to exchange rate shocks than the exporting firm is. This example also underscores that, while the portfolio of such an owner can absorb the exporting firm's risk, it may (at least partly) offload such risk to the non-exporting firm. Diversification places firm owners in a position to intermediate risk across firms with different exposures, much like insurance brokers do.

In principle, firms may use financial (or operational) instruments to hedge against

currency risk. Hence, we start our analysis by investigating the impact of currency shocks on sales growth and profitability. Our evidence shows that the firms in our sample do not (fully) hedge the effects of currency shocks on their sales and profitability. This is consistent with prior research showing that small and private firms, which predominate in our sample, face significant frictions in hedging currency risk due to the implied costs and restricted access to derivative markets (Hau et al., 2023), making currency risk hedging largely the domain of large, publicly listed firms (Allayannis and Ofek, 2001; Alfaro et al., 2023; Bartram et al., 2009).

Our key finding is that shareholders deploy the risk-bearing capacity that diversification confers to them: employees' jobs and earnings are significantly more stable in firms whose owners can absorb their risk. We estimate the extent to which exchange rate shocks affecting firm sales are passed to their employees, and test whether firms owned by more diversified shareholders provide more insurance to their employees. The effect of diversification is economically and statistically significant. We find that a one-standard-deviation increase in an owner's risk-bearing capacity is associated with a 13% reduction in the shocks' pass-through rate to layoffs. This result is qualitatively unchanged upon controlling for firm and owner characteristics, and including firm, industry-by-year, province-year, and owner-level fixed effects. This indicates that the result cannot be explained by, for example, owners' preferences, risk aversion or skills. More diversified entrepreneurs may also have better access to financial markets or deeper pockets, characteristics that could also support labor income insurance. We rule out both possibilities by controlling for owners' leverage and owner wealth (both income and assets).

To further test the robustness of these results, we repeat the estimation on various sub-samples. First, we focus on negative exchange rate shocks, which occur when the Canadian dollar appreciates, leading to lower competitiveness of firms' exports. In these cases, the firm can be expected to respond by increasing layoffs or cutting wages. While these shocks strongly impact layoffs, their impact is substantially lower in firms owned by diversified shareholders, consistent with the hypothesis that owners' diversification enhances job stability in their portfolio firms. Next, we restrict the sample to cases in which

an owner's portfolio can provide risk absorption capacity to a firm exposed to exchange rate shocks, a situation that we refer to as "low-exposure portfolios". This reduction in exposure arises from low correlation between the returns to the stakes held in different exporting firms, or from the presence of stakes in non-exporting firms in the owner's portfolio. Finally, since a shareholder with a significant equity stake in a firm can be expected to exert greater influence on the firm's policies, we focus on the subsample of shareholders owning at least one-third of the firm's equity. Naturally, large shareholders tend to be less diversified than other shareholders investing in the same firms, so that focusing on them considerably reduces the variation in diversification. These two forces appear to offset each other in the estimation, as in this subsample the results are similar to those obtained in the entire sample.

Turning to wage insurance, we find that the effect of owner diversification on the pass-through rate for worker-level wages is even larger than for layoffs: shareholders whose portfolios are one-standard-deviation more diversified than the average one provide 41% more wage insurance to their employees. Also this result is robust to controlling for worker, firm, and owner characteristics and to the inclusion of worker, firm, industry-year, province-year, and owner fixed effects. The results are similar for the subsample of large shareholders owning at least one-third of the firm's shares and for the subsample of owners with "low-exposure" portfolios. Estimating our regressions for negative shocks only, we find that the pass-through rate of the shock is not significantly different from zero, implying that in firms whose owners feature average diversification, wages are fully insulated from adverse shocks.

We then investigate several reasons that could explain why diversified owners provide insurance to employees. First, insurance against labor income shocks might be priced in the form of lower average wages. Second, employees might resign to seek employment elsewhere if they expect to be dismissed or to suffer a pay cut when their firm suffers an adverse shock. Providing insurance may improve employee retention, reducing costly turnover. Third, terminations are costly: in Canada, workers are generally entitled to receive notice and severance pay. Age, tenure, job type, and availability of alternative employment are factors

that are generally considered to establish what constitutes reasonable notice and severance. While we do not find evidence that insurance is priced into wages, we find support for the second and third mechanisms: turnover is lower and high-skill workers are less likely to quit in firms owned by diversified shareholders, and long-standing employees receive more employment insurance, consistent with these employees being harder to replace and costlier to fire. We then investigate the different mechanisms through which diversified owners provide labor income insurance. To provide insurance, owners must either have enough internal financial resources or access to finance. We find that more diversified owners accept a cut in their compensation (yearly earnings received by the shareholder for work in the firm) and increase firm leverage more than less diversified owners, suggesting that the conservation of the firm's short-term financial resources and their ability to borrow are instrumental to provide insurance to their workers. Finally, we find that the entrepreneur's risk absorption capacity is positively correlated with the respective firm's profitability, consistent with the idea that the benefits from the provision of labor insurance are, at the very least, not outweighed by its costs, and could therefore be valued by shareholders.

Our work contributes to three strands of literature. The first is the recent empirical literature on risk sharing within the firm (see Pagano (2020) for a survey). Previous research has focused on possible factors explaining firm heterogeneity in the provision of such risk sharing: for instance, Ellul, Pagano and Schivardi (2018) find that family firms provide more job stability in countries and periods in which public employment insurance is less generous, whereas no such substitutability is present for non-family firms; Ellul and Pagano (2019) document that, in choosing their leverage and the resulting exposure of their employees to distress and bankruptcy risk, firms take into account the extent to which employees are protected by seniority rights in bankruptcy. We contribute to this research by showing that shareholder diversification is a key determinant of a firm's ability to provide labor insurance that has been overlooked by previous research. We also innovate at the methodological level, by constructing a firm-specific, time-varying measure of exposure to exchange rate shocks, whereas past work has generally resorted to

macroeconomic or industry-level variables to instrument firm-level shocks.[4]

The second strand of literature we contribute to is that on internal capital markets (see Almeida et al., 2015, for a review) and internal labor markets (Cestone et al., 2017; Faccio and O'Brien, 2021; Giroud and Mueller, 2015; Tate and Yang, 2015) in business groups and conglomerates. This literature finds that business groups and diversified firms feature more employment stability than standalone ones in response to adverse shocks, a result that is interpreted as evidence that firms exploit their internal markets to reallocate employees efficiently. Compared to this literature, we explore a novel mechanism – owners' diversification – that operates across firms with a common owner. These network effects need not operate via internal capital or labor markets of business groups, with funds or workers being reshuffled as uncorrelated shocks hit the group's firms: the firms that we study need not be part of a single corporate entity such as a business group, being solely connected by common ownership. Hence, insurance provision by an individual shareholder need not imply either capital or labor flows across the firms concerned, and may go undetected if measured by these flows.

Finally, our paper complements previous work on the transmission of shocks in the economy. The literature has extensively studied financial contagion (e.g., Acemoglu, Ozdaglar and Tahbaz-Salehi, 2015; Gilje, Loutskina and Strahan, 2016) and intersectoral input–output linkages (e.g., Acemoglu et al., 2012; Caliendo et al., 2018), but the propagation of shocks through networks of firms with common ownership has been largely overlooked. Two exceptions are Giroud and Mueller (2019), who find that establishment-level employment is sensitive to shocks in other regions in which the firm operates, and Bena, Dinc and Erel (2022), who find that multinational companies transmit macroeconomic shocks to subsidiaries located in different countries. Both studies focus on large, listed multi-regional or multinational firms, where cross-ownership arises from the presence of large institutional investors; in contrast, in closely held firms, cross-ownership mainly

[4]Examples of shocks used in the literature include negative GDP growth (Faccio and O'Brien, 2021; Bena, Dinc and Erel , 2022), the introduction of new airline routes (Giroud and Mueller, 2015), or shocks to house prices (Giroud and Mueller, 2019).

arises from the portfolio choices of individual and family shareholders, who hold large stakes and are relatively undiversified. Thus, in these firms, differences in owners' diversification are likely a key driver of variation in the provision of insurance against labor income risk.

2 Empirical Methodology

This section outlines our empirical methodology. Section 2.1 describes how we construct firm-level export sales shocks triggered by exchange rate changes, and Section 2.2 presents our measure of the risk-bearing capacity that firm owners have to insure their employees against export shocks. Next, Section 2.3 presents the specification of the panel regressions that we estimate to test whether owners' risk-bearing capacity translates into actual insurance provision to workers against layoff risk and wage fluctuations arising from export sales shocks.

2.1 Measuring Firm-level Export Shocks

We construct our measure of exogenous shocks based on fluctuations in firms' exports driven by exchange rate movements and impacting firms differently depending on the share of exports going to a specific country over total exports. We focus on the impact of foreign exchange shocks on firm sales because it is a single, precisely measurable source of exogenous risk that is relevant for many firms and to which firms may have different exposure. Our methodology is close to that used by Bertrand (2004) and Caggese et al. (2019). We define our shock Δe_{it} as the change in the average exchange rate faced by firm i's in its export markets between year $t-1$ and t. Formally,

$$\Delta e_{it} = \sum_{c} s_{ict} \Delta E_{ct}, \tag{1}$$

where subscripts i, c, and t denote firm, country, and year, respectively. We construct the exchange rate index e_{it} as firm i's export-weighted average of the logs of real exchange rates E_{ct} vis-à-vis destination countries. Real exchange rates are defined as nominal exchange

rates (Canadian dollars per unit of foreign currency) multiplied by the foreign country's consumer price index and divided by the domestic consumer price index. The weights $s_{ic\tau}$ are the lagged shares of firm i's exports to country c over its total exports: to avoid endogeneity of export shocks, the weights s_{ict} are averages of export shares in years $t-1$ and $t-2$.[5] An increase in E_{ct} represents an appreciation (in real terms) of country c's currency vis-à-vis the Canadian dollar, which makes Canadian goods cheaper to purchase for foreign buyers. Therefore, a positive Δe_{it} amounts to a positive shock for exporters; conversely, a negative Δe_{it} is a negative shock. Consider for instance Canadian companies exporting to the US: during our sample period the exchange rate between Canada and the US rose from below parity in 2011 to 1.3 in 2016 — a 30% depreciation that greatly increased the competitiveness of these exporters. At the same time, the Canadian dollar appreciated against other currencies of destination countries. For example, between 2014 and 2015 alone, the Canadian dollar depreciated by almost 16% against the US dollar, while it appreciated by more than 3% against the euro, reducing the competitiveness of Canadian firms exporting to the euro area.

These changes in exchange rates constitute exogenous shocks to the export sales of Canadian firms, as they are price takers in the foreign exchange market, with the Canadian dollar being the sixth most traded currency in the world. Moreover, upon being hit by such competitiveness shocks, Canadian exporters are arguably unable to readily redirect their exports across destination countries, as entering new export markets entails significant time and monetary costs (Baldwin and Krugman, 1989; Das, Roberts and Tybout, 2007). We focus on exports, rather than imports, for two reasons. First, imported goods may be final goods purchased by domestic consumers or firms' production inputs: while changes in the first can be regarded as exogenous shocks to domestic firms' sales, the second are endogenous to firms' production choices. We cannot distinguish between the two, as no data are available on the use firms make of imported goods. Since our risk-bearing

[5]While firms' export shares are quite stable over time, averaging them over the previous two years further dampens the impact of transitory year-to-year variations in firms' export shares.

capacity measure relies on sales shocks to the owner's portfolio, we only focus on export shocks that can affect sales. A second reason to neglect import shocks is that foreign inputs may substitute for labor in production (Hummels et al., 2014). When the Canadian dollar depreciates, making imports more expensive for Canadian firms, these may be able to substitute away from them by employing additional labor. Thus, a negative import shock could be good news for workers, leading to wage increases and fewer layoffs. This is especially relevant in our context because Canada is a top importer of machinery (which is a good labor substitute) and a top exporter of raw materials such as oil, gas, wood, and ores (which are poor labor substitutes). Hence, an additional reason to focus on exports is that their effect on labor demand is unambiguous.[6]

2.2 Measuring Owners' Risk-Bearing Capacity

Our data enable us to measure not only the exposure of private firms to foreign exchange rate risk, but also the exposure of entrepreneurs' equity portfolios to this risk, as Form T2S50 of the CEEDD reports all the individual equity investments in Canadian-controlled firms above a 10% equity ownership threshold (although it does not contain data about their securities and cash positions). Leveraging these data, we construct a measure of the risk absorption capacity that the owner of a firm can offer to its employees by comparing the owner's exposure to foreign exchange risk with that of the firm.

First, we define sales shocks for firm i in year t, denoted by η^f_{it}, as the product of the export shock Δe_{it} from (1), and the firm's lagged sales, S_{it-1}:

$$\eta^f_{it} = \Delta e_{it}\, S_{it-1}, \tag{2}$$

where the superscript f is a mnemonic for "firm". Next, we define owner j's exposure to exchange rate fluctuations by the exposure of her portfolio of private equity stakes to these shocks, as measured by the stake-weighted average of the export shocks Δe_{it} for any firm

[6] In any event, our results are robust to controlling for import shocks: see Tables A2 and A2.

i present in owner j's portfolio in year t:

$$\eta^p_{jt} = \sum_i \omega_{ijt}\, \eta_{it}, \tag{3}$$

where the superscript p is a mnemonic for "portfolio" and the weight ω_{ijt} is the fractional value of the stake in firm i present in owner i's portfolio in year t.

Finally, we compute the variance of firm i's sales shocks and the variance of owner j's portfolio sales shocks over years $t-4$ through t, and define owner j's capacity to bear the foreign exchange risk to which firm i is exposed as the difference between the variance of firm i's shocks η^f_{it} and the variance of owner j's portfolio shocks η^p_{jt} in year t:

$$RBC_{ijt} = \mathrm{Var}(\eta^f_{it}) - \mathrm{Var}(\eta^p_{jt}), \tag{4}$$

where RBC is a mnemonic for "risk-bearing capacity". This measure captures the difference between the foreign exchange risk exposure of firm i's employees (when unmitigated by any labor income insurance) and the exposure of owner j's portfolio to the same risk. A positive value of RBC_{ijt} indicates that j's portfolio can mitigate the effect of an export shock to the employees of firm i, making their employment and/or wages more stable than they would otherwise be. This can occur if owner j's portfolio includes stakes in firms that export to countries whose exchange rate changes vis-à-vis the Canadian dollar have low or negative correlation, or stakes in non-exporting firms, which are unaffected by exchange rate fluctuations. In other words, owner i's portfolio can provide insurance to firm j's employees if it is diversified vis-à-vis foreign exchange risk. Conversely, RBC_{ijt} is zero if firm i is entirely owned by an entrepreneur j who owns no stakes in other companies, and therefore has a completely undiversified portfolio. In this case, owner j cannot provide insurance to the employees of firm i. Finally, a negative difference indicates that j's portfolio is more exposed to foreign exchange risk than firm i. In this case, owner j is not only unable to provide insurance to firm i's employees, but would – if possible – wish to unload exchange rate risk onto them, by transferring shocks from other firms present in

her portfolio to firm i.

Importantly, in our setting, risk absorption capacity is defined at the firm-owner level, capturing the firm's exposure to exchange-rate risk relative to that of its owner's portfolio. This is particularly clear when the portfolio is composed of a single exporting firm and a single non-exporting one: shareholdings in the non-exporter enable the owner to mitigate exchange rate shocks to the employees of the exporting firm; however, from the standpoint of employees of the non-exporting firm, the owner's shareholdings in the exporting firm may increase their exposure to exchange rate risk.

By construction, the RBC_{ijt} measure is increasing in the size of the relevant firm: a greater value of firm i's lagged sales S_{it-1} raises the variance of firm i's sales shocks (2) more than the variance of the sales shocks hitting owner j's portfolio (3), unless this portfolio only includes firm i's equity, in which case $RBC_{ijt} = 0$ anyway. Such scale sensitivity of our risk-bearing capacity measure is desirable: a larger firm typically employs more workers, hence the risk exposure of its workforce to foreign exchange shocks is greater than that of smaller firms. In other words, the measure is an increasing function of the risk to be borne. However, the measure does not take into account that the risk-bearing capacity that owner j can provide to the employees of firm i also depends on the scale of owner j's portfolio relative to the size of the firm: if owners' risk-aversion is decreasing in their wealth and if the overall value of their equity portfolio is increasing in their wealth level, one would expect an owner with a larger equity portfolio to offer more insurance to workers than one with a smaller portfolio. As our metric neglects this possible determinant of risk-bearing capacity, in our regressions we shall also control for the total size of owners' equity portfolios, as a proxy of their wealth level.

It is worth comparing the measure of risk-bearing capacity (4) with potentially alternative measures. In asset pricing, an asset's contribution to the risk borne by an investor is typically measured by its covariance with the investor's portfolio, which in our context could be captured by the beta of firm i's sales shocks with owner j's portfolio sales shocks or by the correlation between them. However, such measures of covariance risk do not adequately capture the contribution of a stake in firm i to owner j's portfolio risk in our

context, where portfolios are typically composed of a few large stakes in private firms and thus are significantly exposed to these firms' idiosyncratic risk. While for a highly diversified portfolio of equity stakes in public firms the risk contribution of any of the (small) component stakes is accurately measured by its beta with the portfolio, for a relatively undiversified portfolio formed by large stakes in a few private firms the contribution of each stake is dominated by the idiosyncratic risk that it adds to the portfolio. Moreover, the correlation is not even defined when firm i is a non-exporter and one or more of the firms in the portfolio are exporters, because $\text{Var}(\eta_{it}^f) = 0$; in contrast, the variance difference RBC_{ijt} captures the diversification opportunity that non-exporting firms in owner j's portfolio provide for export shocks affecting firm i.

Our risk-bearing capacity metric also dominates traditional diversification measures used in previous studies on business groups, such as the count of commonly owned firms or concentration indices like the Herfindahl-Hirschman Index. These conventional measures are typically based on industry classifications defined by statistical agencies, such as 2- or 3-digit SIC codes. This approach has several drawbacks (Iacobucci and Rosa, 2005), as it (i) assumes a constant distance between any two pairs of industry codes in terms of diversity, or any relevant metric that increases diversification, such as return covariance; (ii) ignores vertical relatedness between industries (Fan and Lang, 2000); (iii) abstracts from diversification "within" industry groups, i.e., the extent of a firm's activities in different market segments within the same product category—product differentiation and/or market segmentation strategies (Hitt, Hoskisson and Kim, 1997); and (iv) neglects geographical diversification (Davies, Rondi and Sembenelli, 2001).

2.3 Regression Specifications

We begin our analysis by assessing the baseline impact of the export shock on firm outcomes, focusing on sales growth and profitability. This validation exercise aims to check that firms in our sample do not insulate themselves from currency shocks through operational hedging (e.g., importing inputs from the same country they export to) or financial

hedging (e.g., using instruments provided by banks or derivatives markets).

We estimate the following firm-level regression:

$$y_{ijt} = \beta_1 \, \Delta e_{it} + X'_{it-1} \, \gamma_1 + Z'_{jt-1} \, \gamma_2 + \mu_i + \mu_j + \mu_{mt} + \mu_{pt} + \varepsilon_{ijt}, \tag{5}$$

where i, j, and t index firms, owners, and years, respectively. The dependent variable y_{it} denotes the logarithm of sales growth and profitability. The explanatory variable of interest, Δe_{it}, is the firm's export shock (1). X_{it-1} and Z_{jt-1} are vectors of lagged firm-level and owner-level time-varying control variables, respectively. μ_i are firm fixed effects, capturing unobserved heterogeneity in firm sales growth and profitability; μ_j are owner fixed effects, which control for time-invariant owner characteristics such as gender and risk aversion, as well as corporate policies that are common to firm i and other firms in owner j's portfolio; μ_{pt} denote province-year fixed effects meant to capture province-specific business cycle or impacts of changes in regulatory framework in each province; μ_{mt} are industry-by-year fixed effects that capture industry-specific cycles. ε_{ijt} is the error term, clustered at the owner level.

After validating the export shock, we test the hypothesis that an owner's portfolio diversification affects the corresponding firm's propensity to provide insurance against layoffs. We estimate the following firm-level employment regression:

$$\begin{aligned} \Delta \frac{n_{ijt}^{Layoff}}{n_{ijt}} = \beta_1 \, \Delta e_{it} + \beta_2 \, \Delta e_{it} \, RBC_{ijt} + \beta_3 \, RBC_{ijt} + X'_{it-1} \, \gamma_1 + Z'_{jt-1} \, \gamma_2 + \\ + \mu_i + \mu_j + \mu_{mt} + \mu_{pt} + \varepsilon_{ijt}. \end{aligned} \tag{6}$$

The dependent variable is the change in the ratio of firm-initiated separations to total employment of firm i between years $t-1$ and t. As explained in Section 3, layoffs are measured using the Record of Employment (ROE) filings: an employer-employee relationship termination is labeled as "firm-initiated" when the firm reported Code A (Shortage of Work) as the reason for the separation. RBC_{ijt} is owner j's risk-bearing capacity, as determined by her portfolio diversification relative to firm i's foreign exchange risk, as

defined by (4). To facilitate the interpretation of the coefficients, in estimating this specification and subsequent ones, RBC_{ijt} is standardized to have zero mean and unit standard deviation. All other variables are the same as in equation (5). We use firm fixed effects and industry-by-year fixed effects in all specifications and, in some specifications, we also include province-by year and owner fixed effects. Since we include firm fixed effects in a specification whose dependent variable is the first difference of layoffs, they absorb all firm-specific characteristics that affect firm-specific trends in layoffs.

We cluster the error term ε_{ijt} at the owner level. Coefficient β_1 estimates the pass-through rate of the export shock affecting firm i on its layoff dismissals, and β_2 is the differential pass-through rate depending on owner j's risk-bearing capacity. $\beta_2 > 0$ implies that the owner's risk-bearing capacity reduces the effect of the export shock on layoffs.

Next, we test whether owners' risk-bearing capacity affects a firm's propensity to provide insurance against wage risk, by estimating the following employee-level wage regression:

$$\begin{aligned}\Delta w_{lijt} = \beta_1\, \Delta e_{it} + \beta_2\, \Delta e_{it}\, RBC_{ijt} + \beta_3\, RBC_{ijt} + X'_{it-1}\, \gamma_1 + Z'_{jt-1}\, \gamma_2 + V'_{lt-1}\, \gamma_3 + \\ + \mu_i + \mu_l + \mu_{mt} + \mu_{pt} + \varepsilon_{lijt},\end{aligned} \tag{7}$$

where the dependent variable is the change in the log of real earnings of employee l in firm i between year $t-1$ and t. We require employees to be employed for the entire year in firm i without earnings interruptions in both $t-1$ and t. V'_{lt-1} is a vector of time-varying worker characteristics; μ_l denotes employee fixed effects; and ε_{lijt} is the stochastic component of earnings, clustered at the owner level. $\beta_2 < 0$ indicates that diversified owners reduce wages less than their undiversified counterparts in response to a negative export shock.

A skeptical reader might argue that endogeneity could arise due to omitted variables correlated with employment policies and shareholders' decisions to diversify their portfolio holdings across firms. We address this concern in several ways. First, we note that the ownership structure of the private firms in our sample is relatively stable (see Table 1 below). Secondary markets for private company stocks are relatively illiquid; in addition,

in multi-owner firms, restrictions and conditions on share transfers are common. Therefore, while we recognize that firm ownership is endogenous, in our context, it is mostly a pre-determined decision as owners seldom adjust their portfolio holdings in response to idiosyncratic shocks.

Second, we include owner fixed effects, so that our estimates only exploit within-owner variation, eliminating the concern that owner's time-invariant characteristics, such as her risk preferences, might drive our results. We can do so because our sample is constructed at the firm-shareholder level; therefore, we accurately measure variation driven by portfolio shocks for each shareholder over time. Notice that, even though owners' portfolios are quite stable over time, our risk-bearing measure (4) varies over time also in response to changes in the variances of the shocks (2) and (3).

Finally, we control for characteristics of owners' financial portfolio that may affect their insurance provision. Since, as already mentioned in Section 2.2, owners with greater wealth may be more willing to shield employees from shocks. Accordingly, we control for wealth using two proxies - income earned in the past 10 years and total assets owned in all firms. Similarly, owners' access to credit may also affect their ability to provide insurance to workers, other things equal. Hence, we also control for pre-existing owners' leverage, measured as the share of debts to assets owned in all firms, to account for the potential effect of borrowing capacity on risk sharing.

3 Data

In what follows, we present our data sources (Subsection 3.1) and describe the sample to be used in our estimates (Subsection 3.2).

3.1 Sources

The primary data source for this study is the Canadian Employer-Employee Dynamics Dataset (CEEDD), an administrative dataset compiled from tax records by Statistics Canada. CEEDD contains the annual labor income each worker receives from each em-

ployer. It also reports the reason for employer-employee separations, allowing precise identification of layoffs. This information comes from the Record of Employment (ROE), a document that employers must submit every time an employee experiences an interruption in earnings, and is used to calculate unemployment benefits. At the individual level, CEEDD provides information on worker characteristics such as age, gender, and marital status; at the firm level, it contains financial data, location, and industry classification.

We link CEEDD with T2 Schedule 50 (T2S50), a tax form containing information on firm ownership structure. Private firms are required to disclose the identity of all owners with a stake of 10% or more of common or preferred shares. We use this information to precisely measure the currency risk exposure of individual shareholders' equity portfolios. The availability of ownership data in an employer-employee matched dataset is a unique feature of CEEDD, which allows us to overcome a common measurement issue in the literature, where owners are typically proxied by top earners.

From 2010 onwards, CEEDD can be linked to detailed export data, reported at the firm-country-product-year level. We use these data to construct predetermined levels of firms' export sales to different countries to measure the firms' exposure to other currencies. We then combine the exposures of individual exporting firms to bilateral exchange rates with exchange rate fluctuations that induce random variation in exporter-level terms of trade.

Canadian firms export to almost all countries worldwide, generating considerable heterogeneity in their foreign currency price exposure. Canada's goods exports to GDP ratios ranged between 29% and 32% during our sample years (2010-17), suggesting that exchange rate movements were a major source of risk for many firms in the economy, though not for all of them. The availability of detailed data at the firm-product-country-year level allows us to capture firms' heterogeneity in exposure to exchange rate shocks.

3.2 Sample Description

Our sample includes the universe of Canadian-controlled for-profit private corporations, for all the firm-years for which at least one individual owner holds a direct stake or an indirect one, i.e., a stake held via other firms. We exclude sole proprietorships, other unincorporated businesses, and corporations that operate in utilities, educational services, healthcare, social assistance, and public administration. In Canada, these sectors are mostly publicly funded, and thus their employment and wage policies might be set according to social preferences rather than market forces. In addition, we require that firms appear in the sample for at least two years.

CEEDD contains no information on hours or weeks worked by employees. To minimize the effect of variation in hours worked and remove employees not strongly attached to the labor market (Song et al., 2019), we assign an employee to a firm only if the annual labor income received by the employee from that firm exceeds a threshold of one quarter (13 weeks) of full-time work at the lowest minimum wage across all provinces in that year.[7] We restrict our sample to firms with at least three employees who are not owners in one or more years.

Table 2 presents summary statistics for our sample, covering years from 2010 to 2017. Panel A tabulates firm characteristics for our panel of 3.6 million firm-shareholder-year observations with non-missing values of required variables. Since our measure of risk absorption capacity is defined at the firm-shareholder-year level (as will be explained in Section 2.2), we report firm descriptive statistics at this level of aggregation. Constructing our sample at the firm-shareholder level has the important advantage of allowing us to include shareholder fixed effects in our specifications, mitigating potential endogeneity

[7]For example, in 2014, the Northwestern Territories had the lowest minimum wage across all provinces at 10 CAD/hour. Since a week of full-time work has 30 hours, the threshold is $10\times30\times13$=3,900. An individual who in 2014 earned more than 3,900 CAD in a firm is considered an employee of that firm. In Table A5 we check that the results are robust to alternative definitions of employment relationships: first, we only exclude employees who earn below the threshold across all employers in a given year; second, we exclude workers whom we identify as seasonal. One might conjecture that temporary workers are the first to be laid off when a negative shock hits the firm, while "core" employees receive insurance. We show that the results are unchanged when those workers are not included in the sample.

concerns.[8] The average firm in our sample is 18 years old, has $2.03 million worth of total assets, generates $3.04 million in sales per year, and has 2.4 owners. On average, it employs 24 workers, 14% of whom are laid off yearly. The median firm is considerably smaller than the average firm in terms of assets ($0.55 million), sales ($0.94 million), and employment (7 employees). The layoff rate is also highly skewed: the median layoff rate is zero, but there are cases of massive layoffs, as shown by the 90^{th} percentile of the layoff rate being 53%.

Panel B presents descriptive statistics of worker characteristics for our sample of 27.2 million observations at the worker-firm-owner level. As in the previous panel, we choose this level of aggregation to reflect our measure of risk-bearing capacity, which is at the firm-shareholder level. The average worker is 44 years old, has been employed at the firm for 8 years (since 2001, the first year available in our employment data), and earns $51,100 per year. Earnings are, as expected, right-skewed: the median employee makes $41,700 per year.

Panel C presents statistics on ownership. The firms in our sample are mostly closely held: the average shareholder owns slightly more than 50% of firm equity, with a median of exactly 50%. Ownership structure is remarkably stable over time. Only 3.7% of firms have at least an additional owner relative to the previous year, and only 0.8% have a new majority owner. Conversely, owners liquidate all of their shares in 4% of their firms in any given year; in 0.9% of cases, this stems from the majority owner selling all of his or her shares. In most firms, owners remain the same from year to year. They might still trade shares with each other and adjust their relative holdings (8.1% of firms in any given year). However, on average, the share change in the sample is minimal, at 0.2%.

Next, Panel D shows that our measure of risk-bearing capacity is positively correlated with the number of firms owned by the shareholder and the number of unique industries represented in the portfolio. Intuitively, an owner with stakes in several firms is more

[8] We check that results are robust to assigning the firm to the shareholder with the largest equity share, obtaining a firm-year panel for our analysis of layoffs and a firm-year-worker panel for our analysis of earnings (Tables A1 and A7).

diversified than an owner with a stake in a single firm. Similarly, owning firms in different industries increases diversification compared to owning the same number of firms in a single industry.

Finally, Figure 1 depicts the intensity of bilateral trading relationships (focusing on exports exclusively) between Canada and other countries, aggregated by currency bloc. Unsurprisingly, the United States is the first export destination for Canadian firms, accounting for 31% of trading relationships in our sample. The euro area is Canada's second-largest trading partner, accounting for 14.6% of trade. Within the euro area, Germany (2.6%), France (2.5%), and the Netherlands (1.6%) are the most important importers. Other major trading partners include Great Britain (3.5%), China (3.2%), and Australia (2.8%). As a result, fluctuations in exchange rates between the Canadian dollar and currencies such as the British pound, Chinese renminbi, and Australian dollar pose risks for many Canadian firms. While exposure to the U.S. dollar—and to a lesser extent the euro—remains dominant, Canadian companies export to 246 countries and face diverse currency exposures. On average, each exporter ships to 2.76 countries per year.

4 Results

We start our analysis by confirming that firm-level shocks, as defined in Section 2.1, impact firm performance, as measured by sales growth and profitability. Panel A of Table 3 shows the results of sales growth regressions on these shocks, and Panel B and C show the results of profitability regressions. The estimates reported in Panel A indicate that sales growth responds positively and significantly to exchange rate shocks, after controlling for several firm observable characteristics that may affect sales growth, as well as for firm and industry-year fixed effects (Columns 1 to 3) and owner characteristics and fixed effects (Column 4). Panels B and C show that similar results obtain for firm profitability. These findings are consistent with the idea that the firms in our sample are far from being fully hedged against currency risk. As such, they align with previous research, which indicates that while firms generally hedge against currency risk, this practice is much more common

among large, publicly listed companies than among small, private firms like those prevalent in our sample. Larger firms benefit from better access to financial instruments, economies of scale, and stronger institutional incentives to manage risk. In contrast, smaller and private firms face higher hedging costs, discriminatory pricing, and restricted access to derivative markets.[9]

4.1 Employment Insurance

The evidence in Table 3 validates our main premise that exchange rate fluctuations are exogenous shocks that firms cannot fully hedge. Absent any insurance provision by firms, these shocks, especially negative ones, should affect the firm's employees. We now investigate whether shareholders whose portfolios are more diversified vis-à-vis these firm-level idiosyncratic shocks provide more employment insurance.

Table 4 reports estimates of the specification in Equation (6). All regressions in the table include industry-year, firm effects and firm-level controls for company size and age, and size and age squared to control for any non-linear effects. The specification in Column 4 also includes owner characteristics, namely, wealth measured by income in the previous 10 years and asset value (investments held in all Canadian firms), leverage (shareholders' total debt to total assets), and ownership share in the firm together with owner fixed effects. Standard errors are clustered at the owner level.

The results in Column 1 show that firm-level shocks have a large impact on layoffs. The pass-through coefficient shown in the top row of Table 4 is invariably negative, sizable, and significant: the baseline elasticity of employment layoffs to firm shocks ranges from

[9]Specifically, Allayannis and Ofek (2001) show that U.S. multinationals frequently use currency derivatives to manage exchange rate exposure, Alfaro et al. (2023) find that hedging in Chile is concentrated among a small group of large exporters. This trend is further supported by Bartram et al. (2009), who document that derivative usage is predominantly among larger, publicly listed firms internationally. Conversely, small and private firms hedge significantly less. Hau et al. (2023) demonstrate that these firms encounter substantially worse pricing and tighter collateral requirements in over-the-counter derivative markets, discouraging effective hedging. Moreover, directly relevant to our study, Huang et al. (2023) suggest that firms may use currency derivatives to stabilize labor costs when employees are paid in foreign currencies, though this behavior remains largely confined to multinational firms with extensive international operations.

3.9% to 4.7%, depending on the specification. But in firms whose owners have high risk-bearing capacity, the pass-through is considerably weaker than in firms where the owner has low diversification. To assess the economic significance of the estimated reduction of the pass-through coefficient, we consider the most complete specification, shown in column 4, which includes industry-year, firm, and owner fixed effects, as well as firm- and owner-level controls: a one-standard-deviation increase in diversification reduces the impact of the shock by 13.3%, consistent with the hypothesis that ownership diversification plays an important role in risk-sharing within firms.

The inclusion of industry-year, province-year, firm, and owner fixed effects help dispel several potential concerns regarding our estimates: in principle, results may be driven by unobserved firm characteristics, such as legal structure, business model or technology, which may affect the response of layoffs to shocks. Firm fixed effects rule out this possibility. Moreover, the results may also be influenced by owners' choices to establish their firms in industries that are more vulnerable to exchange rate fluctuations. However, the inclusion of industry-year fixed effects rules out this possibility too.

Moreover, owner-level characteristics like risk aversion and skills may drive the results. But insofar as these characteristics are time-invariant, they cannot explain the results since our specification also includes owner fixed effects. Finally, one may suspect that shock mitigation arises from firm owners' access to debt markets, which they can use to obtain financing during shocks and insulate workers. However, the specification in Column 4 also controls for owners' leverage, which should proxy for their access to debt markets. The same counter-argument applies to the criticism that a deep-pocket owner may be in a better position to shield employees from shocks, as the specification controls for owners' wealth, measured both at the income and the asset level.

It is worth noting that the effects of portfolio diversification uncovered in Table 4 differ from those found by research on internal labor market in business groups, where workers are reshuffled across firms belonging to the same group in response to firm-specific shocks. The firms in our sample need not even be part of a single legal entity.

The Online Appendix reports several robustness checks of the main results in Table

4. Table A1 shows that these results are qualitatively unchanged if our shareholder-firm-year panel is converted to a firm-year panel, by restricting the set of shareholders to those with the largest equity shares in the respective firms. Table A3 repeats the estimation using an alternative measure of the shock, whose weights are the firm's exports scaled by total sales, rather than by the firm's exports. We do not adopt this specification as our preferred one because the share of exports to sales is endogenous and affected by exchange rate fluctuations; however, this exercise considers differences in firms' dependence on export markets, which is neglected in our baseline estimates. The results are qualitatively robust to this change in the definition of the shock. Other tables in the Online Appendix show that our baseline results are robust to controlling for import shocks, to an alternative definition of portfolio diversification (specifically, the ratio of firm variance to portfolio variance), to alternative measures of the layoff rate, and to alternative clustering of the standard errors.

Getting back to our main results, in Table 5 the analysis is conducted separately for negative and positive shocks: Columns 1 to 4 show results for positive shocks and Columns 5 to 8 for (the absolute value of) negative shocks. The effect on layoffs is, as expected, opposite in sign in the two cases, and much larger in absolute value for negative shocks than for positive ones: comparing the coefficient estimate in the first row of Column 4 with the respective estimate in Column 8 shows that layoffs increase in response to adverse shocks over 3.2 times more than they drop in response to favorable ones. Consistent with our hypothesis, we find that the dampening effect of owners' risk-bearing capacity on separations is also about twice as large for negative shocks as for positive ones.

So far, we have looked at the owner's overall portfolio exposure to the shock, including both cases in which owners' portfolios mitigate firm shocks (i.e., firm variance is higher than portfolio variance) and cases in which they amplify them (i.e., firm variance is lower than portfolio variance). The latter occurs, for instance, for non-exporting firms exposed to exchange rate risk due to the presence of exporting firms in their owners' portfolios. It is worth exploring how the results change if one focuses only on the former case, where owners' portfolios truly provide risk-bearing capacity. We investigate the impact of these "low-

exposure" portfolios in Table 7 and find results that are both statistically and economically similar to those reported in Table 4, confirming that diversification drives our results.

Next, we repeat the estimation for the subsample of shareholders with large ownership stakes, as these can be expected to have a greater impact on firms ' employment policies than smaller shareholders. Table 6 shows results for owners who hold at least one-third of the firm's equity in Columns 1 to 4, and for owners who hold at least one half of the firm's equity in Columns 5 to 8. The results are similar to those shown in Table 4. These results add precision to the mechanism at play, since in these companies it is likely that employment policy is dictated either by a single owner or by a majority shareholder, without requiring coordination with other large shareholders (recall that the average firm has 2.4 shareholders).

Finally, the richness of the data regarding workers' characteristics enables us to investigate how the impact of firm-specific shocks and the mitigating influence of owners' diversification vary across workers by age, tenure, and earnings classes. Table 8 shows how the results vary across workers by age (Panel A), by tenure (Panel B), and by earnings classes (Panel C). Panel A indicates that workers across age groups receive similar levels of employment insurance in response to shocks. In contrast, Panel B reveals that the extent to which shocks translate into layoffs varies with workers' tenure. Specifically, employees with longer tenure are less likely to be laid off and receive greater insurance relative to the magnitude of the shock. For instance, the pass-through rate for workers with less than three years at the firm is 4.5 times higher than for those with five or more years of tenure. This aligns with the notion that laying off long-tenured workers is more costly for firms due to greater severance obligations and the difficulty of replacing firm-specific skills. Panel C examines variation across earnings groups, showing that workers in the top earnings tercile receive the least insurance. This may be because they are high-skill workers for whom job stability guarantees could distort incentives, or because their stronger outside options reduce their demand for employer-provided insurance.

4.2 Wage Insurance

As workers are concerned not only with employment stability but also with wage stability, in this section we investigate the effect of owners' risk-bearing capacity on the provision of wage insurance. Table 9 reports estimates of Equation (7), where the dependent variable is the change in the logarithm of annual earnings. All regressions in the table include worker fixed effects, besides industry-year effects, firm fixed effects, and firm-level controls. The specifications shown in Columns 3 and 4 also include owner fixed effects. Standard errors are clustered at the owner level. Including worker fixed effects is particularly important, as they absorb all worker-level unobserved characteristics, such as education and skills, which may otherwise bias the estimates of interest.

The estimates in Table 9 show that foreign exchange shocks destabilize annual earnings, but owner diversification attenuates their pass-through to wages. The results in the second row indicate that a one-standard-deviation increase in diversification reduces the effect of the shock on wages by 40.7%. Hence, the effect of owner diversification on the provision of wage insurance exceeds that on employment stability. The inclusion of province-year fixed effects rules out that differences or changes in legal or regulations requirements regarding the wage setting process across provinces may drive the results.

In Table 10 we investigate whether wages respond differently to positive and negative shocks, and whether owners' diversification affects the insurance provided by firms differently in the two cases. The baseline coefficient of the shock is not statistically different from zero for negative shocks, consistent with downward wage rigidity, while it is positive and statistically significant for positive shocks. Furthermore, negative shocks do not affect wage growth if the relevant owners have average risk-bearing capacity, as the RBC_{ijt} variable is standardized to have zero mean and unit standard deviation: hence, owners with average risk-bearing capacity completely insulate employees in their firms from adverse shocks, and wages are cut in response to adverse shocks only when the corresponding owners' portfolios are sufficiently exposed to these shocks. We also investigate whether our baseline results in Table 9 hold in the case of "low-exposure" portfolios: the results,

shown in Table 12, are very similar to the baseline results of Table 9.

The effect of owners' risk-bearing capacity on wage insurance is even larger in the case of shareholders who own large stakes in the relevant firms, as shown by Table 11, where the estimation is carried out on a subsample of large shareholders. For these firm-owner couples, the mitigating effect of owners' portfolio diversification is larger than in the estimates of Table 9: based on the most complete specification, shown in Column 4, the effect of diversification is over 1.30 times larger when considering owners with larger, sometimes controlling, stakes. This evidence suggests that, as expected, these dominant owners have a larger impact on wage setting.

The Online Appendix reports robustness checks for these findings, showing that the results shown in Table 9 still hold upon restricting the sample to shareholders with the largest equity holdings in the corresponding firms, to controlling for import shocks, and to defining the export shock based on the fraction of a firm's exports to its total sales. In addition, results are robust to measuring diversification as the ratio of firm variance to portfolio variance and to alternative clustering of the standard errors.

Like employment insurance, the provision of wage insurance by firms also varies across workers, depending on their age, tenure, and earnings. Results in Panel A of Table 13 show that wage insurance increases with age: the coefficient estimates of the impact of the shock on wage insurance is about one third for workers in the oldest cohort (aged 51-65 years) than for those in the youngest cohort (18-34 years). Panel B shows that wage insurance decreases with tenure: for long-standing workers, there appears to be some substitutability between employment and wage insurance: their jobs are more protected, but their earnings are not. Finally, the amount of insurance provided is similar across earnings terciles (Panel C) relative to the baseline effect of the shock, but the shock pass-through on wage growth is larger for highly paid workers.

4.3 Mechanisms

The results presented thus far indicate that owners' diversification significantly influences firms' provision of insurance against labor income risk. But why would shareholders assume additional risk on behalf of workers? What incentives drive this behavior, and where do they source the necessary resources to offer such insurance when a negative shock affects the firms in which they hold equity?

To address these questions, we begin by examining how owners' compensation responds to firm-level shocks. Recall that our sample excludes workers who also hold equity; here, we estimate the wage equation (7) specifically for owners. The estimates, reported in Panel A of Table 14, indicate that owners' risk-bearing capacity amplifies the impact of shocks on their own pay. This stands in stark contrast to the dampening effect that the same risk-bearing capacity has on the transmission of shocks to workers' wages. In essence, owners provide insurance to workers by absorbing more of the shock themselves—allowing their own compensation to become more sensitive to firm performance while shielding workers' wages. This result offers direct evidence of the insurance mechanism at work.

In addition to adjusting their own compensation, shareholders may also rely on external financing to cover the additional costs of providing insurance. The estimates in Panel B of Table 14 are consistent with this hypothesis: firms increase their financial leverage in response to shocks, with the effect being more pronounced when owners are more diversified, consistent with the notion that diversification enhances a firm's debt capacity.

Finally, it is worth asking whether owners' risk-bearing capacity, by facilitating the provision of insurance against labor income risk, also contributes to employee retention, lower turnover costs, and ultimately, improved firm profitability. Several pieces of evidence in our data support this potential motivation for insurance provision. The regression results in Panel A of Table 15 show that labor turnover is significantly lower in firms whose owners possess greater risk-bearing capacity. This retention effect is likely to be stronger among highly skilled workers. To test this, we focus on employee-initiated separations,

leveraging data from the Record of Employment that documents reasons for termination, and restrict the sample to workers in the top tercile of the earnings distribution. The turnover regressions, reported in Panel B of Table 15, indicate that high-skill employees are less likely to quit firms owned by more diversified shareholders.

These findings are further corroborated by evidence on how workers' employment spells vary depending on the corresponding firm owners' risk-bearing capacity. Employment spell length is measured as the maximum tenure an employee attains within a given firm. The cross-sectional evidence in Panel C of Table 15 indicates that employees, particularly those with high skill levels, tend to have longer employment spells in firms owned by shareholders with greater risk-bearing capacity. These findings are consistent with the view that insurance provision acts as a mechanism for workforce retention. Moreover, the data suggest that this form of insurance does not come at the expense of firm performance; on the contrary, Panel D shows that firms with more diversified owners exhibit higher profitability.

Finally, Table 16 reveals that, in firms whose owners have greater risk-bearing capacity, employees earn slightly higher average wages, even after controlling for both firm-level and worker-level time-varying and fixed characteristics. While this effect is estimated with precision, its magnitude is economically negligible. As such, reducing the wage bill is unlikely to be a primary motivation for providing insurance to employees.

5 Conclusion

This paper provides novel evidence that entrepreneurs' portfolio diversification plays a pivotal role in shaping the extent to which firms provide labor income insurance. Using a rich matched employer-employee-owner dataset of more than 524,000 Canadian private closely-held firms, we show that owners who are more diversified across firms are better positioned to absorb firm-specific shocks and shield their employees from layoffs and wage cuts. The ability to spread risk across multiple firms enables these owners to act as informal insurers, stabilizing labor income in the face of adverse economic conditions.

The implications of our findings are threefold. First, we document that the diversification of firm owners significantly reduces the pass-through of foreign sales shocks to both layoffs and wages, offering robust evidence of intra-firm risk sharing. Second, we identify the mechanisms underpinning this insurance provision: more diversified owners reduce their own compensation and increase their firms' leverage to preserve employment and avoid wage cuts. Third, firms with more diversified owners experience higher employee retention, particularly among high-skill workers, and longer employment spells, without compromising profitability. In fact, we find that profitability is positively associated with owners' risk-bearing capacity, suggesting that the gains from reduced turnover and better workforce stability may offset the costs of insurance provision.

Our study contributes to the literature on risk sharing within firms, internal capital and labor markets, and the transmission of economic shocks through ownership networks. Importantly, it highlights a new and understudied channel of shock absorption, namely, entrepreneurs' diversification across closely held firms, which operates independently of formal group structures or capital reallocation mechanisms.

Future research may explore whether similar mechanisms operate in other countries or institutional contexts, and whether the rise of passive and institutional ownership in private equity could alter firms' capacity to insure labor income. Overall, our findings underscore the broader economic importance of ownership structures for labor market outcomes and firm resilience.

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Figure 1: Destination of Canadian exports

This figure depicts trading relationships between Canada and other countries, aggregated by currency blocs and expressed in percentage terms.

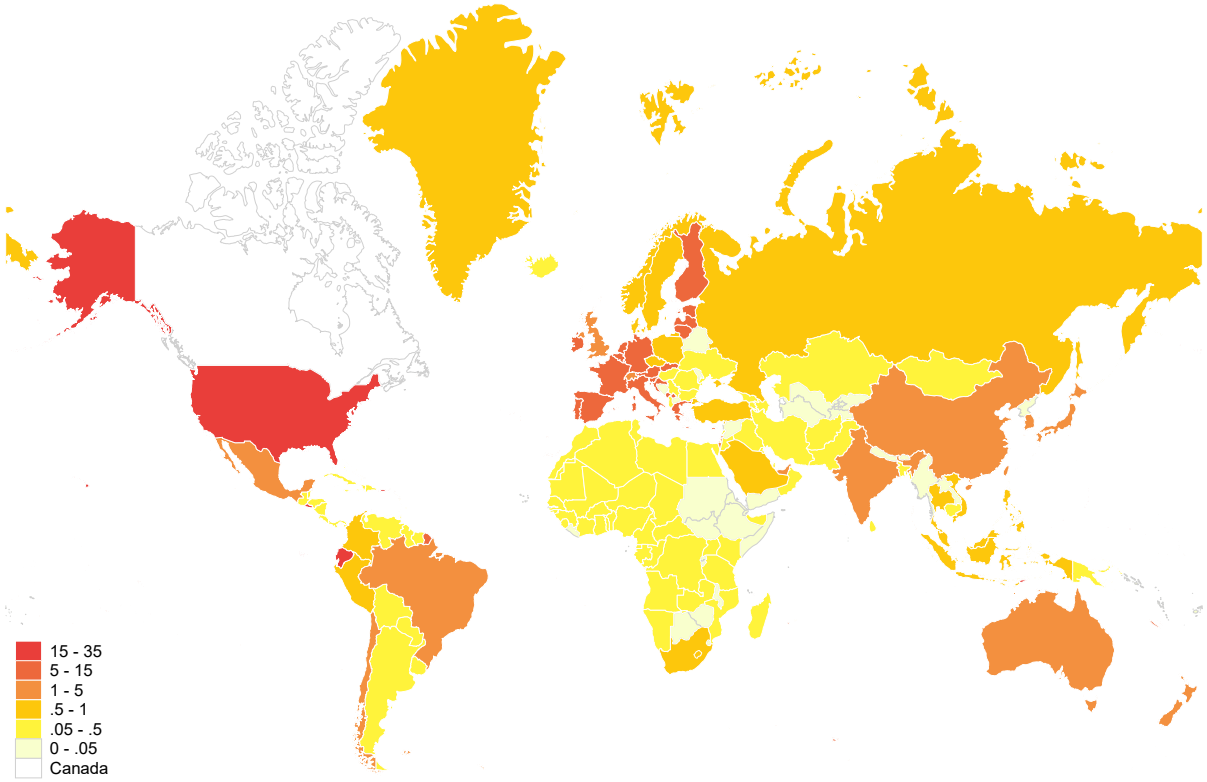

Table 1: Variable Definitions

Variable	Definition
Export shock Δe_{it}	Change in firm-specific average exchange rate. Specifically, $\Delta e_{it} = \sum_c {}_{ict} \Delta E_{ct}$, where $E_c t$ is the annual average exchange rate between the CAD and the currency used in country c and ${}_{ic\tau}$ is the average share of firm i's exports to country c over its total exports in years $t-1$ and $t-2$.
Owner's risk bearing capacity RBC_{ijt} (difference)	Difference between the variance of firm i's sales shocks and the variance of portfolio sales shocks, computed using years $t-4$ to t, as defined by expression (4), together with expressions (2) and (3. RBC_{ijt} is winsorized at 0.5% and 99.5%, and is standardized to have zero mean and unit standard deviation.
Owner's risk bearing capacity RBC_{ijt} (ratio)	Ratio of the variance of firm i's sales shocks to the variance of portfolio sales shocks: $RBC_{ijt} = \frac{1+\text{Var}(\eta)}{1+\text{Var}(\eta_{jt})}$. Portfolio variance and firm variance are defined as above. RBC_{ijt} is winsorized at 99.5% and standardized to have zero mean and unit standard deviation.
Layoff rate change $\Delta \frac{n_{ijt}^{Layoff}}{n_{ijt}}$	Change in the ratio of firm-initiated separations to total employment of firm i between year $t-1$ and t. Separations are firm-initiated if the employer indicated "shortage of work" as the reason for the separation.
Wage change Δw_{lijt}	Change in the logarithm of worker's real earnings between year t-1 and t. We require workers to be employed for the entire year without earnings interruptions in both years t-1 and t.
Firm size	Lagged logarithm of total assets.
Firm age	Logarithm of number of years since incorporation date. When incorporation date is missing, we use the first year in which the firm appears in the data since 2001.

Profitability	Ratio of EBITDA to total assets, winsorized at 1% and 99%. Alternatively, ratio of net income to total assets, winsorized at 1% and 99%
Sales growth	Logarithm of sales in year t minus logarithm of sales in year $t-1$, winsorized at 1% and 99%.
Wealth (income)	Lagged logarithm of total shareholder income in the previous 10 years.
Wealth (assets owned)	Lagged logarithm of total assets owned by the shareholder in all firms ι, where assets owned is the product of ownership share and firm assets.
Owner leverage	Lagged ratio of total debt to total assets owned by shareholders in all firms, winsorized at 1% and 99%.
Worker age	Logarithm of worker's age in years.
Tenure	Logarithm of number of years in which the worker has been an employee of the firm.
Import shock	Defined analogously to export shock. We use the average share of firm i's imports to country c over its total imports in years $t-1$ and $t-2$.
Ownership share	Ownership share held by the shareholder in the firm, directly or through an intermediary corporation. In the latter case, ultimate ownership is calculated as the product of shares along the ownership chain. For example, if individual A owns 50% of firm B and firm B owns 80% of firm C, then individual A owns 40% of firm C.
Turnover rate	Firm's rate of employee turnover, defined as $\frac{\text{new hires} + \text{quits} - \mid \Delta\text{employment} \mid}{\text{average employment in year } t}$, to capture hiring and quitting in excess of employment growth.

Table 2: Descriptive statistics

This table presents descriptive statistics for our sample, comprising 3,852,904 firm-owner observations and 27,159,485 worker-firm-owner observations over years 2010-2017. Dollar values are rounded to the nearest hundred (as per Statistics Canada's rules) and expressed in 2012 dollars. Panel A tabulates summary statistics of firm characteristics at the firm-owner level. Panel B presents summary statistics of worker characteristics at the worker-firm-owner level. Panel C reports ownership characteristics, including equity shares, changes in shareholdings from year t to $t+1$, and dummies for shares being traded among existing owners, advent of a new owner, exit of an owner, advent of a new majority owner, and exit of a majority owner. The first table of Panel D tabulates our measure of risk capacity by number of firms owned; t-stat refers to the difference in risk-bearing capacity between owners of n and owners of $n-1$ firms. The second table of Panel D tabulates our measure of risk capacity by number of firms owned (down) and number of industries represented in the portfolio (across). Risk capacity is multiplied by 100 for the sake of readibilitiy.

Panel A: firm characteristics

	mean	**SD**	**p50**	**p10**	**p90**	**N**
Assets (000)	2,032.5	4,659	552.5	82.4	4,632.1	3,582,904
Sales (000)	3,044.5	6,078.4	943.7	163.3	7,294.6	3,582,904
Firm age	17.8	11.9	15	5	40	3,582,904
Number of employees	24.3	377.7	7	2	42	3,582,904
Layoff rate	0.14	0.26	0	0	0.53	3,582,904
Number of owners	2.4	2.7	2	1	4	3,582,904

Panel B: worker characteristics

	mean	**SD**	**p50**	**p10**	**p90**	**N**
Age	43.8	13.2	45	25	60	27,159,485
Tenure	7.7	4.1	7	3	14	27,159,485
Earnings (yearly, 000)	51.1	74.1	41.7	13.4	90.8	27,159,485

Panel C: ownership

	mean	**SD**	**p50**	**p10**	**p90**	**N**
Ownership share	0.53	0.32	0.5	0.125	1	3,582,904
Share change	-.002	8.2	0	0	0	4,260,127

	Frequency	**Percent**	**N**
Share transactions among owners	248,360	8.07	3,079,124
New owner entry	114,880	3.73	3,079,124
New majority owner entry	24,791	0.81	3,079,124
Old owner exit	122,628	3.98	3,079,124
Old majority owner exit	28,590	0.93	3,079,124

Panel D: risk-bearing capacity

Number of firms owned	**mean**	**t-stat**	**N**
1	0.0096		1,566,016
2	0.9999	46.38***	943,831
3	2.864	33.10***	443,927
4	4.708	15.72***	221,850
≥ 5	7.235	15.80***	407,280

Number of firms / industries	1	2	≥ 3
1	0.0096		
2	0.5305	1.283	
≥ 3	1.203	3.130	6.373

Table 3: Effects of exchange rate shocks on firm outcomes

This table examines the effect of the exchange rate export shocks on firm outcomes, reporting estimates of Equation (5). Panel A reports the effect on sales growth. Panel B and C report the effect on profitability, measured as the ratio of EBITDA to assets and net income to assets, respectively. Firm control variables include lagged log of assets, lagged log of assets squared, log of age, and log of age squared. Owner control variables include lagged wealth (as proxied by the log of total income in the previous 10 years and log of assets owned in all firms), lagged owner's leverage, and ownership share. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: sales growth

	(1)	(2)	(3)	(4)
Shock	6.321***	4.185***	6.058***	5.560***
	(1.097)	(1.087)	(1.112)	(1.143)
Firm size	-23.33***	-23.50***	-22.76***	-26.18***
	(0.639)	(0.641)	(0.664)	(0.791)
Firm size squared	0.319***	0.332***	0.281***	0.422***
	(0.025)	(0.025)	(0.026)	(0.031)
Firm age	-207.2***	-209.1***	-210.1***	-205.8***
	(0.769)	(0.771)	(0.785)	(0.814)
Firm age squared	64.10***	65.33***	65.48***	64.55***
	(0.290)	(0.291)	(0.298)	(0.306)
Wealth (income)				-2.968***
				(0.117)
Wealth (assets owned)				-0.670***
				(0.055)
Owner leverage				-1.492***
				(0.050)
Ownership share				-0.238
				(0.253)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.445	0.449	0.445	0.444
Number of observations	4,591,092	4,590,898	4,536,205	4,184,170

Panel B: Operating ROA

	(1)	(2)	(3)	(4)
Shock	5.455***	5.698***	4.270**	4.736***
	(1.744)	(1.757)	(1.761)	(1.793)
Firm size	18.22***	18.29***	18.65***	23.70***
	(0.766)	(0.766)	(0.778)	(0.801)
Firm size squared	-2.238***	-2.242***	-2.229***	-2.258***
	(0.032)	(0.032)	(0.033)	(0.034)
Firm age	121.4***	121.2***	120.9***	111.0***
	(1.630)	(1.633)	(1.685)	(1.727)
Firm age squared	-34.01***	-33.85***	-34.06***	-31.30***
	(0.642)	(0.645)	(0.668)	(0.683)
Wealth (income)				0.886***
				(0.333)
Wealth (assets owned)				-2.146***
				(0.166)
Owner leverage				10.77***
				(0.263)
Ownership share				5.033***
				(0.763)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.834	0.835	0.839	0.844
Number of observations	5,024,007	5,023,775	4,970,861	4,591,972

Panel C: ROA

	(1)	(2)	(3)	(4)
Shock	8.686***	8.189***	8.309***	8.361***
	(0.733)	(0.734)	(0.743)	(0.759)
Firm size	3.767***	3.793***	3.857***	4.966***
	(0.196)	(0.196)	(0.201)	(0.220)
Firm size squared	-0.345***	-0.347***	-0.353***	-0.359***
	(0.009)	(0.009)	(0.009)	(0.010)
Firm age	14.79***	13.85***	14.98***	12.92***
	(0.440)	(0.439)	(0.456)	(0.471)
Firm age squared	-4.989***	-4.359***	-5.045***	-4.264***
	(0.175)	(0.175)	(0.182)	(0.188)
Wealth (income)				-2.679***
				(0.100)
Wealth (assets owned)				-0.203***
				(0.044)
Owner leverage				2.801***
				(0.074)
Ownership share				-0.697***
				(0.211)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.599	0.601	0.606	0.615
Number of observations	5,024,013	5,023,781	4,970,867	4,591,977

Table 4: Employment insurance and owners' risk-bearing capacity

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6). The dependent variable is the change in the ratio of layoffs to total employment. Risk-bearing capacity is the difference between a firm's export sales variance and its owners' portfolio variance, standardized to have zero mean and unit standard deviation. Firm control variables include size, size squared, age, and age squared. Firm size is the lagged logarithm of total assets; firm age is the logarithm of the number of years since incorporation. Owner control variables include wealth, owner's leverage, and ownership share. Wealth is proxied by the lagged logarithm of total income reported by the owner in the previous 10 years and by the lagged logarithm of assets owned in all firms, where assets owned are calculated as the product of firm assets and ownership share. Owners' leverage is measured as the lagged ratio of total debt to total assets owned in all firms. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.670***	-3.901***	-4.540***	-4.421***
	(0.639)	(0.636)	(0.652)	(0.674)
Shock × Risk-bearing capacity	0.614***	0.510***	0.610***	0.590***
	(0.092)	(0.091)	(0.095)	(0.098)
Risk-bearing capacity	-0.0647***	-0.0610***	-0.0728***	-0.0671***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-2.045***	-1.928***	-2.094***	-1.630***
	(0.244)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0960***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.419***	1.743***	1.549***	1.338***
	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.313**	-0.490***	-0.359**	-0.314**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.196***
				(0.058)
Wealth (assets owned)				0.140***
				(0.034)
Owner leverage				0.143***
				(0.029)
Ownership share				-0.367***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table 5: Employment insurance and owners' risk-bearing capacity: positive vs. negative shocks

This table examines how owners' risk-bearing capacity affects the pass-through rate of positive and negative exchange rate shocks on firms' layoff rates. The dependent variable is the change in the ratio of layoffs to total employment. A positive shock is equal to Δe_{it} if $\Delta e_{it} > 0$ and zero otherwise. A negative shock is equal to $\mid \Delta e_{it} \mid$ if $\Delta e_{it} < 0$ and zero otherwise. Columns 1 to 4 report the estimates of Equation (6) for positive shocks. Columns 5 to 8 report the effect of negative shocks. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Positive shocks				**Negative shocks**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Shock	-4.626***	-3.814***	-4.522***	-4.358***	14.51***	12.72***	13.88***	14.08***
	(0.711)	(0.707)	(0.726)	(0.751)	(2.637)	(2.635)	(2.705)	(2.776)
Shock × Risk-bearing capacity	0.669***	0.557***	0.665***	0.637***	-1.230***	-0.950**	-1.247**	-1.328***
	(0.103)	(0.102)	(0.107)	(0.110)	(0.476)	(0.472)	(0.502)	(0.511)
Risk-bearing capacity	-0.0721***	-0.0675***	-0.0802***	-0.0739***	-0.0409***	-0.0420***	-0.0502***	-0.0446***
	(0.009)	(0.009)	(0.011)	(0.011)	(0.008)	(0.008)	(0.009)	(0.009)
Firm size	-2.046***	-1.928***	-2.095***	-1.631***	-2.033***	-1.918***	-2.085***	-1.621***
	(0.244)	(0.243)	(0.255)	(0.274)	(0.243)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0960***	0.110***	0.102***	0.113***	0.0955***
	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.416***	1.740***	1.545***	1.334***	1.405***	1.731***	1.534***	1.324***
	(0.397)	(0.397)	(0.418)	(0.432)	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.312**	-0.489***	-0.357**	-0.313**	-0.309**	-0.487***	-0.355**	-0.310**
	(0.140)	(0.141)	(0.148)	(0.153)	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.195***				-0.196***
				(0.034)				(0.034)
Wealth (assets owned)				0.140***				0.140***
				(0.058)				(0.058)
Owner leverage				0.143***				0.143***
				(0.029)				(0.029)
Ownership share				-0.368***				-0.367***
				(0.133)				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904	3,870,297	3,870,130	3,794,227	3,582,904

Table 6: Employment insurance and owners' risk-bearing capacity: large shareholders

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6) for a subsample of large shareholders. The dependent variable is the change in the ratio of layoffs to total employment. Columns 1 to 4 report estimates for shareholders who own 33.3% or more of firm shares. Column 5 to 8 report estimates for shareholders who own 50% or more of firm shares. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for the sake of readability. Standard errors are reported in parenthesis and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Ownership ≥ 33.3%				**Ownership ≥ 50%**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Shock	-4.361***	-3.299***	-4.267***	-4.252***	-3.890***	-2.853**	-3.815***	-3.896***
	(0.973)	(0.969)	(0.985)	(1.018)	(1.121)	(1.117)	(1.133)	(1.172)
Shock × Risk-bearing capacity	0.619***	0.569***	0.643***	0.681***	0.529***	0.491***	0.530***	0.579***
	(0.133)	(0.132)	(0.136)	(0.138)	(0.148)	(0.147)	(0.150)	(0.153)
Risk-bearing capacity	-0.0786***	-0.0768***	-0.0863***	-0.0847***	-0.0727***	-0.0694***	-0.0769***	-0.0770***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)
Firm size	-1.868***	-1.736***	-1.884***	-1.534***	-1.706***	-1.565***	-1.674***	-1.247***
	(0.332)	(0.332)	(0.341)	(0.381)	(0.353)	(0.352)	(0.360)	(0.399)
Firm size squared	0.103***	0.0939***	0.104***	0.0865***	0.0952***	0.0862***	0.0949***	0.0730***
	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)
Firm age	1.346**	1.708***	1.540***	1.459**	1.676***	2.016***	1.802***	1.709***
	(0.546)	(0.547)	(0.565)	(0.586)	(0.609)	(0.610)	(0.627)	(0.651)
Firm age squared	-0.281	-0.475**	-0.354*	-0.370*	-0.405*	-0.591***	-0.466**	-0.491**
	(0.196)	(0.196)	(0.203)	(0.210)	(0.219)	(0.220)	(0.226)	(0.235)
Wealth (income)				-0.210**				-0.184**
				(0.083)				(0.091)
Wealth (assets owned)				0.298***				0.337***
				(0.056)				(0.063)
Owner leverage				0.141***				0.154***
				(0.035)				(0.037)
Ownership share				-0.508**				-0.598**
				(0.221)				(0.262)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes	No	No	Yes	Yes
R^2	0.119	0.120	0.102	0.104	0.116	0.117	0.101	0.103
Number of observations	2,581,375	2,581,274	2,536,439	2,394,758	2,240,804	2,240,717	2,205,628	2,079,815

Table 7: Employment insurance and owners' risk-bearing capacity: low-exposure portfolios

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6) for the cases in which low exposure mitigates the effect of the shock. The dependent variable is the change in the ratio of layoffs to total employment. Risk Bearing Capacity equals RBC_{ijt} if $RBC_{ijt} > 0$ and equals 0 otherwise. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.724***	-3.945***	-4.598***	-4.478***
	(0.643)	(0.640)	(0.656)	(0.677)
Shock × Risk-bearing capacity	0.640***	0.532***	0.639***	0.621***
	(0.092)	(0.091)	(0.095)	(0.098)
Risk-bearing capacity	-0.0691***	-0.0651***	-0.0781***	-0.0728***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-2.048***	-1.931***	-2.098***	-1.635***
	(0.244)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.103***	0.114***	0.0962***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.421***	1.744***	1.550***	1.340***
	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.314**	-0.491***	-0.360**	-0.315**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.196***
				(0.058)
Wealth (assets owned)				0.141***
				(0.034)
Owner leverage				0.143***
				(0.029)
Ownership share				-0.368***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table 8: Employment insurance and owners' risk-bearing capacity: heterogeneity across workers

This table analysis heterogeneity in how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6) for different subsamples of workers. The dependent variable is the change in the ratio of layoffs to total employment, calculated separately for each group. Panel A reports estimates for three separate age groups: workers who are between 18 and 34, 35 and 50, and 51 and 65 years of age. Panel B reports estimates for workers who have been at the firm for less than 3 years, between 3 and 5 years, and more than 5 years, respectively. Panel C reports estimates for workers who belong to the first, second, and third tercile of the firm's earnings distribution, respectively. Belonging to a given tercile is assigned based on previous year earnings, with the requirement that the worker did not experience any earnings interruption in the previous year. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: age

	Age 18-34		**Age 35-50**		**Age 51-65**	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-4.375***	-4.303***	-2.756***	-2.644***	-3.666***	-3.022***
	(0.928)	(0.956)	(0.881)	(0.904)	(1.025)	(1.053)
Shock × Risk-bearing capacity	0.623***	0.643***	0.403***	0.356***	0.484***	0.430***
	(0.131)	(0.135)	(0.115)	(0.118)	(0.135)	(0.138)
Risk-bearing capacity	-0.0781***	-0.0771***	-0.0648***	-0.0565***	-0.0772***	-0.0768***
	(0.013)	(0.014)	(0.012)	(0.012)	(0.014)	(0.014)
Firm size	-2.835***	-2.419***	-2.245***	-1.999***	-2.894***	-2.288***
	(0.35)	(0.375)	(0.398)	(0.411)	(0.426)	(0.449)
Firm size squared	0.143***	0.128***	0.113***	0.103***	0.132***	0.109***
	(0.013)	(0.014)	(0.014)	(0.015)	(0.015)	(0.016)
Firm age	1.631***	1.279**	3.625***	3.516***	2.709***	2.471***
	(0.557)	(0.575)	(0.623)	(0.639)	(0.744)	(0.763)
Firm age squared	-0.362*	-0.268	-1.161***	-1.166***	-0.820***	-0.759***
	(0.203)	(0.209)	(0.217)	(0.223)	(0.254)	(0.260)
Wealth (income)		-0.173**		-0.0598		-0.034
		(0.078)		(0.082)		(0.099)
Wealth (assets owned)		0.0913**		0.111**		0.204***
		(0.045)		(0.047)		(0.054)
Owner leverage		0.124***		0.144***		0.226***
		(0.04)		(0.046)		(0.057)
Ownership share		-0.117		-0.139		-0.562***
		(0.182)		(0.189)		(0.217)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.119	0.120	0.133	0.135	0.134	0.136
Number of observations	2,932,598	2,773,337	2,701,752	2,561,686	2,279,649	2,168,459

Panel B: tenure

	Tenure < 3 years		**3 years ≤ Tenure ≤ 5 years**		**Tenure > 5 years**	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-6.332***	-6.353***	-3.896***	-3.450***	-1.688**	-1.417*
	(1.080)	(1.119)	(1.098)	(1.131)	(0.739)	(0.759)
Shock × Risk-bearing cap.	0.693***	0.706***	0.500***	0.439***	0.301***	0.290***
	(0.153)	(0.158)	(0.144)	(0.148)	(0.100)	(0.102)
Risk-bearing capacity	-0.0557***	-0.0481***	-0.0454***	-0.0414***	-0.0469***	-0.0455***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.010)	(0.010)
Firm size	-3.005***	-2.380***	-2.727***	-2.070***	-1.391***	-0.903**
	(0.334)	(0.350)	(0.404)	(0.417)	(0.333)	(0.352)
Firm size squared	0.165***	0.142***	0.152***	0.126***	0.0751***	0.0551***
	(0.012)	(0.013)	(0.015)	(0.015)	(0.012)	(0.013)
Firm age	2.801***	2.622***	3.744***	3.652***	1.963**	1.948**
	(0.584)	(0.608)	(0.899)	(0.922)	(0.827)	(0.850)
Firm age squared	-0.727***	-0.679***	-0.806***	-0.800***	-0.294	-0.319
	(0.221)	(0.229)	(0.299)	(0.306)	(0.235)	(0.242)
Wealth (income)		-0.209**		0.151		-0.130
		(0.082)		(0.094)		(0.082)
Wealth (assets owned)		0.164***		0.219***		0.217***
		(0.049)		(0.054)		(0.043)
Owner leverage		0.210***		0.222***		0.217***
		(0.044)		(0.053)		(0.043)
Ownership share		0.0922		-0.275		-0.889***
		(0.201)		(0.218)		(0.171)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.125	0.127	0.141	0.142	0.118	0.119
Number of observations	2,879,999	2,714,048	2,455,623	2,324,839	2,411,765	2,298,362

Panel C: earnings

	Bottom Tercile		**Middle Tercile**		**Top Tercile**	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	-2.940***	-2.646**	-2.976***	-2.794***	-3.052***	-2.817***
	(1.028)	(1.060)	(0.916)	(0.941)	(0.747)	(0.758)
Shock × Risk bearing cap.	0.568***	0.551***	0.388***	0.341***	0.173*	0.124
	(0.151)	(0.154)	(0.127)	(0.130)	(0.097)	(0.098)
Risk-bearing capacity	-0.0910***	-0.0879***	-0.0690***	-0.0608***	-0.0503***	-0.0471***
	(0.016)	(0.016)	(0.013)	(0.013)	(0.010)	(0.010)
Firm size	-4.674***	-4.159***	-4.629***	-3.870***	-3.756***	-3.040***
	(0.451)	(0.465)	(0.429)	(0.435)	(0.423)	(0.424)
Firm size squared	0.192***	0.174***	0.180***	0.156***	0.125***	0.103***
	(0.016)	(0.017)	(0.015)	(0.016)	(0.015)	(0.015)
Firm age	5.439***	4.912***	6.829***	6.475***	6.201***	5.795***
	(0.951)	(0.979)	(0.801)	(0.819)	(0.747)	(0.763)
Firm age squared	-1.290***	-1.119***	-1.700***	-1.583***	-1.370***	-1.258***
	(0.302)	(0.311)	(0.255)	(0.261)	(0.236)	(0.241)
Wealth (income)		-0.152		-0.071		-0.175**
		(0.095)		(0.084)		(0.077)
Wealth (assets owned)		0.130**		0.0469		-0.00907
		(0.052)		(0.048)		(0.043)
Owner leverage		0.279***		0.388***		0.367***
		(0.053)		(0.053)		(0.051)
Ownership share		-0.679***		-0.177		-0.414**
		(0.208)		(0.193)		(0.170)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.131	0.132	0.145	0.147	0.160	0.161
Number of observations	1,812,288	1,724,294	1,844,338	1,754,353	1,858,204	1,767,303

Table 9: Wage insurance and owners' risk-bearing capacity

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wage growth, by estimating Equation (7). The dependent variable is the change in the logarithm of yearly earnings. Workers employed the entire year in t or $t-1$ are included in the sample. Risk-bearing capacity is the difference between a firm's export sales variance and its owners' portfolio variance, standardized to have zero mean and unit standard deviation. Worker control variables include age (logarithm of years), age squared, tenure (logarithm of years at the firm), and tenure squared. Firm control variables include size, size squared, age, and age squared. Size is the lagged logarithm of total assets; age is the logarithm of the number of years since incorporation. Owner control variables include wealth, owner's leverage, and ownership share. Wealth is proxied by the lagged logarithm of total income reported by the owner in the previous 10 years and by the lagged logarithm of assets owned in all firms, where assets owned are calculated as the product of firm assets and ownership share. Owners' leverage is measured as the lagged ratio of total debt to total assets owned in all firms. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	4.150***	3.790***	4.379***	4.152***
	(0.753)	(0.746)	(0.717)	(0.722)
Shock × Risk-bearing capacity	-1.795***	-1.661***	-1.887***	-1.690***
	(0.296)	(0.292)	(0.322)	(0.296)
Risk-bearing capacity	0.191***	0.198***	0.206***	0.225***
	(0.032)	(0.031)	(0.042)	(0.041)
Tenure	-39.19***	-38.96***	-39.32***	-38.89***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.656***	8.585***	8.683***	8.586***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-454.0***	-456.7***	-450.0***	-446.4***
	(16.501)	(16.451)	(16.515)	(16.763)
Age squared	80.27***	81.00***	79.60***	78.98***
	(3.114)	(3.105)	(3.115)	(3.165)
Firm size	0.532	1.449***	1.089**	0.658
	(0.389)	(0.385)	(0.543)	(0.516)
Firm size squared	-0.0201	-0.0520***	-0.0399**	-0.0271
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.651***	7.060***	8.092***	8.066***
	(0.841)	(0.777)	(0.859)	(0.877)
Firm age squared	-1.578***	-1.146***	-1.772***	-1.657***
	(0.267)	(0.248)	(0.274)	(0.279)
Wealth (income)				-1.156***
				(0.091)
Wealth (assets owned)				0.0279
				(0.051)
Owner leverage				-0.316***
				(0.049)
Ownership share				0.906***
				(0.255)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table 10: Wage insurance and owners' risk-bearing capacity: positive vs. negative shocks

This table examines how owners' risk-bearing capacity affects the pass-through rate of positive and negative exchange rate shocks on wage growth, by estimating Equation (7) separately for the two types of shocks. The dependent variable is the change in the logarithm of yearly earnings. A positive shock is equal to Δe_{it} if $\Delta e_{it} > 0$ and zero otherwise. A negative shock is equal to $\mid \Delta e_{it} \mid$ if $\Delta e_{it} < 0$ and zero otherwise. Columns (1) to (4) report the estimates of Equation (7) for positive shocks. Columns 5 to 8 report the effect of negative shocks. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Positive shocks			
	(1)	(2)	(3)	(4)
Shock	4.877***	4.435***	5.085***	4.840***
	(0.852)	(0.847)	(0.815)	(0.824)
Shock × Risk-bearing capacity	-2.001***	-1.838***	-2.118***	-1.904***
	(0.332)	(0.329)	(0.367)	(0.336)
Risk-bearing capacity	0.216***	0.220***	0.232***	0.249***
	(0.034)	(0.033)	(0.044)	(0.043)
Tenure	-39.19***	-38.96***	-39.33***	-38.89***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.658***	8.587***	8.685***	8.587***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-453.9***	-456.7***	-450.0***	-446.4***
	(16.503)	(16.453)	(16.517)	(16.765)
Age squared	80.26***	81.00***	79.60***	78.98***
	(3.114)	(3.106)	(3.115)	(3.165)
Firm size	0.517	1.437***	1.086**	0.656
	(0.387)	(0.383)	(0.543)	(0.515)
Firm size squared	-0.0196	-0.0516***	-0.0398**	-0.0270
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.659***	7.067***	8.094***	8.067***
	(0.842)	(0.777)	(0.859)	(0.877)
Firm age squared	-1.581***	-1.148***	-1.773***	-1.657***
	(0.267)	(0.248)	(0.274)	(0.279)
Wealth (income)				-1.157***
				(0.091)
Wealth (assets owned)				0.0284
				(0.051)
Owner leverage				-0.316***
				(0.049)
Ownership share				0.905***
				(0.254)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

	Negative shocks			
	(5)	(6)	(7)	(8)
Shock	-2.763	-2.758	-3.748	-3.395
	(2.934)	(2.811)	(3.025)	(3.072)
Shock × Risk-bearing capacity	6.876***	6.772***	6.331***	5.470***
	(1.814)	(1.736)	(1.726)	(1.771)
Risk-bearing capacity	0.0237	0.0397	0.0362	0.0765*
	(0.034)	(0.033)	(0.050)	(0.045)
Tenure	-39.18***	38.94***	-39.31***	-38.88***
	(0.759)	(0.755)	(0.768)	(0.793)
Tenure squared	8.653***	8.582***	8.680***	8.583***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-455.1***	-457.7***	-451.1***	-447.4***
	(16.494)	(16.45)	(16.51)	(16.76)
Age squared	80.48***	81.19***	79.80***	79.16***
	(3.113)	(3.104)	(3.113)	(3.163)
Firm size	0.550	1.467***	1.050*	0.618
	(0.400)	(0.394)	(0.545)	(0.520)
Firm size squared	-0.021	-0.053***	-0.038*	-0.025
	(0.015)	(0.014)	(0.020)	(0.019)
Firm age	7.633***	7.046***	8.090***	8.064***
	(0.844)	(0.780)	(0.864)	(0.881)
Firm age squared	-1.566***	-1.136***	-1.773***	-1.657***
	(0.267)	(0.248)	(0.276)	(0.280)
Wealth (income)				-1.155***
				(0.092)
Wealth (assets owned)				0.025
				(0.051)
Owner leverage				-0.317***
				(0.049)
Ownership share				0.929***
				(0.262)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table 11: Wage insurance and owners' risk-bearing capacity: large shareholders

This table examines how large owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wage growth, by estimating Equation (7) for a subsample of large shareholders. The dependent variable is the change in the logarithm of yearly earnings. Columns (1) to (4) report estimates for shareholders who own 33.3% or more of firm shares. Columns 5 to 8 report estimates for shareholders who own at least 50% of firm shares. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	Ownership $\geq$ 33.3%			
	(1)	(2)	(3)	(4)
Shock	5.557***	4.468***	5.417***	4.733***
	(0.966)	(0.956)	(0.972)	(0.948)
Shock × Risk-bearing capacity	-2.814***	-2.685***	-2.698***	-2.270***
	(0.703)	(0.707)	(0.795)	(0.653)
Risk-bearing capacity	0.279***	0.271***	0.222***	0.258***
	(0.068)	(0.063)	(0.081)	(0.073)
Tenure	-43.70***	-43.50***	-43.69***	-43.14***
	(0.613)	(0.611)	(0.615)	(0.638)
Tenure squared	9.647***	9.598***	9.646***	9.518***
	(0.205)	(0.205)	(0.206)	(0.215)
Age	-291.9***	-292.8***	-289.3***	-288.8***
	(18.517)	(18.484)	(18.592)	(18.892)
Age squared	47.84***	48.27***	47.35***	47.38***
	(3.539)	(3.533)	(3.556)	(3.615)
Firm size	3.092***	3.114***	3.724***	2.922***
	(0.635)	(0.626)	(0.654)	(0.689)
Firm size squared	-0.108***	-0.107***	-0.131***	-0.0956***
	(0.025)	(0.024)	(0.025)	(0.027)
Firm age	8.184***	7.230***	8.170***	8.088***
	(1.220)	(1.104)	(1.241)	(1.275)
Firm age squared	-1.676***	-1.182***	-1.726***	-1.434***
	(0.404)	(0.370)	(0.417)	(0.428)
Wealth (income)				-1.916***
				(0.156)
Wealth (assets owned)				-0.388***
				(0.089)
Owner leverage				-0.368***
				(0.063)
Ownership share				0.474
				(0.405)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.427	0.427	0.426	0.425
Number of observations	11,450,169	11,449,944	11,424,611	10,856,676

	Ownership $\geq$ 50%			
	(5)	(6)	(7)	(8)
Shock	5.572***	4.233***	5.620***	4.851***
	(1.103)	(1.095)	(1.105)	(1.072)
Shock × Risk-bearing capacity	-2.432***	-2.213***	-2.362***	-2.287***
	(0.747)	(0.755)	(0.833)	(0.857)
Risk-bearing capacity	0.303***	0.271***	0.245***	0.222**
	(0.077)	(0.074)	(0.090)	(0.093)
Tenure	-44.68***	-44.50***	-44.70***	-44.12***
	(0.675)	(0.672)	(0.678)	(0.705)
Tenure squared	9.801***	9.757***	9.828***	9.696***
	(0.238)	(0.238)	(0.238)	(0.249)
Age	-244.8***	-245.4***	-243.3***	-241.7***
	(20.094)	(20.056)	(20.187)	(20.499)
Age squared	38.50***	38.90***	38.23***	38.08***
	(3.851)	(3.843)	(3.870)	(3.932)
Firm size	3.492***	3.460***	3.892***	3.021***
	(0.752)	(0.748)	(0.771)	(0.814)
Firm size squared	-0.119***	-0.115***	-0.133***	-0.0936***
	(0.030)	(0.029)	(0.030)	(0.032)
Firm age	9.529***	8.385***	8.858***	8.633***
	(1.337)	(1.272)	(1.353)	(1.375)
Firm age squared	-2.006***	-1.460***	-1.857***	-1.492***
	(0.449)	(0.430)	(0.462)	(0.471)
Wealth (income)				-2.098***
				(0.184)
Wealth (assets owned)				-0.377***
				(0.088)
Owner leverage				-0.338***
				(0.067)
Ownership share				0.172
				(0.567)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.407	0.408	0.406	0.405
Number of observations	8,946,224	8,946,022	8,926,478	8,465,577

Table 12: Wage insurance and owners' risk-bearing capacity: low-exposure portfolios

This table examines how low-exposure owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wage growth, by estimating Equation (7). The dependent variable is the change in the logarithm of yearly earnings. Risk-bearing capacity equals RBC_{ijt} if $RBC_{ijt} > 0$, and equals zero otherwise. All coefficients and standard errors are multiplied by 100 for readability. Control variables are as described in Table 9. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	4.306***	3.928***	4.498***	4.266***
	(0.747)	(0.741)	(0.711)	(0.718)
Shock × Risk Capacity	-1.938***	-1.779***	-1.970***	-1.780***
	(0.296)	(0.292)	(0.316)	(0.293)
Risk Capacity	0.216***	0.217***	0.213***	0.234***
	(0.034)	(0.032)	(0.043)	(0.042)
Tenure	-39.19***	-38.96***	-39.32***	-38.89***
	(0.760)	(0.755)	(0.768)	(0.793)
Tenure squared	8.657***	8.586***	8.684***	8.586***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-453.7***	-456.5***	-449.8***	-446.2***
	(16.499)	(16.450)	(16.510)	(16.757)
Age squared	80.21***	80.95***	79.57***	78.95***
	(3.113)	(3.105)	(3.114)	(3.164)
Firm size	0.569	1.483***	1.093**	0.659
	(0.390)	(0.386)	(0.544)	(0.519)
Firm size squared	-0.0215	-0.0533***	-0.0400**	-0.0271
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.660***	7.067***	8.099***	8.076***
	(0.839)	(0.776)	(0.858)	(0.876)
Firm age squared	-1.581***	-1.149***	-1.775***	-1.661***
	(0.266)	(0.247)	(0.274)	(0.279)
Wealth (income)				-1.157***
				(0.091)
Wealth (assets owned)				0.0268
				(0.051)
Owner leverage				-0.316***
				(0.049)
Ownership share				0.907***
				(0.254)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table 13: Wage insurance and owners' risk-bearing capacity: heterogeneity across workers

This table examines heterogeneity in how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wage growth, by estimating Equation (7) for different subsamples of workers. The dependent variable is the change in the logarithm of yearly earnings. Panel A reports estimates for three separate age groups: workers who are between 18 and 34, 35 and 50, and 51 and 65 years of age. Panel B reports estimates for workers who have been at the firm for 5 years or less or more than 5 years, respectively. Only workers who were employed the entire year in t and $t-1$ are included in the sample, thus the minimum tenure is 2. Panel C reports estimates for workers who belong to the first, second, and third tercile of the firm's earnings distribution, respectively. Belonging to a given tercile is assigned based on previous year earnings, with the requirement that the worker did not experience any earnings interruption in the previous year. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for the sake of readability. Standard errors are reported in parenthesis and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: age

	Age 18-34		**Age 35-50**		**Age 51-65**	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	6.158***	6.129***	4.279***	3.984***	2.286***	2.044**
	(1.140)	(1.173)	(0.837)	(0.842)	(0.791)	(0.799)
Shock × Risk-bearing capacity	-2.327***	-2.204***	-2.080***	-1.879***	-1.531***	-1.351***
	(0.411)	(0.421)	(0.375)	(0.347)	(0.347)	(0.328)
Risk-bearing capacity	0.423***	0.459***	0.204***	0.224***	0.140***	0.147***
	(0.07)	(0.071)	(0.048)	(0.048)	(0.049)	(0.046)
Tenure	-58.69***	-57.94***	-37.09***	-36.68***	-32.65***	-32.29***
	(1.199)	(1.235)	(0.812)	(0.841)	(0.956)	(0.989)
Tenure squared	12.94***	12.74***	8.582***	8.480***	8.067***	7.982***
	(0.41)	(0.425)	(0.267)	(0.278)	(0.33)	(0.342)
Age	-848.8***	-842.6***	-5196.8***	-5200.5***	-31241.7***	-31168.5***
	(99.777)	(100.697)	(200.513)	(204.794)	(811.398)	(830.963)
Age squared	175.4***	174.0***	925.5***	926.3***	5166.5***	5154.6***
	(21.522)	(21.722)	(36.559)	(37.341)	(133.319)	(136.534)
Firm size	-0.680	-1.298*	1.433**	1.203*	1.835***	1.305**
	(0.670)	(0.711)	(0.653)	(0.600)	(0.679)	(0.619)
Firm size squared	0.0231	0.0386	-0.0518**	-0.0456**	-0.0691***	-0.0513**
	(0.024)	(0.025)	(0.023)	(0.023)	(0.025)	(0.022)
Firm age	7.615***	7.590***	8.669***	8.546***	10.67***	10.64***
	(1.428)	(1.467)	(1.109)	(1.134)	(1.048)	(1.068)
Firm age squared	-2.788***	-2.570***	-2.042***	-1.929***	-2.506***	-2.423***
	(0.495)	(0.508)	(0.356)	(0.362)	(0.331)	(0.336)
Wealth (income)		-1.012***		-1.029***		-1.208***
		(0.134)		(0.111)		(0.105)
Wealth (assets owned)		0.0743*		0.0386		-0.0289
		(0.045)		(0.052)		(0.072)
Owner leverage		-0.353***		-0.260***		-0.341***
		(0.086)		(0.066)		(0.069)
Ownership share		0.773**		0.722**		1.091***
		(0.319)		(0.300)		(0.314)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Worker effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.559	0.557	0.484	0.483	0.435	0.435
Number of observations	7,641,086	7,304,740	10,567,797	10,090,432	8,787,443	8,408,583

Panel B: tenure

	Tenure $\leq$ 5 years		**Tenure $>$ 5 years**	
	(1)	(2)	(3)	(4)
Shock	2.301*	2.307	3.836***	3.483***
	(1.384)	(1.405)	(0.703)	(0.698)
Shock × Risk-bearing capacity	-2.179***	-2.040***	-1.753***	-1.573***
	(0.465)	(0.465)	(0.342)	(0.304)
Risk-bearing capacity	0.504***	0.502***	0.121***	0.166***
	(0.086)	(0.079)	(0.042)	(0.041)
Tenure	-127.0***	-125.9***	21.13***	21.86***
	(3.164)	(3.265)	(1.571)	(1.603)
Tenure squared	39.03***	38.67***	-16.01***	-16.23***
	(1.163)	(1.202)	(0.589)	(0.600)
Age	336.6***	332.5***	-861.0***	-859.5***
	(29.357)	(30.014)	(20.258)	(20.486)
Age squared	-85.51***	-84.74***	154.9***	154.7***
	(5.947)	(6.088)	(3.727)	(3.769)
Firm size	-0.584	-1.045	1.678***	1.388**
	(0.946)	(0.899)	(0.578)	(0.554)
Firm size squared	-0.00157	0.0105	-0.0550***	-0.0473**
	(0.034)	(0.032)	(0.021)	(0.020)
Firm age	30.55***	29.95***	1.144	1.065
	(1.569)	(1.585)	(0.924)	(0.956)
Firm age squared	-12.24***	-11.84***	-0.27	-0.146
	(0.694)	(0.698)	(0.278)	(0.284)
Wealth (income)		-1.039***		-1.200***
		(0.127)		(0.101)
Wealth (assets owned)		-0.00336		0.0684*
		(0.115)		(0.040)
Owner leverage		-0.323***		-0.259***
		(0.084)		(0.057)
Ownership share		0.289		1.042***
		(0.332)		(0.282)
Industry × year effects	Yes	Yes	Yes	Yes
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes
R^2	0.652	0.652	0.400	0.400
Number of observations	11,187,496	10,659,912	16,816,296	16,101,149

Panel C: earnings

	Bottom Tercile		**Middle Tercile**		**Top Tercile**	
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	2.988***	2.781***	3.894***	3.988***	5.707***	5.068***
	(0.903)	(0.925)	(0.805)	(0.813)	(0.935)	(0.902)
Shock × Risk-bearing capacity	-1.112***	-1.019***	-1.630***	-1.484***	-1.944***	-1.699***
	(0.345)	(0.339)	(0.309)	(0.293)	(0.416)	(0.375)
Risk-bearing capacity	0.206***	0.267***	0.174***	0.171***	0.0884*	0.121**
	(0.058)	(0.052)	(0.040)	(0.039)	(0.051)	(0.051)
Tenure	-38.27***	-38.25***	-19.69***	-19.51***	-24.58***	-24.22***
	(0.803)	(0.830)	(0.860)	(0.889)	(0.634)	(0.645)
Tenure squared	9.827***	9.843***	4.932***	4.924***	6.013***	5.922***
	(0.291)	(0.300)	(0.316)	(0.327)	(0.235)	(0.236)
Age	-231.1***	-231.9***	-1275.8***	-1276.0***	-1584.1***	-1569.2***
	(20.898)	(21.411)	(25.371)	(25.92)	(34.054)	(34.745)
Age squared	48.32***	48.51***	238.8***	238.9***	288.9***	286.4***
	(4.049)	(4.149)	(4.695)	(4.798)	(6.220)	(6.348)
Firm size	-1.485	-1.461	0.879	0.417	2.675***	2.401***
	(0.971)	(0.906)	(0.566)	(0.540)	(0.605)	(0.593)
Firm size squared	0.0572*	0.0506	-0.026	-0.011	-0.0845***	-0.0762***
	(0.035)	(0.032)	(0.020)	(0.019)	(0.021)	(0.021)
Firm age	12.63***	12.44***	1.874**	1.936**	3.002***	2.952***
	(1.305)	(1.332)	(0.900)	(0.907)	(0.947)	(0.959)
Firm age squared	-2.735***	-2.581***	-0.810***	-0.789***	-1.326***	-1.187***
	(0.435)	(0.442)	(0.289)	(0.291)	(0.315)	(0.316)
Wealth (income)		-0.522***		-0.613***		-1.533***
		(0.101)		(0.084)		(0.118)
Wealth (assets owned)		0.157**		-0.0277		0.0512
		(0.068)		(0.037)		(0.049)
Owner leverage		-0.312***		-0.387***		-0.236***
		(0.084)		(0.068)		(0.066)
Ownership share		0.755***		0.854***		0.721***
		(0.287)		(0.310)		(0.268)
Industry × year effects	Yes	Yes	Yes	Yes	Yes	Yes
Worker effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes	Yes	Yes
Owner effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.676	0.675	0.68	0.679	0.526	0.525
Number of observations	8,099,383	7,732,724	8,989,775	8,588,732	9,452,570	9,042,733

Table 14: Evidence on insurance provision mechanisms

This table examines how owners' pay (Panel A) and firm leverage (Panel B) correlate with the owners' risk-bearing capacity. In Panel A, the dependent variable is the change in the logarithm of the yearly earnings the shareholder receives for work in the firm. In Panel B, the dependent variable is the change in leverage, measured as the ratio of total debt to total assets. Risk-bearing capacity is the difference between a firm's export sales variance and its owners' portfolio variance, standardized to have zero mean and unit standard deviation. Firm control variables include size, size squared, age, and age squared. Firm size is the lagged logarithm of total assets; firm age is the logarithm of the number of years since incorporation. Owner control variables include wealth, owner's leverage, and ownership share. Wealth is proxied by the lagged logarithm of total income reported by the owner in the previous 10 years and by the lagged logarithm of assets owned in all firms, where assets owned are calculated as the product of firm assets and ownership share. Owners' leverage is the lagged ratio of total debt to total assets owned in all firms. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: owner's compensation

	(1)	(2)	(3)	(4)
Shock	3.046	1.245	1.618	-0.624
	(3.008)	(3.012)	(3.032)	(3.064)
Shock × Risk-bearing capacity	2.146***	2.232***	2.015**	1.739**
	(0.804)	(0.803)	(0.823)	(0.822)
Risk-bearing capacity	-0.152	-0.133	-0.0966	0.0577
	(0.103)	(0.103)	(0.123)	(0.121)
Firm size	7.336***	7.280***	8.626***	3.311**
	(1.225)	(1.221)	(1.287)	(1.413)
Firm size squared	-0.123**	-0.122**	-0.175***	0.197***
	(0.048)	(0.048)	(0.051)	(0.054)
Firm age	-56.63***	-59.63***	-73.92***	-64.83***
	(2.116)	(2.130)	(2.160)	(2.158)
Firm age squared	11.61***	13.13***	17.79***	19.65***
	(0.749)	(0.754)	(0.766)	(0.766)
Wealth (income)				-41.08***
				(0.418)
Wealth (assets owned)				-2.928***
				(0.216)
Owner leverage				-0.791***
				(0.132)
Ownership share				26.29***
				(0.838)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.173	0.174	0.196	0.206
Number of observations	2241894	2,241,847	2,192,834	2,110,509

Panel B: leverage

	(1)	(2)	(3)	(4)
Shock	-2.010**	-1.690*	-1.883*	-1.718*
	(0.952)	(0.954)	(0.966)	(0.968)
Shock × Risk-bearing capacity	-0.780***	-0.794***	-0.788***	-0.550***
	(0.140)	(0.140)	(0.144)	(0.143)
Risk-bearing capacity	0.177***	0.166***	0.181***	0.00677
	(0.019)	(0.019)	(0.023)	(0.021)
Firm size	60.25***	60.20***	62.60***	31.60***
	(1.710)	(1.713)	(1.812)	(1.390)
Firm size squared	-2.056***	-2.052***	-2.136***	-1.023***
	(0.065)	(0.065)	(0.069)	(0.052)
Firm age	1.942***	3.204***	2.735***	5.270***
	(0.735)	(0.736)	(0.774)	(0.776)
Firm age squared	0.289	-0.389	-0.0494	-0.327
	(0.261)	(0.262)	(0.276)	(0.278)
Wealth (income)				1.049***
				(0.111)
Wealth (assets owned)				-2.169
				(0.083)
Owner leverage				-8.119***
				(0.125)
Ownership share				-0.209
				(0.236)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.380	0.381	0.366	0.386
Number of observations	3,913,512	3,913,341	3,838,043	3,627,305

Table 15: Evidence on benefits to owners from employees' insurance

This table examines how firm-level outcomes correlate with the respective owners' risk-bearing capacity, to understand mechanisms behind insurance provision. In Panel A, the firm-level outcome variable is employment turnover rate, defined as new hires + quits− | Δemployment | scaled by average employment in year t, to capture hiring and quitting in excess of employment growth. In Panel B, the firm-level outcome variable is the rate of employee-initiated (voluntary) separations for workers in the top tercile of earnings, based on total earnings reported in the previous year. In Panel C, the firm-level outcome variable is firm profitability, defined as the ratio of net income to assets. Risk-bearing capacity is the difference between a firm's export sales variance and its owners' portfolio variance, standardized to have zero mean and unit standard deviation. Firm control variables include size, size squared, age, and age squared. Size is the lagged logarithm of total assets; age is the logarithm of the number of years since incorporation. Owner control variables include wealth, owner's leverage, and ownership share. Wealth is proxied by the lagged logarithm of total income reported by the owner in the previous 10 years and by the lagged logarithm of assets owned in all firms, where assets owned are calculated as the product of firm assets and ownership share. Owners' leverage is measured as the lagged ratio of total debt to total assets owned in all firms. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses. In columns 1 to 4, standard errors are clustered at the owner level. In column 5, standard errors are double clustered at the owner and firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: turnover

	(1)	(2)	(3)	(4)
Risk-bearing capacity	-1.118***	-1.089***	-1.221***	-1.218***
	(0.237)	(0.237)	(0.269)	(0.280)
Firm size	9.171*	9.277*	7.638	9.465
	(5.446)	(5.451)	(5.727)	(6.601)
Firm size squared	0.0102	0.00491	0.0765	0.109
	(0.230)	(0.230)	(0.242)	(0.275)
Firm age	-31.56***	-35.78***	-30.87***	-26.97***
	(3.193)	(3.224)	(3.349)	(3.474)
Firm age squared	2.973**	5.350***	2.480*	1.672
	(1.292)	(1.311)	(1.350)	(1.410)
Wealth (income)				-3.811***
				(0.535)
Wealth (assets owned)				-4.212***
				(1.218)
Owner leverage				-0.643**
				(0.260)
Ownership share				-1.477
				(1.584)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.389	0.390	0.404	0.412
Number of observations	3,805,717	3,805,548	3,729,180	3,518,934

Panel B: voluntary separations

	(1)	(2)	(3)	(4)
Risk-bearing capacity	-0.0306***	-0.0287***	-0.0383***	-0.0380***
	(0.006)	(0.006)	(0.008)	(0.008)
Firm size	-0.630*	-0.547*	-0.696**	-0.483
	(0.323)	(0.323)	(0.332)	(0.342)
Firm size squared	0.0452***	0.0413***	0.0470***	0.0364***
	(0.012)	(0.012)	(0.012)	(0.012)
Firm age	1.895***	1.095**	1.939***	1.594***
	(0.465)	(0.464)	(0.495)	(0.509)
Firm age squared	-0.551***	-0.0806	-0.560***	-0.444**
	(0.160)	(0.160)	(0.170)	(0.174)
Wealth (income)				-0.153**
				(0.062)
Wealth (assets owned)				0.109***
				(0.033)
Owner leverage				0.0843***
				(0.031)
Ownership share				-0.877***
				(0.132)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.409	0.410	0.376	0.377
Number of observations	2,356,378	2,356,265	2,272,979	2,155,177

Panel C: employees' tenure

	All employees		**Top tercile**	
	(1)	(2)	(3)	(4)
Risk-bearing capacity	11.561***	5.830***	19.938***	8.514***
	(0.267)	(0.257)	(0.573)	(0.562)
Industry effects	No	Yes	No	Yes
Province effects	No	Yes	No	Yes
R^2	0.004	0.105	0.003	0.105
Number of observations	479,119	459,684	366,787	356,386

Panel D: profitability

	(1)	(2)	(3)	(4)
Risk-bearing capacity	0.0673***	0.0902***	0.0819***	0.161***
	(0.017)	(0.017)	(0.021)	(0.021)
Firm size	-21.96***	-21.88***	-23.02***	-10.02***
	(1.003)	(1.005)	(1.060)	(1.001)
Firm size squared	0.560***	0.553***	0.594***	0.164***
	(0.038)	(0.038)	(0.040)	(0.037)
Firm age	4.613***	2.162***	4.635***	3.813***
	(0.729)	(0.726)	(0.771)	(0.780)
Firm age squared	-1.668***	-0.335	-1.624***	-1.310***
	(0.266)	(0.265)	(0.282)	(0.285)
Wealth (income)				-3.334***
				(0.125)
Wealth (assets owned)				-0.488***
				(0.075)
Owner leverage				3.448***
				(0.111)
Ownership share				-0.570**
				(0.239)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.626	0.629	0.623	0.633
Number of observations	3,947,833	3,947,657	3,873,302	3,656,510

Table 16: Is insurance priced into lower average wages?

This table examines the correlation between average wages and owners' risk-bearing capacity. The dependent variable is the logarithm of yearly earnings. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Risk-bearing capacity	0.163***	0.147***	0.184***	0.216***
	(0.035)	(0.033)	(0.050)	(0.046)
Tenure	23.62***	23.90***	23.75***	23.77***
	(0.281)	(0.280)	(0.282)	(0.292)
Tenure squared	-5.799***	-5.895***	-5.837***	-5.815***
	(0.129)	(0.128)	(0.129)	(0.134)
Age	-32.86**	-42.77***	-31.06**	-37.12**
	(14.595)	(14.418)	(14.646)	(14.930)
Age squared	56.17***	58.46***	55.85***	57.03***
	(2.859)	(2.825)	(2.872)	(2.927)
Firm size	7.369***	7.384***	6.774***	6.164***
	(0.889)	(0.871)	(0.915)	(0.953)
Firm size squared	-0.0862***	-0.0936***	-0.0611**	-0.0434
	(0.028)	(0.027)	(0.029)	(0.030)
Firm age	-15.81***	-17.06***	-15.81***	-15.64***
	(0.806)	(0.802)	(0.812)	(0.816)
Firm age squared	1.679***	2.482***	1.725***	1.775***
	(0.295)	(0.288)	(0.295)	(0.297)
Wealth (income)				-0.166*
				(0.089)
Wealth (assets owned)				0.0447
				(0.038)
Owner leverage				-0.397***
				(0.056)
Ownership share				0.960***
				(0.283)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.911	0.911	0.911	0.912
Number of observations	40,997,274	40,994,996	40,964,081	39,114,880

Internet Appendix

Table A1: Employment insurance and owners' risk-bearing capacity: firm-year panel

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6) on the subsample of shareholders owning the largest stake, obtaining a firm-year panel. The dependent variable is the change in the ratio of layoffs to total employment. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.234***	-3.386***	-3.888***	-3.654***
	(0.974)	(0.970)	(1.031)	(1.064)
Shock × Risk-bearing capacity	0.648***	0.578***	0.691***	0.699***
	(0.133)	(0.131)	(0.143)	(0.146)
Risk-bearing capacity	-0.0753***	-0.0726***	-0.0837***	-0.0878***
	(0.013)	(0.013)	(0.014)	(0.015)
Firm size	-2.016***	-1.901***	-2.035***	-1.804***
	(0.327)	(0.327)	(0.358)	(0.399)
Firm size squared	0.107***	0.0996***	0.109***	0.0963***
	(0.012)	(0.012)	(0.014)	(0.015)
Firm age	1.412**	1.719***	1.688***	1.812***
	(0.575)	(0.575)	(0.643)	(0.665)
Firm age squared	-0.297	-0.461**	-0.412*	-0.496**
	(0.206)	(0.206)	(0.230)	(0.238)
Wealth (income)				-0.141
				(0.091)
Wealth (assets owned)				0.268***
				(0.058)
Owner leverage				0.129**
				(0.040)
Ownership share				-0.484**
				(0.214)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.093	0.094	0.132	0.133
Number of observations	2,190,587	2,190,485	2,123,549	2,002,153

Table A2: Employment insurance and owners' risk-bearing capacity, controlling for import shocks

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6), controlling for import shocks. The dependent variable is the change in the ratio of layoffs to total employment. Import shocks are defined as export shocks, using the average share of firm i's imports to country c over its total imports in years $t-1$ and $t-2$. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.948***	-3.944***	-4.795***	-4.672***
	(0.644)	(0.640)	(0.657)	(0.679)
Shock × Risk-bearing capacity	0.607***	0.509***	0.603***	0.583***
	(0.092)	(0.09)	(0.095)	(0.098)
Risk-bearing capacity	-0.0645***	-0.0610***	-0.0727***	-0.0670***
	(0.008)	(0.008)	(0.010)	(0.010)
Import shock	1.197***	0.188	1.103***	1.093***
	(0.397)	(0.396)	(0.404)	(0.415)
Firm size	-2.039***	-1.927***	-2.089***	-1.625***
	(0.244)	(0.243)	(0.255)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0957***
	(0.009)	(0.009)	(0.01)	(0.010)
Firm age	1.402***	1.740***	1.532***	1.322***
	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.307**	-0.489***	-0.353**	-0.309**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.196***
				(0.058)
Wealth (assets owned)				0.140***
				(0.034)
Owner leverage				0.143***
				(0.029)
Ownership share				-0.367***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table A3: Employment insurance and owners' risk-bearing capacity: alternative definition of the shock

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates by estimating Equation (6), upon redefining the weight $_{ict}$ in expression (1) for the shock as the share of firm i's exports to country c in the firm's total sales. The dependent variable is the change in the ratio of layoffs to total employment. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-43.02***	-35.59***	-40.64***	-44.04***
	(6.668)	(6.651)	(6.843)	(7.090)
Shock × Risk-bearing capacity	3.022***	2.973***	2.835***	3.140***
	(0.695)	(0.693)	(0.720)	(0.743)
Risk-bearing capacity	-0.0438***	-0.0404***	-0.0454***	-0.0463***
	(0.012)	(0.012)	(0.015)	(0.015)
Firm size	-2.014***	-1.898***	-2.062***	-1.598***
	(0.243)	(0.243)	(0.254)	(0.274)
Firm size squared	0.109***	0.101***	0.112***	0.0946***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.399***	1.721***	1.526***	1.319***
	(0.397)	(0.397)	(0.417)	(0.432)
Firm age squared	-0.302**	-0.478***	-0.346**	-0.303**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.198***
				(0.058)
Wealth (assets owned)				0.140***
				(0.034)
Owner leverage				0.144***
				(0.029)
Ownership share				-0.367***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table A4: Employment insurance and owners' risk-bearing capacity, defined as variance ratio

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6), if owner j's risk-bearing capacity is redefined as the ratio of 1 plus firm i's variance to 1 plus owner j's portfolio variance, standardized to have zero mean and unit standard deviation. The dependent variable is the change in the ratio of layoffs to total employment. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.592***	-3.860***	-4.466***	-4.358***
	(0.631)	(0.628)	(0.646)	(0.668)
Shock × Risk-bearing capacity	0.580***	0.485***	0.577***	0.563***
	(0.100)	(0.099)	(0.106)	(0.109)
Risk-bearing capacity	-0.0456***	-0.0431***	-0.0555***	-0.0492******
	(0.008)	(0.008)	(0.011)	(0.011)
Firm size	-2.029***	-1.912***	-2.079***	-1.613***
	(0.243)	(0.243)	(0.254)	(0.274)
Firm size squared	0.110***	0.102***	0.113***	0.0953***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.411***	1.735***	1.540***	1.329***
	(0.397)	(0.397)	(0.418)	(0.432)
Firm age squared	-0.309**	-0.486***	-0.354**	-0.309**
	(0.140)	(0.141)	(0.148)	(0.153)
Wealth (income)				-0.196***
				(0.058)
Wealth (assets owned)				0.140***
				(0.034)
Owner leverage				0.144***
				(0.029)
Ownership share				-0.366***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table A5: Employment insurance and owners' risk-bearing capacity: alternative layoff measures

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6), using alternative measures of layoffs. In panel A, the dependent variable is the change in the ratio of layoffs to total employment, excluding workers who earned less than the threshold (equivalent to 13 weeks of full-time work at minimum wage) in a given year, summing earnings from all the jobs they held. In panel B, we exclude seasonal workers (i.e., those whose job spells lasted less than 120 days both in year t and $t-1$). In Panel C, the dependent variable is the ratio of lagged earnings of laid-off workers to lagged total wage bill. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: Workers above threshold

	(1)	(2)	(3)	(4)
Shock	-4.715***	-3.922***	-4.575***	-4.556***
	(0.617)	(0.615)	(0.631)	(0.652)
Shock × Risk-bearing capacity	0.573***	0.471***	0.580***	0.577***
	(0.091)	(0.090)	(0.094)	(0.097)
Risk-bearing capacity	-0.0543***	-0.0508***	-0.0637***	-0.0589***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-1.997***	-1.887***	-2.031***	-1.697***
	(0.227)	(0.227)	(0.237)	(0.254)
Firm size squared	0.111***	0.103***	0.114***	0.101***
	(0.009)	(0.009)	(0.009)	(0.009)
Firm age	0.450	0.769**	0.524	0.293
	(0.373)	(0.373)	(0.392)	(0.406)
Firm age squared	-0.0442	-0.216	-0.0742	-0.0133
	(0.133)	(0.133)	(0.140)	(0.144)
Wealth (income)				-0.190***
				(0.055)
Wealth (assets owned)				0.121***
				(0.032)
Owner leverage				0.111***
				(0.027)
Ownership share				-0.243*
				(0.126)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.122	0.123	0.106	0.108
Number of observations	3,931,489	3,931,316	3,855,987	3,640,541

Panel B: No seasonal workers

	(1)	(2)	(3)	(4)
Shock	-4.680***	-3.917***	-4.567***	-4.482***
	(0.643)	(0.640)	(0.657)	(0.678)
Shock × Risk-bearing capacity	0.616***	0.512***	0.612***	0.596***
	(0.092)	(0.091)	(0.096)	(0.098)
Risk-bearing capacity	-0.0654***	-0.0616***	-0.0732***	-0.0674***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-1.968***	-1.852***	-2.014***	-1.553***
	(0.245)	(0.245)	(0.256)	(0.276)
Firm size squared	0.106***	0.0984***	0.109***	0.0919***
	(0.009)	(0.009)	(0.010)	(0.010)
Firm age	1.529***	1.848***	1.674***	1.407***
	(0.399)	(0.399)	(0.420)	(0.434)
Firm age squared	-0.335**	-0.509***	-0.387***	-0.324**
	(0.141)	(0.141)	(0.149)	(0.154)
Wealth (income)				-0.203***
				(0.058)
Wealth (assets owned)				0.137***
				(0.034)
Owner leverage				0.140***
				(0.029)
Ownership share				-0.386***
				(0.133)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.128	0.129	0.110	0.112
Number of observations	3,864,409	3,864,242	3,788,232	3,577,135

Panel C: Dollar value

	(1)	(2)	(3)	(4)
Shock	-2.644***	-1.998***	-2.544***	-2.321***
	(0.676)	(0.674)	(0.689)	(0.705)
Shock × Risk-bearing capacity	0.450***	0.356***	0.468***	0.425***
	(0.091)	(0.090)	(0.095)	(0.097)
Risk-bearing capacity	-0.0806***	-0.0763***	-0.0958***	-0.0911***
	(0.008)	(0.008)	(0.010)	(0.010)
Firm size	-3.442***	-3.356***	-3.500***	-2.818***
	(0.276)	(0.276)	(0.287)	(0.305)
Firm size squared	0.134***	0.128***	0.137***	0.115***
	(0.010)	(0.010)	(0.011)	(0.011)
Firm age	10.83***	10.94***	12.04***	11.38***
	(0.622)	(0.624)	(0.659)	(0.675)
Firm age squared	-2.538***	-2.601***	-2.925***	-2.742***
	(0.199)	(0.200)	(0.211)	(0.216)
Wealth (income)				-0.228***
				(0.066)
Wealth (assets owned)				0.0131
				(0.038)
Owner leverage				0.195***
				(0.034)
Ownership share				-0.665***
				(0.150)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.198	0.199	0.152	0.154
Number of observations	3,112,023	3,111,904	3,037,843	2,878,440

Table A6: Employment insurance and owners' risk-bearing capacity: alternative clustering of errors

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on firms' layoff rates, by estimating Equation (6). The dependent variable is the change in the ratio of layoffs to total employment. Control variables are as described in Table 4. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are double clustered at the owner and firm level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	-4.670***	-3.901***	-4.540***	-4.421***
	(0.933)	(0.926)	(0.942)	(0.959)
Shock × Risk Capacity	0.614***	0.510***	0.610***	0.590***
	(0.141)	(0.139)	(0.142)	(0.144)
Risk Capacity	-0.0647***	-0.0610***	-0.0728***	-0.0671***
	(0.013)	(0.013)	(0.015)	(0.014)
Firm size	-2.045***	-1.928***	-2.094***	-1.630***
	(0.309)	(0.308)	(0.318)	(0.335)
Firm size squared	0.110***	0.102***	0.113***	0.0960***
	(0.012)	(0.012)	(0.012)	(0.013)
Firm age	1.419***	1.743***	1.549***	1.338***
	(0.537)	(0.538)	(0.550)	(0.560)
Firm age squared	-0.313	-0.490**	-0.359*	-0.314
	(0.191)	(0.191)	(0.195)	(0.199)
Wealth (income)				-0.196***
				(0.061)
Wealth (assets owned)				0.140***
				(0.037)
Owner leverage				0.143***
				(0.033)
Ownership share				-0.367***
				(0.126)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.129	0.130	0.110	0.112
Number of observations	3,870,297	3,870,130	3,794,227	3,582,904

Table A7: Wage insurance and owners' risk-bearing capacity: firm-year-worker panel

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wages, by estimating Equation (7). We restrict the sample to shareholders with the largest share in each firm, obtaining a firm-year-worker panel. The dependent variable is the change in the logarithm of yearly earnings. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	4.753***	3.962***	5.506***	5.006***
	(1.203)	(1.204)	(1.174)	(1.174)
Shock × Risk-bearing capacity	-2.315***	-2.167***	-1.996***	-1.776***
	(0.503)	(0.495)	(0.476)	(0.490)
Risk-bearing capacity	0.308***	0.322***	0.307***	0.291***
	(0.068)	(0.064)	(0.071)	(0.074)
Tenure	-40.37***	-40.12***	-40.18***	-39.68***
	(0.824)	(0.820)	(0.833)	(0.860)
Tenure squared	8.716***	8.639***	8.655***	8.556***
	(0.247)	(0.246)	(0.249)	(0.259)
Age	-392.5***	-394.8***	-393.5***	-390.3***
	(22.554)	(22.467)	(23.002)	(23.491)
Age squared	68.42***	69.06***	68.70***	68.17***
	(4.297)	(4.279)	(4.382)	(4.480)
Firm size	1.711***	2.166***	2.611***	1.970***
	(0.556)	(0.544)	(0.561)	(0.583)
Firm size squared	-0.0578***	-0.0733***	-0.0903***	-0.0668***
	(0.021)	(0.020)	(0.021)	(0.022)
Firm age	8.212***	7.406***	7.982***	8.008***
	(1.199)	(1.100)	(1.258)	(1.297)
Firm age squared	-1.635***	-1.175***	-1.652***	-1.455***
	(0.388)	(0.360)	(0.409)	(0.423)
Wealth (income)				-1.708***
				(0.176)
Wealth (assets owned)				-0.128*
				(0.072)
Owner leverage				-0.378***
				(0.072)
Ownership share				0.468
				(0.361)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.332	0.333	0.348	0.348
Number of observations	12,156,424	12,156,095	12,125,311	11,522,677

Table A8: Wage insurance and owners' risk-bearing capacity, controlling for import shocks

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wages, by adding import shocks to the control variables in Equation (7). The dependent variable is the change in the logarithm of yearly earnings. Import shocks are defined analogously to export shocks, using the average share of firm i's imports to country c over its total imports in years $t-1$ and $t-2$. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	3.961***	3.590***	4.233***	4.026***
	(0.771)	(0.763)	(0.736)	(0.741)
Shock × Risk-bearing capacity	-1.799***	-1.665***	-1.890***	-1.693***
	(0.295)	(0.292)	(0.321)	(0.296)
Risk-bearing capacity	0.192***	0.199***	0.207***	0.226***
	(0.032)	(0.031)	(0.042)	(0.041)
Import shock	0.00917	0.00974	0.00709	0.00612
	(0.006)	(0.006)	(0.006)	(0.006)
Tenure	-39.19***	-38.96***	-39.32***	-38.89***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.656***	8.585***	8.683***	8.586***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-453.9***	-456.6***	-449.9***	-446.3***
	(16.501)	(16.451)	(16.517)	(16.764)
Age squared	80.25***	80.98***	79.58***	78.97***
	(3.114)	(3.105)	(3.115)	(3.165)
Firm size	0.538	1.455***	1.093**	0.662
	(0.389)	(0.385)	(0.543)	(0.515)
Firm size squared	-0.0204	-0.0523***	-0.0401**	-0.0272
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.640***	7.048***	8.084***	8.060***
	(0.841)	(0.777)	(0.859)	(0.877)
Firm age squared	-1.573***	-1.141***	-1.769***	-1.655***
	(0.267)	(0.248)	(0.275)	(0.279)
Wealth (income)				-1.156***
				(0.091)
Wealth (assets owned)				0.0278
				(0.051)
Owner leverage				-0.316***
				(0.049)
Ownership share				0.906***
				(0.255)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table A9: Wage insurance and owners' risk-bearing capacity: alternative definition of the shock

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wages, by estimating Equation (7), if owner j's risk-bearing capacity is redefined as the ratio of 1 plus firm i's variance to 1 plus owner j's portfolio variance, standardized to have zero mean and unit standard deviation. The dependent variable is the change in the logarithm of yearly earnings. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	10.69***	7.273***	13.24***	14.05***
	(2.839)	(2.775)	(2.714)	(2.654)
Shock × Risk-bearing capacity	-2.138***	-2.053**	-2.340**	-1.983**
	(0.820)	(0.818)	(0.938)	(0.791)
Risk-bearing capacity	0.0501	0.0328	-0.0133	0.0366
	(0.032)	(0.031)	(0.057)	(0.052)
Tenure	-39.18***	-38.95***	-39.32***	-38.88***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.654***	8.583***	8.682***	8.584***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-455.9***	-458.8***	-452.0***	-448.3***
	(16.485)	(16.439)	(16.510)	(16.758)
Age squared	80.63***	81.40***	79.98***	79.34***
	(3.111)	(3.103)	(3.114)	(3.164)
Firm size	0.480	1.413***	0.945*	0.482
	(0.405)	(0.399)	(0.540)	(0.514)
Firm size squared	-0.0181	-0.0505***	-0.0343*	-0.0202
	(0.015)	(0.015)	(0.020)	(0.019)
Firm age	7.624***	7.032***	8.110***	8.093***
	(0.851)	(0.787)	(0.865)	(0.881)
Firm age squared	-1.564***	-1.134***	-1.794***	-1.683***
	(0.271)	(0.252)	(0.276)	(0.280)
Wealth (income)				-1.133***
				(0.093)
Wealth (assets owned)				0.0152
				(0.052)
Owner leverage				-0.322***
				(0.049)
Ownership share				0.943***
				(0.261)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table A10: Wage insurance and owners' risk-bearing capacity, defined as variance ratio

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wages, by estimating Equation (7), if owner j's risk-bearing capacity is redefined as the ratio of 1 plus firm i's variance to 1 plus owner j's portfolio variance, standardized to have zero mean and unit standard deviation. The dependent variable is the change in the logarithm of yearly earnings. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are clustered at the owner level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	3.248***	2.977***	3.359***	3.318***
	(0.791)	(0.780)	(0.756)	(0.744)
Shock × Risk-bearing capacity	-1.209***	-1.071***	-1.290***	-1.103***
	(0.259)	(0.248)	(0.268)	(0.271)
Risk-bearing capacity	0.157***	0.157***	0.211***	0.208***
	(0.030)	(0.029)	(0.043)	(0.043)
Tenure	-39.19***	-38.95***	-39.32***	-38.89***
	(0.760)	(0.756)	(0.768)	(0.793)
Tenure squared	8.655***	8.584***	8.683***	8.586***
	(0.226)	(0.225)	(0.228)	(0.236)
Age	-454.6***	-457.4***	-450.3***	-446.9***
	(16.499)	(16.45)	(16.522)	(16.768)
Age squared	80.38***	81.12***	79.66***	79.07***
	(3.114)	(3.105)	(3.116)	(3.166)
Firm size	0.498	1.420***	1.048*	0.614
	(0.392)	(0.387)	(0.544)	(0.517)
Firm size squared	-0.0189	-0.0510***	-0.0384*	-0.0255
	(0.014)	(0.014)	(0.020)	(0.019)
Firm age	7.637***	7.045***	8.089***	8.065***
	(0.844)	(0.780)	(0.860)	(0.878)
Firm age squared	-1.576***	-1.144***	-1.771***	-1.659***
	(0.268)	(0.249)	(0.275)	(0.279)
Wealth (income)				-1.152***
				(0.091)
Wealth (assets owned)				0.0284
				(0.051)
Owner leverage				-0.315***
				(0.049)
Ownership share				0.916***
				(0.257)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485

Table A11: Wage insurance and owners' risk-bearing capacity: alternative clustering of errors

This table examines how owners' risk-bearing capacity affects the pass-through rate of exchange rate shocks on wages, by estimating Equation (7). The dependent variable is the change in the logarithm of yearly earnings. Control variables are as described in Table 9. All coefficients and standard errors are multiplied by 100 for readability. Standard errors are reported in parentheses and are triple clustered at the owner, firm and worker level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Shock	4.150***	3.790***	4.379***	4.152***
	(1.072)	(1.065)	(1.018)	(1.033)
Shock × Risk-bearing capacity	-1.795***	-1.661***	-1.887***	-1.690***
	(0.432)	(0.418)	(0.440)	(0.381)
Risk-bearing capacity	0.191***	0.198***	0.206***	0.225***
	(0.044)	(0.043)	(0.058)	(0.054)
Tenure	-39.19***	-38.96***	-39.32***	-38.89***
	(1.972)	(1.960)	(1.994)	(2.051)
Tenure squared	8.656***	8.585***	8.683***	8.586***
	(0.564)	(0.561)	(0.570)	(0.587)
Age	-454.0***	-456.7***	-450.0***	-446.4***
	(34.086)	(33.891)	(34.369)	(34.343)
Age squared	80.27***	81.00***	79.60***	78.98***
	(6.343)	(6.316)	(6.378)	(6.379)
Firm size	0.532	1.449**	1.089	0.658
	(0.615)	(0.593)	(0.704)	(0.610)
Firm size squared	-0.0201	-0.0520**	-0.0399	-0.0271
	(0.022)	(0.022)	(0.026)	(0.022)
Firm age	7.651***	7.060***	8.092***	8.066***
	(1.467)	(1.358)	(1.298)	(1.352)
Firm age squared	-1.578***	-1.146***	-1.772***	-1.657***
	(0.418)	(0.379)	(0.391)	(0.401)
Wealth (income)				-1.156***
				(0.099)
Wealth (assets owned)				0.0279
				(0.069)
Owner leverage				-0.316***
				(0.053)
Ownership share				0.906***
				(0.236)
Industry × year effects	Yes	Yes	Yes	Yes
Province × year effects	No	Yes	No	No
Worker effects	Yes	Yes	Yes	Yes
Firm effects	Yes	Yes	Yes	Yes
Owner effects	No	No	Yes	Yes
R^2	0.468	0.469	0.469	0.469
Number of observations	28,448,358	28,446,663	28,407,689	27,159,485