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Does Family Control Matter? International Evidence from the 2008–2009 Financial Crisis*

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We study whether and how family control affects valuation and corporate decisions during the 2008–2009 financial crisis using a sample of more than 8,500 firms from 35 countries. We find that family-controlled firms underperform significantly, they cut investment more relative to other firms, and these investment cuts are associated with greater underperformance. Further, we find that within family groups liquidity shocks are passed on through investment cuts across the group. Our evidence is consistent with families taking actions to increase the likelihood that the firms under their control and their control benefits survive the crisis, at the expense of outside shareholders. (*JEL* G01, G14, G32)

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We study whether and how family control affects valuation and corporate decisions during the 2008–2009 financial crisis using a sample of more than 8,500 firms from 35 countries. We find that family-controlled firms underperform significantly, they cut investment more relative to other firms, and these investment cuts are associated with greater underperformance. Further, we find that within family groups liquidity shocks are passed on through investment cuts across the group. Our evidence is consistent with families taking actions to increase the likelihood that the firms under their control and their control benefits survive the crisis, at the expense of outside shareholders. (*JEL* G01, G14, G32)

Whether family control is beneficial for all shareholders or serves the family's best interest at the expense of outside shareholders is still unclear, despite much research on this issue.[1] In this paper, we shed new light on this topic by studying, around the world, whether and how family control affects valuation and corporate decisions during the 2008–2009 financial crisis.

We argue that the unexpected liquidity shock from the financial crisis moves firms out of equilibrium in a way that magnifies both the benefits and costs of family control. With liquidity scarce, a family could add value by providing greater access to finance via other firms under its control. However, a family's private benefits of control also can be affected by the crisis. A controlling family tends to be undiversified with its wealth tied up in the firm(s) it controls, and a liquidity shock can threaten the survival of the family empire. Relative to firms controlled by more diversified shareholders, family-controlled firms may be biased toward survival-oriented actions that help preserve the family's control benefits at the expense of outside shareholders.

We use a sample of more than 8,500 nonfinancial firms from thirty-five countries to test whether outside shareholders update their expectations regarding the benefit or cost of family control during a financial shock. Our results show that across countries family-controlled firms underperform relative to other firms during the 2008–2009 global financial crisis and that this result is robust to a variety of empirical specifications. In our baseline specification, buy-and-hold crisis period returns for family firms are 1.4 percentage points lower than for widely held firms and 3.3 percentage points lower than for firms with a nonfamily controlling blockholder. Collectively, the result that outside investors incrementally discount family firms indicates that during a crisis the cost of family control outweighs its benefit.

[1] See Morck, Wolfenzon, and Yeung (2005) for a comprehensive survey.

We next explore the causes of this discount. As mentioned above, we hypothesize that private benefits of control become more costly to outside investors during a financial shock because survival of the family's economic interests becomes a key factor driving the use of firm resources. To test this, we analyze the actions taken by firms relating to financing, investment, and labor policies, before and after the crisis, as well as precrisis firm characteristics indicative of high private benefits of control.

We first explore whether family-controlled firms' financing and investment decisions differ from other firms. On the financing side, family-controlled firms do not behave differently than other firms during the crisis in terms of their cash holdings, dividend policy, leverage, debt maturity, credit lines, and equity issues. Thus, we find no evidence that family control provides greater access to finance during an unexpected liquidity shock. On the investment side, we find that family-controlled firms reduce their capital expenditures to assets ratio by 0.52 percentage points relative to other firms. Our sample has a median capital-expenditures-to-assets ratio of 3.7 percentage points, so this is equivalent to a 14% reduction in investment. We also show that firms that cut investment more have greater stock price declines during the crisis. This link between investment and stock price decline indicates that some productive investment is being cut. We next perform a mediation test that indicates that about one third of the underperformance of family firms is explained by underinvestment. Taken together, these tests show that the relative underperformance of family-controlled firms stems at least in part from decisions by families to reduce investment during the crisis.

We next directly test the idea that families take survival-oriented actions by investigating whether a family group that controls equity in multiple sample firms intervenes in capital budgeting decisions in a way that enhances the chance for survival of the family's network of firms. For multifirm family groups, we identify firms that are individually hit very hard by the

crisis. We then show that other firms in those groups cut their investment more than firms in family groups without any hard-hit members, and more than firms in non-family-controlled groups that do have hard-hit members. This evidence that severe financial distress in one family firm is associated with investment cuts in other healthier group firms is consistent with ensuring survival of the family empire but is unlikely to be in the best interest of the minority shareholders of the healthier firms in the group.

We complete our analysis by assessing the extent to which underperformance is more pronounced in family firms for which outside investors would expect private benefits of control to be particularly costly. Given prior literature, investors may proxy for expected agency costs with variables that correspond to greater discretion in using the firm's resources: higher free cash flows, higher operating profits, larger cash balances, and less transparent disclosure. In an unexpected liquidity shock, a family interested in preserving its empire will divert resources to accomplish this. Family firms that enter the crisis with greater internal resources at their disposal (or with greater discretion on how they use their resources) will thus be discounted more by minority shareholders.

We find that the underperformance of family-controlled firms is concentrated in only those family firms that enter the crisis with high expected agency costs. These firms underperform other firms during the crisis by 2.0 to 3.3 percentage points, depending on the agency cost proxy. Our earlier results show family control being used to preserve family funds by cutting investment, whereas these results indicate that investors also expect other forms of diverting firm resources for the family's benefit to take place.[2] Importantly, family firms with

[3] Law and finance research shows that the agency conflicts that shape the relation between firm value and ownership are likely to depend on countries' institutional structures (La Porta et al. 1998) and are more likely to be a first-order effect in samples of non-U.S. firms (La Porta, Lopez-de-Silanes, and Shleifer 1999; Claessens, Djankov, and Lang 2000).

low expected agency costs do not on average underperform relative to other firms. We also test whether the family control discount is concentrated in countries with low levels of shareholder protection or transparency and do not find this to be the case. Thus, the family discount appears to be a global effect. Overall, these tests indicate that the private-benefits-of-control hypothesis explains the underperformance of family-controlled firms during the crisis.

We consider several alternative hypotheses for the underperformance of family-controlled firms, each of which could potentially weaken our conclusion that private benefits play an important role. First, Sraer and Thesmar (2007), Bach and Serrano-Velarde (2009), and Mueller and Philippon (2011) argue that families are unique in maintaining valuable implicit contracts with stakeholders, particularly their employees. These implicit contracts may be costly to maintain following a financial shock and might contribute to the family firm discount. However, we find no support for this implicit-contract explanation, as family-controlled firms engage in significant layoffs and labor cost reductions just as other firms do.

A second alternative is that family-controlled firms may be fundamentally different from other firms, and such differences could make family firms more susceptible to suffering from a financial shock. Consistent with the first part of this statement, we find that family firms are different in some characteristics, such as being smaller on average. We thus use several methods to test whether underperformance may result from family-controlled firms entering the crisis with different characteristics other than being controlled by a family. For instance, we use propensity score matching to generate samples of firms not controlled by families that are indistinguishable on observable characteristics from family-controlled firms. In all of these tests, we continue to find that family-controlled firms significantly underperform their peers during the crisis.

A final alternative explanation we explore is whether the underperformance of family-controlled firms stems from our specific variable definitions. We show that our results remain

unchanged for crisis windows that are shorter, longer, or have country-specific duration, for various definitions of what constitutes a family-controlled firm, and when we risk adjust performance using a range of single- and multifactor asset pricing models.

Our results make several contributions to the literature. To our knowledge, we are the first to document that private benefits of family control become more costly to outside investors during a financial shock and that the underperformance of family firms is a global effect, consistently distributed around the world. We also show that this result obtains only for family firms with high expected agency costs. Prior research by Lemmon and Lins (2003) has shown a similar effect for managerial (but not family) control and has done so only in East Asian emerging markets. Our results coincide with the argument and results of Villalonga and Amit (2006) that the family—as a homogeneous group of individuals who know each other well and share the same values—can easily coordinate against the interests of minority shareholders.

Second, our study contributes to the analysis of the real effects of the 2008–2009 financial crisis around the world. Several papers have documented a reduction in investment for U.S. firms during the crisis (Campello, Graham, and Harvey 2010; Duchin, Ozbas, and Sensoy 2010; Ivashina and Scharfstein 2010; Kuppuswamy and Villalonga 2010). Campello et al. (2012) extend this result to European firms. We show that around the world family-controlled firms reduce investment more than other firms during the crisis, these investment cuts correspond to lower firm performance, and families that control multiple firms cut investment in relatively healthy group firms when another group firm becomes severely distressed. Our results complement Masulis, Pham, and Zein's (2011) finding that during the (normal business conditions) time period of 2002–2006 family-controlled firms invest more, using the resources of the family group to accomplish this. We find that in the recent crisis period any such financing advantage did not carry over. Our results are also consistent with Faccio, Marchica, and Mura's

(2011) result showing that firms controlled by undiversified shareholders undertake less risky investments than firms controlled by diversified shareholders. Families are typically less diversified than other types of shareholders, and our paper shows that they act more conservatively during the crisis, likely due to concerns about the survival of the family network.

Finally, our research focus is deliberately on the impact of family control during a financial shock, and using the crisis as a natural experiment allows us to sidestep typical endogeneity concerns that make it difficult to identify whether blockholder control impacts firm value (e.g., Demsetz and Lehn 1985; Himmelberg, Hubbard, and Palia 1999; Zhou 2001). In our setting, the unanticipated and exogenous financial shock abruptly disrupts the equilibrium, while blockholder control remains fixed at least in the short term. This allows us to directly observe how investors adjust their valuations of firms with different types of blockholders.

The remainder of the paper is structured as follows. Section 1 discusses our data and summary statistics. In Section 2, we analyze whether family control impacts crisis period stock returns or the corporate actions taken by firms during the crisis. In Section 3, we explore several alternative hypotheses for our findings and conduct robustness tests. Section 4 concludes.

1. Sample and Summary Statistics

We begin our sample construction by matching nonfinancial firms (i.e., SIC codes 6000–6999 are excluded) from the Worldscope-Datastream database as of December 2006 with firms from the December 2006 Bureau van Dijk Osiris database, a global database of listed firms with detailed shareholder structure data. At that time period, there was little if any indication that a global financial crisis loomed on the horizon. We exclude firms with total assets below US$10 million, negative book equity, negative assets, negative cash, negative debt, or missing data for the variables needed for our baseline empirical specification. Finally, we exclude U.S. firms and all

countries with fewer than twenty-five firms.[3] Our final sample contains 8,854 firms from thirty-five countries.

1.1 Descriptive statistics

Table 1 provides descriptive statistics for our main variables. All nonbinary variables are winsorized at the 1st and 99th percentiles. We summarize some of these variables below.

The median firm in our sample is somewhat small, with total assets of $239 million and a market value of equity of $220 million. Firms are not highly levered entering the crisis, with median (book) leverage measured as total debt to total assets equal to 17%. Freefloat, the percentage of outstanding shares not held by blockholders, for the median firm in our sample is 57%. We collect this measure independently from Datastream and Osiris. The two measures are highly correlated but not identical, presumably because of small measurement differences, and we use an average of the two. The majority of firms are contained in MSCI indices, and relatively few firms are cross-listed on a U.S. exchange. The median cash-to-assets ratio is 11%, and median profitability (EBITDA to total assets) is 6%. Investment, measured as the ratio of capital expenditures to total assets, has a median value of 4%.

Our main performance measure is *crisis period return*, which is the buy-and-hold stock return of the firm over the crisis period, where the crisis period begins in mid-August 2008 and ends in mid-March 2009, the point at which global markets reached their nadir. As shown in

[3] Law and finance research shows that the agency conflicts that shape the relation between firm value and ownership are likely to depend on countries' institutional structures (La Porta et al. 1998) and are more likely to be a first-order effect in samples of non-U.S. firms (La Porta, Lopez-de-Silanes, and Shleifer 1999; Claessens, Djankov, and Lang 2000).

Table 1, the buy-and-hold crisis-period return for the median firm in our sample is –41% and is still strongly negative (–23%) for the top quartile of performance.[4]

1.2 Controlling blockholders

When studying the impact of families on firm performance around the world, it is well established that this relation depends on control, rather than on shareholder concentration, as control is enhanced with mechanisms such as dual class shares and pyramids, which form wedges between cash flow and voting rights, particularly in less developed financial markets and in countries with weaker investor protection (Zingales 1994; La Porta, Lopez-de-Silanes, and Shleifer 1999; Claessens et al. 2002; Faccio and Lang 2002; Volpin 2002; Lins 2003). Data requirements for a meaningful analysis of the effects of blockholder control are high, and availability of such data across countries has in the past been quite limited. With the Osiris database we are able to use a set of detailed firm ownership links that allow us to determine ownership structures with a high degree of precision and to trace shareholdings of blockholders across countries. Importantly, it allows us to separate different types of controlling blockholders using a procedure described below.

Key to our analysis is the identification of whether a firm has an ultimate controlling blockholder and, if so, whether the blockholder is a family. In the simplest cases, the ultimate owner has a direct stake in the firm under investigation, and Osiris data on direct shareholdings are enough to identify this blockholder. In more complex cases, however, the ultimate owner has an indirect stake in the firm under investigation, and thus identification of the ultimate owner requires tracing controlling stakes through potentially many layers between the firm and its

[4] In robustness tests in Section 2.2, we alternatively consider both shorter and longer fixed-length event windows as well as country-specific event windows.

ultimate owner. We utilize a unique feature of the data—the provision of shareholding links for every firm—to trace ultimate controlling blockholders for the firms in our sample.[5]

The Osiris database assigns identifiers to firms and shareholders, where shareholders can be virtually any type of legal person. The database identifies ownership by limited and unlimited liability firms, public and private firms, cooperatives, foundations, individuals and families, and municipalities and states. The construction of these ownership links is typically complex and is explained in a detailed technical document. To conserve space, we limit our discussion to two aspects: (1) the way control is traced and (2) how we identify whether a firm has a family as the ultimate controlling blockholder.

Osiris traces control by calculating voting rights, but not cash flow rights, and identifies an ultimate owner of a firm if the entity controls the firm directly at a defined threshold or via a control chain whose links all exceed that threshold. The threshold in the December 2006 version of Osiris can be configured to be 25% or 50%, and we set it to 25%.[6]

Using the 25% threshold, we separate firms into the following three categories: (1) widely held; (2) ultimately controlled by a family; and (3) ultimately controlled by a nonfamily entity. A widely held firm is a company that is known by Osiris to have no ultimate owner at the 25% threshold of control. A firm that is ultimately controlled by a family is one in which Osiris traces ultimate ownership such that the stake of the family in aggregate exceeds the 25% threshold. Note that in compiling the data Osiris keeps track of multiple family members and differences in

[5] According to Bureau van Dijk, the shareholding links contained in their database have been built up over several years, relying on a large number of public and semipublic sources, and at the time of our study it contained 6.69 million such links. Bureau van Dijk maintains the link database dynamically, updating it with new information when it becomes available. Therefore, the database represents snapshots of the international web of shareholder structures at relatively precise points in time.

[6] Blockholder definition thresholds vary in the literature, and our more restrictive approach classifies relatively more firms as widely held. Some prior studies focusing on family control use slightly lower thresholds (e.g., 20% in Faccio and Lang (2002) or no threshold but restrict family definitions to founding families (e.g., Anderson and Reeb (2003); Villalonga and Amit (2006)). In robustness tests, which we describe later, we lower the threshold for family control and find our results to be unaffected.

last names. A non-family-controlled firm is one in which Osiris either identifies an ultimate owner at the 25% threshold that is not affiliated with a family, such as firms that are themselves widely held, state owners, non-family-controlled foundations, and so forth or one that is known to have multiple blockholders that collectively exceed the 25% threshold (so the firm is not widely held) but individually do not control the firm at the 25% threshold. We drop from the sample 685 firms, which are known by Osiris to not be widely held but for which ultimate control is not identified. In a robustness test later on, we assume these firms are family controlled, add them to our sample, and our results are unchanged.

Table 2 shows that the median firm in our sample is widely held, as 64% of firms have no ultimate controlling blockholder. Eleven percent of firms are family controlled, and 25% are nonfamily controlled. The table also shows significant variation in control structures across countries prior to the crisis. Among the larger economies, firms are most likely to be widely held in Japan, Taiwan, the United Kingdom, and Australia, whereas family blockholders are most common in France, Italy, Germany, Hong Kong, and South Korea.

2. Crisis-Period Performance and Determinants

In this section, we analyze the impact of control on crisis period stock returns and find that family-controlled firms underperform relative to other firms during the financial crisis. We then investigate what might account for this family-firm underperformance, focusing in particular on our hypothesis that the extraction of private benefits of control becomes more costly to outside investors during a financial shock because the survival of the family's economic interests becomes a key factor driving the use of firm resources. In Section 3, we explore whether alternative hypotheses other than private benefits of control might explain family firm performance and also perform several robustness tests.

2.1 Baseline results

We begin our empirical tests by examining the determinants of crisis period returns using the following baseline specification:

$$Ret_{crisis,i} = \alpha + \beta' \times Block_i + \gamma' \times X_i + \lambda_{1,SIC2} + \lambda_{2,Market} + \varepsilon_i, \quad (1)$$

where $Ret_{crisis.i}$ is the buy-and-hold crisis period return for stock *i* as described previously, *Block* is a vector of indicator variables which characterize the control structure of a firm, X_i refers to a set of firm-specific control variables, which include the firm's size as measured by the (log of) market capitalization, leverage, short term borrowing, beta, momentum, liquidity, MSCI inclusion, freefloat, cross-listing, cash holdings, and book-to-market, all of which are described in Section 1, and $\lambda_{1,SIC2}$ and $\lambda_{2,Market}$ are two-digit SIC code and country fixed effects, respectively. In all regressions, we follow Petersen (2009) and cluster standard errors by country, as our firm-level variables, including crisis period returns, are likely to be correlated between firms within a country.[7]

The regression results for our baseline empirical specification (1) are reported in Table 3. In Column 1, we conduct an initial test that uses an indicator variable for whether (1) or not (0) there is a controlling blockholder of any type. Using this coarse measure of control, we find that firms controlled by any type of blockholder performed marginally better during the crisis compared with widely held firms. The estimated coefficient is statistically different from zero at the 10% level. Coefficients on the control variables used in our regressions show that firms

[7] An alternative clustering method is to cluster by country-industry, which assumes no correlation between firms in different industries in the same country. Because of the comprehensive nature of the financial crisis, we believe that such correlations are likely to exist and, if true, country-industry clustering will produce standard errors that are too low, even if this effect is mitigated by our inclusion of country fixed effects. When we re-estimate our regressions and cluster standard errors by country-industry, rather than by country, standard errors of our point estimates typically decline. To be conservative, we report all of our results with country clustering.

tended to perform better during the crisis if they were larger, had stronger momentum, lower systematic risk, lower leverage, and were not part of an MSCI index.[8]

In Column 2, we directly assess our predictions regarding family control, in which we include two indicator variables to distinguish between blockholder types: firms with a family as the controlling blockholder and what we term as non-family-controlled firms, which are those firms that do not have a family as the controlling blockholder but instead are either controlled by a single nonfamily blockholder or are controlled by multiple blockholders. We find that family-controlled firms perform worse than widely held firms during the crisis, whereas non-family-controlled firms perform better than widely held firms. The differences are statistically significant at the 5% significance level or better. In terms of economic significance, family-controlled firms have crisis period returns that are 1.7 percentage points lower than widely held firms, whereas non-family-controlled firms have returns that are 2.3 percentage points higher than widely held firms. This regression model thus shows that family control negatively impacts outside shareholders around the world during a major financial shock, a finding that is new to the literature.[9]

Given these new results, we next explore whether a possible cause of the family firm underperformance is investors' heightened concern about the controlling family's conflict of

[8] We also estimate our models using the log of a firm's total assets as a size control and all of our results hold (not tabulated for the sake of brevity). We prefer the market value of equity as a size control because our dependent variable is directly tied to it. Additionally, because family-controlled firms are smaller, they might have higher operating leverage, which could affect crisis period performance. As such, we estimate models that include either the change in operating income divided by the change in sales or the change in EBIT divided by the change in sales, each averaged over the period 2000–2006, as additional controls. Operating leverage is never significant in the regressions, however, and also is not significantly correlated with family control.

[9] Lemmon and Lins (2003) study eight East Asian emerging market countries and find that high managerial control is associated with lower stock returns during the region's 1997 financial crisis. Our results during the unexpected "event" of the financial crisis are consistent with a number of other papers whose analyses indicate that families' interests are not always aligned with those of minority shareholders (see, e.g., La Porta, Lopez de Silanes, and Shleifer 1999; Claessens et al. 2002; Faccio and Lang 2002; Volpin 2002; Lins 2003; Durnev and Kim 2005; Bennedsen et al. 2007; Bertrand et al. 2008; Almeida et al. 2011; Ellul, Pagano, and Panunzi 2010; Masulis, Pham, and Zein 2001; Franks et al. 2012).

interest. We first analyze whether family firms make different financing or investment decisions and, if so, whether these decisions matter for performance. We then analyze whether underperformance is concentrated in family firms expected ex ante to have larger agency costs.

2.2 Financing and investment decisions

In Table 4, we assess whether family-controlled firms have different policies regarding cash holdings, dividends, leverage, short-term debt, credit lines, equity issues, and capital expenditures during the crisis relative to their industry peers. We do so by estimating panel regressions for the period 2006 to 2009, with firm fixed effects and industry-year fixed effects as well as control variables. Specifically, we estimate the following baseline difference-in-differences specification:

$$Decision_{it} = \alpha + \phi' \times Block_i \times Crisis_t + \gamma' \times X_{it} + \lambda_{ct} + \lambda_i + \varepsilon_{it}, \quad (2)$$

where $Decision_{it}$ is a financing decision (in Panel A) or an investment decision (in Panel B) for firm i in year t, $Block_i$ is an indicator variable for either family or nonfamily blockholder control, $Crisis_t$ is an indicator variable that takes the value of one for the crisis years 2008 and 2009 and is zero for the years 2006 and 2007, X_{it} refers to a set of firm-specific control variables (which include (log of) firm size, leverage, profitability, and Tobin's Q), λ_{ct} are industry-year fixed effects, and λ_i are firm fixed effects. $Crisis_t$ is not included as a stand-alone variable in the model because it is subsumed by the industry-year fixed effects. The parameter of interest is ϕ, which captures the change in either financing activity or investment activity during the crisis for firms controlled by family or nonfamily blockholders. As before, standard errors are clustered at the country level.

In Panel A, we find that family-controlled firms do not differ in their crisis period decisions about cash holdings, dividend policy, leverage, short-term debt, credit lines, or equity

issues compared with other firms. These tests showing that family-controlled firms' financing policies are not uniquely different during the crisis indicate that families do not appear to have (or choose not to use) any preferential access to finance compared to other types of firms.

In Panel B, we analyze investment decisions and do find differences. Specifically, family-controlled firms reduce their investment (measured as capital expenditures to assets) by 0.52 percentage points relative to other firms. With median capital expenditures to assets of 3.7 percent for our sample, this is equivalent to a 14% reduction in investment. As argued earlier, relative to firms controlled by more diversified shareholders, family-controlled firms may be biased toward survival-oriented actions that help preserve the family's control benefits, both now and in the future. Cutting investment preserves resources and lessens the risk that a family will lose control of its firm(s). However, Desai, Foley, and Forbes (2008) study a range of prior currency crises around the world and find that incremental investment is productive during these crises. Thus, it is plausible that a family's decision to reduce investment during the recent global financial crisis goes against the interest of minority shareholders and may at least partially account for our family-firm underperformance results. We test this next.

2.3 Investment and performance

In Table 5, we use a variation of our previous crisis-period return regression model to test whether investment cuts made as a result of the crisis can explain the relative underperformance of family-controlled firms.

We compute crisis period investment changes as crisis period investment less precrisis period investment, all divided by precrisis period investment. We use two alternative measures. For $\Delta Inv_{1,i}$, we average investment during the crisis years of 2008 and 2009 to obtain a firm's crisis period investment level and then average investment during the precrisis years of 2006 and

2007 to obtain its precrisis investment level. For $\Delta Inv_{2,i}$, crisis period investment is just for year 2009 and precrisis investment is just for year 2006. Based on these two measures of investment changes, we construct six indicator variables for investment cuts: two indicators for whether a firm's change in investment was negative, $I\left(\Delta Inv_{1,i} < 0\right)$ and $I\left(\Delta Inv_{2,i} < 0\right)$; two indicators for whether a firm's change in investment is smaller than the sample median, $I\left(\Delta Inv_{1,i} < Median\right)$ and $I\left(\Delta Inv_{2,i} < Median\right)$; and two indicators for whether a firm's change in investment belongs to the lowest quartile, $I\left(\Delta Inv_{1,i} < 25^{th} Pctl\right)$ and $I\left(\Delta Inv_{2,i} < 25^{th} Pctl\right)$. Consistent with Table 4, summary statistics for these investment cut indicators reported in Panel A of Table 5 show that family-controlled firms cut investment significantly more during the crisis. Depending on the investment cut measure, the proportion of family firms that cut investment is 7.4% to 16.4% higher than for nonfamily firms and 8.7% to 14.4% higher than for widely held firms.

In Panel B, we estimate the correlation between investment cuts and performance using the following regression model:

$$Ret_{crisis,i} = \alpha + \beta' \times Block_i + \gamma' Cut_i + \delta' X_i + \lambda_{1,SIC2} + \lambda_{2,Market} + \varepsilon_i, \quad (3)$$

where Cut_i is one of the investment cut variables defined above and all other variables are the same as in Equation (1). In all models, the coefficient on the investment cut indicator is negative and highly significant. Thus, firms experience greater crisis-period performance declines when they cut investment more, a result consistent with the idea that during a period of scarce liquidity incremental investment has a relatively high expected payoff. Because family firms were shown previously to cut investment more than other firms, the results in Table 5 support the idea that the underperformance of family-controlled firms is at least partly related to the decisions by families to reduce investment during the crisis. At the bottom of Table 5, we explicitly test this

explanation by assessing whether investment cuts have a mediating effect on the relation between family control and underperformance.[10] We follow the Sobel (1982) framework and implement the bootstrapping procedure suggested by Preacher and Hayes (2004). In all six specifications, the mediation effect is highly statistically significant and indicates that on average roughly a third of the underperformance of family firms is attributable to investment cuts.

2.4 Investment and groups

Having established that investment cuts matter for performance, we next directly test the idea that families may cut investment to enhance the survival chances of the firms under their control. Specifically, we investigate whether a family group that controls equity in multiple sample firms intervenes in capital budgeting decisions to enhance the chance for survival of the family's entire network of firms. In a crisis, expectations of nonsurvival increase.[11] If a firm controlled by a family is hit hard by the crisis, the family may try to increase the firm's probability of survival by transmitting the liquidity shock across its other group firms by reducing investment in these firms. Severe financial distress in one family firm would then be associated with investment cuts in other healthier group firms.

To test this hypothesis, we start by identifying firms that belong to a group of any type, family or otherwise. For each sample firm we consider its direct and indirect shareholders and cross-reference them with all other Osiris firms and their respective direct and indirect

[10] We thank Jan Sokolowski for suggesting us this test.

[11] Claessens, Djankov, and Klapper (2003) find that during the 1997 East Asian crisis, 644 of their 1,472 sample firms became financially distressed and 83 of these had filed for bankruptcy by the end of 1998, a much higher rate of distress and bankruptcy than in normal times. We obtain all bankruptcies and restructurings from SDC for our sample countries for the period 2004–2012. After excluding censored, that is, ongoing, events, this yields 2,729 observations. We find that restructuring and bankruptcy events increase from an average of 0.54 events per month per 1,000 listed firms in the period before the crisis (from 2004 to 2007) to an average of 0.94 events per month per 1,000 listed firms after the crisis (from 2009 to 2012).

shareholders. We define a firm as belonging to a group if there is at least one shareholder with a direct or indirect stake of at least 25% that the firm shares with another firm or if at least one other firm is such a shareholder of this firm. We iterate this procedure across all possible paths between firms to identify the boundary of each group. This 25% cutoff approach yields conservative estimates of whether firms are members of a group and of group size. By our definition, a minimum of two (listed) sample firms must be connected to constitute a group. Under this approach, 12.6% of our 8,584 sample firms are members of a group, there are 483 groups in total, and the median group size is four firms. For the following analysis, we restrict our sample to these 1,084 group firms.

Panel A of Table 6 reports summary statistics for family- and non-family-controlled groups. Consistent with our prior results, within this subsample of group firms, family-controlled firms underperform and underinvest compared with non-family-controlled firms. Family groups are smaller than non-family groups but have similar geographical diversification, with about half of all firms being part of a multinational group.[12]

In Panel B, we test whether family groups with one or more firms that experience a large shock cut investment more in other firms belonging to their groups. We define firms as experiencing a large shock (i.e., being hard hit) if they alternatively belong to the lowest 5th, 10th, 20th, or 30th percentile of crisis-period stock-price performance of the entire sample of 8,584 firms. Then we select all firms that belong to a family group with one or more of the hard-hit firms but are not in the hard-hit category themselves. Depending on the large shock cutoff

[12] We note here that our Panel A, Table 6, group statistics also indicate that controlling families are indeed relatively less diversified in terms of the firm(s) they control compared with nonfamily blockholders. From Table 2, there are 969 family firms and 2,121 nonfamily firms (11% and 25% of the 8,584 total sample firms, respectively). Thus, Panel A shows that 75% of the occurrences of family control are for a single firm ((969 – 240)/969), whereas only 60% of the occurrences of nonfamily control are for a single firm ((2,121 – 844)/2,121).

used, this identifies 15, 29, 46, or 66 family firms, respectively. These firms represent our treatment group, in Column 1.

We compare investment of the treatment group with four alternative control groups. The first, control group 1, is the set of family firms that belongs to groups without any hard-hit firms. Control group 1 therefore only differs from the treatment group in not being exposed to a likely survival risk. As Column 2 shows, investment cuts are between 4% and 21% larger in the treatment than in the control group when we use the lowest fifth and tenth percentile of performance as the cutoff for a large shock. The relative investment cuts are of comparable size but are no longer significant when we use the two less stringent definitions of a large shock (lowest quintile and lowest three deciles of performance).

The second benchmark, control group 2, is the set of firms that belongs to non-family-controlled groups without any hard-hit firms. Control group 2 therefore differs from the treatment group in not being exposed to a likely survival risk and in being nonfamily controlled. This set of firms is much larger and our results, in Column 3, are stronger: Investment cuts in the treatment group are between 7% and 29% larger, and the difference is almost always highly significant.

The third benchmark, control group 3, is the set of firms that belongs to nonfamily controlled groups with hard-hit firms. Control group 3 therefore differs from the treatment group only in being nonfamily controlled. The results, in Column 4, again confirm our hypothesis: Even within hard-hit groups, family firms cut investment by 6% to 29% more than nonfamily firms, depending on the specification. We obtain similar findings in Column 5, where we combine control groups 1 and 3 to form control group 4.

These results show that firms in hard-hit family groups cut investment more than firms in family groups without any hard-hit members and more than firms in non-family-controlled groups that do have hard-hit members. This evidence that severe financial distress in one family

group firm is associated with investment cuts in other healthier group firms is consistent with ensuring survival of the family empire but is unlikely to be in the best interest of the minority shareholders of the healthier group firms.

2.5 Firm-level differences in agency conflicts

Our results are consistent with market participants recognizing that families have the ability to use their control to make discretionary decisions that benefit themselves at the expense of outside shareholders during the crisis. So far, our paper has focused on decisions to cut investment. To further assess this interpretation of our results, we test whether the underperformance of family-controlled firms is more pronounced in firms in which outside investors would expect agency costs of control to be particularly high, indicating that other forms of diverting a firm's resources may be taking place. We classify a firm as having high potential for agency conflicts if it has above-median free cash flow, measured as the ratio of EBITDA less capital expenditures to assets (results are unchanged if we refine this classification to require a firm to have both above-median free cash flow and below-median Tobin's Q), if the firm has above median cash to assets, or if it has less transparent disclosure, measured by the use of local GAAP accounting standards rather than international standards. Each of these measures is consistent with a firm's managers having greater discretion over the firm's resources. In an unexpected liquidity shock, a family interested in preserving its empire will divert resources to accomplish this. Family firms with greater discretion over a firm's resources will thus be discounted by minority shareholders.

The results of these splits into firms with high and low expected agency costs are reported in Table 7. Consistent with the hypothesis that family firms underperform because of agency conflicts, we find across all classifications that the underperformance of family-controlled firms

is concentrated in only those family firms that enter the crisis with high expected agency costs. These firms underperform widely held firms during the crisis by 2.4 to 3.1 percentage points and underperform non-family-controlled firms by 4.4 to 4.7 percentage points. Importantly, family firms with low ex ante expected agency costs do not underperform relative to widely held firms (although they always underperform relative to non-family-controlled firms).

3. Alternative Hypotheses and Robustness

In this section, we consider several alternative hypotheses for the underperformance of family-controlled firms, each of which could potentially weaken our conclusion that private benefits play an important role. First, family-controlled firms may be fundamentally different from other firms, and such differences could make family firms more susceptible to suffering from a financial shock. Second, prior research has argued that families are unique in maintaining valuable implicit contracts with employees. These implicit contracts may be costly to maintain following a financial shock and might contribute to the family firm discount. A final alternative explanation that we explore is whether the underperformance of family-controlled firms stems from our specific variable definitions. In turn, we examine whether the results are influenced by our definition of what constitutes a family-controlled firm and the way we amalgamate nonfamily blockholders; we consider alternative lengths of the event window over which crisis period returns are calculated; and we risk adjust crisis period returns using seven different domestic and international single- and multifactor asset pricing models.

3.1 Precrisis firm characteristics

If blockholder control type is systematically related to differences in firm characteristics, the differential impact of family control may at least partly result from differences in firm

characteristics. It is thus crucial to identify whether such differences exist and to properly account for them in our analyses.

In our previous cross-sectional regressions, we control for variables, such as profitability, leverage, liquidity, cash, and size, to separate the effects of a firm's financial characteristics from the effect of control structures during a crisis. Doing so is not sufficient, however, if control structures and financial characteristics of a firm are interdependent. For example, if family firms have lower leverage, as found by Villalonga and Amit (2006), or larger cash holdings, as found by Kalcheva and Lins (2007), then they might fare better in a financial shock.

In Panel A of Table 8, we compare precrisis characteristics of family firms and other firms. As of December 2006, family-controlled firms are significantly smaller, less risky, and less likely to be on an MSCI index or be cross-listed than either non-family-controlled or widely held firms. They are also more levered, have higher momentum, and lower freefloat than widely held firms and have higher cash and book-to-market ratios than non-family-controlled firms.

To assess whether these pre-crisis differences between family and other firms influence our results, we conduct a matched sample analysis using propensity score matching algorithms following Dehejia and Wahba (2002). The first stage of estimating propensity scores in probit models is shown in Panel B. The binary dependent variable is whether (1) or not (0) a firm is family controlled, and the explanatory variables are as in Table 3. In both regressions the treatment group is the sample of firms that are family controlled. In the first regression, the control group is the sample of firms that are widely held; in the second regression, it is the sample of firms that are non-family-controlled.

In Panel C, we use the first-stage propensity estimates to match each family-controlled firm with a set of control firms that have similar characteristics to the family firm (i.e., their estimated propensity scores are similar to the family firm), but they are either widely held firms

or non-family-controlled firms. The selection of control firms requires decisions on closeness-of-match and total sample size of control firms that are selected. A lower tolerance level on the maximum propensity score distance (caliper) lessens the risk of bad matches. The number of control firms varies based on whether just one nearest neighbor is chosen or a radius match is used in which all control firms that fit within the caliper are selected. In our analysis, control firms are selected four ways: (1) with replacement using all matching firms within the predefined propensity score distance (caliper) $\delta = 0.0001$; (2) with replacement using all matching firms within the caliper $\delta = 0.001$; (3) using the control firm with the closest propensity score (nearest neighbor), with resampling and distance restrictions (control firms can be drawn a maximum of three times, nearest neighbor distance cannot exceed $\delta = 0.02$); and (4) using the nearest neighbor, without resampling or distance restrictions. Once the control groups are selected, we then compare crisis period returns for the treatment group with each matched control group.

The results in Panel C show that no matter how control groups are selected, family firms significantly underperform other firms during the crisis: Their underperformance ranges from 2.7 to 5.4 percentage points relative to widely held firms and from 2.3 to 4.4 percentage points relative to non-family-controlled firms. Thus, even when other firms are matched to be indistinguishable from family-controlled firms, family-controlled firms underperform. These

findings confirm the results in Table 3 and alleviate the concern that precrisis differences in firm characteristics may be the source of the underperformance of family-controlled firms.[13]

3.2 Implicit contracts, layoffs, and labor costs

We next investigate whether the honoring of implicit contracts to employees might account for our family firm underperformance. The idea here is that family firms can better commit to honor long-term implicit contracts because the family reputation is at stake and/or the family's grip on control prevents hostile takeovers. Sraer and Thesmar (2007) show that employment is less sensitive to sales shocks in heir-managed French firms; Bach and Serrano-Velarde (2009) find that family-promoted CEOs are associated with lower job turnover and less wage renegotiation; and Mueller and Philippon (2011) document greater family ownership in countries in which labor relations are hostile, concluding that family firms are particularly effective at coping with difficult labor relations.

This view of family control suggests an alternative explanation for the finding that family firms are associated with weaker stock market performance during the crisis than firms with other control structures: Family firms are committed to maintaining implicit contracts with employees. In other words, the poor stock price performance comes at the benefit of protecting employment.

[13] Another possible explanation for the underperformance of family-controlled firms is survivorship bias. We require market return availability throughout the crisis period and exclude firms that do not survive. If family firms are more likely to survive, our finding that family firms underperform may be due to their poor, but not catastrophic, performance being captured in our sample, whereas other firms' catastrophic performance is not captured because they do not survive. To analyze whether nonsurvival is related to blockholder type, we identify all firms that do not survive as listed firms from August 2008 to December 2009 (74 firms) and estimate the determinants of nonsurvival for this sample, using both Cox hazard rate and logit regression models. In both the hazard rate and logit models (not tabulated for the sake of brevity), we find that nonsurvivors have higher leverage, lower momentum, lower liquidity, and are not part of an MSCI index. The type of controlling blockholder, however, does not affect survival. Because family firms are not more likely to survive than other firms, survival bias is unlikely to account for our results.

If true, then during the crisis one should observe fewer cuts to either number of employees or labor costs in family-controlled firms than in other firms.

Table 9 tests this hypothesis that family firms do less restructuring of their labor forces during the crisis. As before, we use a difference-in-differences approach with yearly panel data from 2006 to 2009. Specifically, we estimate the following specification:

$$Restructure_{it} = \alpha + \phi' \times Block_i \times Crisis_t + \gamma' \times X_{it} + \lambda_{ct} + \lambda_i + \varepsilon_{it}, \quad (4)$$

where $Restructure_{it}$ is either the reduction in the number of employees (which we term "layoffs") or the reduction in labor costs for firm *i* in year *t*, whereas $Block_i$, $Crisis_t$, and all control variables and fixed effects are as in specification (2), and standard errors are clustered at the country level. The parameter of interest is ϕ, which captures the change in restructuring activity for different types of controlling blockholders during the crisis.

The results in Table 9 are inconsistent with the view that family firms underperform because they maintain implicit employee contracts: During the crisis, family firms are equally likely to lay off employees and to reduce labor costs relative all other firms.[14] Rather, these results are consistent with family firms being exposed to a lack of liquidity during the crisis and thus being unable to shield their employees from unemployment risk.

3.3 Alternative blockholder definitions

To explore whether our definition of family control matters for our results, in Table 10 we consider several refinements of our blockholder classification method. We collect data on all

[14] Because non-family and widely held firms increase investment relative to family firms in the crisis, our finding that family firms do not reduce labor costs more indicates they may be less productive in terms of their labor to capital ratios. We also note that if we cluster standard errors in the less conservative manner at the country-industry level, the negative coefficient of (Family control) × (Crisis period) in Column 1 becomes significant at the 5% level.

board members of all sample firms (70,000 individuals), together with their direct and indirect shareholdings, and construct three adjustments to the definition of family control.

To facilitate comparison, we report in Column 1 of Panel A the base-case regression specification estimated in Table 3. In Column 2, we expand the family firm definition to also include firms in which one or more board members controls at least 25% of voting rights (*Family-controlled alternative 1*). This reclassifies 122 firms as family-controlled. The result is virtually identical to our baseline result reproduced in Column 1: Family firms again perform worse during the crisis relative to widely held firms (1.8 percentage points lower stock returns), whereas non-family-controlled firms continue to perform better than widely held firms (2.3 percentage points higher returns). In Columns 3 and 4, we allow family control to also include firms in which one or more board members control at least 20% of voting rights (*Family-controlled alternative 2*, reclassifies 102 firms) and 10% of voting rights (*Family-controlled alternative 3*, reclassifies 107 firms), respectively, and find that our results remain virtually unchanged. Thus, our Panel A models show that our general result that family firms underperform other firms during the crisis holds for many plausible definitions of family control.

Next, in Panel B of Table 10 we break down the category of nonfamily controlling blockholder into the most detailed subcategories we have available. Sorted in order of decreasing prevalence, nonfamily controlling blockholders are (1) a nonfinancial firm (74.2% of all cases), (2) a financial investor that is neither a bank nor an insurance company (15.9%), (3) a state (5.8%), (4) a bank (3.5%), or (5) an insurance company (0.6% of all cases). For reference, the baseline regression with the pooled nonfamily controlling blockholder dummy (from Table 3) is reported in Column 1. We then replace the pooled dummy with dummy variables for all five subcategories in Column 2. We find evidence of outperformance by all five subcategories of nonfamily blockholders, although it is not always significantly different from zero (which may

stem from low power tests in subcategories with few observations). Collectively, the evidence suggests that any type of blockholder, except a family, is beneficial during a liquidity shock. [15]

Finally, for additional robustness, instead of dropping the 685 firms that have no available information on their control structure, expect for the fact that they are not widely held, we assume that these firms are controlled by a family and rerun our tests. The results (not reported) are virtually identical to those in Table 3, indicating that firms with unknown control perform very similar to firms known to be family-controlled. Because we cannot directly observe their control situation, we continue to exclude these firms from our analysis.

3.4 Alternative event windows

Next, in Table 11, we consider several alternative event windows. In Columns 1 to 4, crisis period returns are calculated over 3, 5, 7 (our baseline), and 9 months.

In the table, we estimate specification (1) using the returns on the three alternative event windows as dependent variables, while keeping everything else as in Table 3. In Columns 2 and 4, we obtain results that are very similar to the ones in the baseline analysis reported in Table 3: When we distinguish across different blockholder types, we find that family-controlled firms underperform widely held firms by 1.6 percentage points, whereas nonfamily blockholder firms outperform widely held firms by 1.8 and 2.2 percentage points. The results in Column (1) for the three-month period are statistically weaker and roughly half as large, suggesting that the impact

[15] In addition to potential access-to-finance benefits assessed in Wruck (1989), Hertzel and Smith (1993), Winton (1993), and Weinstein and Yafeh (1998), blockholders have been argued to help in product markets (Khanna and Palepu 1997, 2000) and to provide monitoring (e.g., Shleifer and Vishny 1986; Burkart, Gromb, and Panunzi 1997; Maug 1998). In unreported regressions, we distinguish between firms with a single nonfamily blockholder and firms with multiple blockholders. Bennedsen and Wolfenzon (2000) show how having several large blockholders forces them to form coalitions to exercise control, which can result in more efficient actions, and Laeven and Levine (2008) find that firms with multiple large blockholders have different valuations than other firms. We find that both single and multiple nonfamily blockholders are associated with higher crisis period returns, and there is no significant difference between their coefficients. We note here that we are not aware of any crisis-specific empirical nonfamily blockholder research.

of blockholder control on equity market value following the Lehman Brothers bankruptcy was not immediate.

Results become more pronounced when we take into account that the speed of the impact of the financial crisis differed between countries. We do this in Columns 5 and 6, where the length of the time window over which crisis period returns are calculated is determined separately for each country, using two different measures. In both measures, crisis period returns begin in the middle of August 2008. For the first measure, in Column 5, the country-specific crisis period ends in the month prior to the country's first positive monthly return, that is, excluding the uptick month itself. For the second measure, in Column 6, the crisis period ends in the month prior to the country's first three positive uptick months, representing a more pessimistic estimate of the length of the financial crisis.

The argument in favor of choosing country-specific crisis periods is that, as recent papers, such as Beber and Pagano (2013), have shown, the financial crisis impacted markets differently. Figure 1 shows the wide variation across countries, regarding both the magnitude and the timing of the impact. By using a fixed-length window across all countries, independent of whether prices are still falling in that particular market, our results may be biased against detecting any abnormal performance due to controlling blockholders. At the same time, an argument against choosing variable-length event windows is the potential endogeneity concern that market returns themselves are used to determine the period over which firms' equity market returns are measured.

The length of the post-Lehman-Brothers-bankruptcy downturn varies, with the median country in our sample experiencing six months of consistently negative returns. The shortest market downturns are concentrated in emerging markets, with two months (Brazil, Indonesia, and

South Korea) and three months (Chile and Portugal) of consecutive negative returns, whereas most developed markets experienced downturns of six months.[16]

The results in Columns 5 and 6 using these country-specific crisis period returns as the dependent variable are again very similar to the ones in the baseline analysis reported in Table 3: When we distinguish across different blockholder types, we find that family-controlled firms underperform 1.6 to 2.0 percentage points relative to widely held firms, whereas nonfamily blockholders outperform widely held firms by 2.3 to 2.7 percentage points.

To summarize, in these robustness tests the coefficient on family blockholders is always negative and significant, whereas the coefficient for nonfamily blockholders is always positive and significant. Overall, the length of the event window does not greatly affect results.

3.5 Alternative return measures: Adjusting for risk

In our baseline regressions in Table 3 we control for, among other factors, size, book-to-market, momentum, and systematic risk. The cross-sectional regression does not, however, accommodate firm-specific factor loadings for these potential risk factors. To further assess robustness, we use risk-adjusted excess returns as the dependent variable. Because the literature has not converged on one commonly accepted multicountry asset pricing model, we employ seven alternative single- and multifactor models as follows: DOM is a single-factor domestic market model, which uses a value-weighted domestic market factor, MKT, for each country; GLOBAL is equivalent but uses a value-weighted global market factor instead; HKK3 DOM and HKK3 INT are domestic and international versions of the Hou, Karolyi, and Kho (2011) model, which use

[16] We arbitrarily set the length of the downturn to the sample median for Greece as its market did not experience any positive return between September 2008 and December 2010.

factor-mimicking portfolios to construct a valuation factor,[17] a momentum (MOM) factor and a MKT factor; FF4 DOM and FF4 INT are domestic and international versions of the four-factor Carhart (1997) model that includes the factors MKT, size (SML), book-to-market (HML) and MOM; and FF8 DI includes both the domestic and international version of the four Carhart factors under the premise that stock prices during the crisis can be affected incrementally by both domestic and international factors.

Domestic factors are country specific as mentioned, whereas international factors are calculated for each country as the weighted average of the respective domestic factors of all other countries, where weights are the relative stock market capitalization of each country. See Hau and Lai (2011) for construction details of the individual factor portfolios. Data for domestic and international market factors (MKT), small-to-large factors (SML), book-to-market factors (HML), and momentum factors (MOM) are kindly provided by the respective authors.

Across all models, in the first step we estimate individual stock loadings of the factor-mimicking portfolios using regressions over the sixty-month period preceding the crisis, August 2003–July 2008, with a minimum of thirty months of data (with this restriction, we lose 60 out of the total 8,584 sample firms). To illustrate, for the seventh model, FF8 DI, we estimate

$$R_{i,t} = \alpha_i + \sum_{j=Dom,Int} \left[\beta_{1,i,j} MKT_{t,j} + \beta_{2,i,j} SML_{t,j} + \beta_{3,i,j} HML_{t,j} + \beta_{4,i,j} MOM_{t,j} \right] + \varepsilon_{i,t}, \qquad (3)$$

where $R_{i,t}$ indicates a firm's excess return (net of the risk-free rate), and j indicates the domestic and international set of factors, respectively. Summary statistics for the estimated factor loadings for all models are reported in Panel A of Table 12.

[17] Because of data availability, our valuation factor is the Fama-French HML factor portfolio instead of the, according to the authors more suitable, cash flow to price factor portfolio. Also, we use a twelve-month momentum factor instead of their six-month factor.

In the second step, we use the factor loadings estimated precrisis and calculate the monthly risk-adjusted excess return during the August 2008 to March 2009 crisis period. To illustrate, for the seventh model, FF8 DI, we calculate

$$R_{i.t}^{ex} = R_{i,t} - \sum_{j=Dom,Int} \left[\hat{\beta}_{1,i,j} MKT_{t,j} + \hat{\beta}_{2,i,j} SML_{t,j} + \hat{\beta}_{3,i,j} HML_{t,j} + \hat{\beta}_{4,i,j} MOM_{t,j} \right] + \varepsilon_{i,t}, \quad (4)$$

We then compound $R_{i.t}^{ex}$ to obtain a firm's buy-and-hold excess return during the crisis period as

$$R_i^{ex} = \prod_{t=Aug\,2008}^{Mar\,2009} \left(1 + R_{i,t}^{ex}\right) - 1. \quad (5)$$

We use these Equation (5) excess returns as the dependent variable to estimate the same specification as in Table 3. The results are reported in Panel B of Table 12. The findings change very little compared with our prior analysis. Family-controlled firms still significantly underperform widely held firms and non-family-controlled firms. Non-family-controlled firms continue to perform better than widely held firms, although, in the multifactor models, the difference is not statistically significant. Relative to our baseline results in Table 3, where the models explain about a third of the total variation in crisis period returns, R^2 values in Table 12 decline dramatically (likely because many of the firm-specific variables that explain performance during the crisis are at least somewhat correlated with the factor portfolios). Collectively, we conclude from these tests that our family-firm underperformance results are robust to measuring performance using risk-adjusted techniques.

3.6 Cross-country tests

Finally, we consider whether country-level measures of shareholder protection add explanatory power to our findings that minority shareholders are concerned with the incremental costs and

benefits of controlling blockholders during a financial shock. The law and finance literature has often argued that firm-level governance issues are more pronounced when institutions that protect outside shareholders are relatively weak (see, e.g., La Porta et al. 2002; Durnev and Kim 2005; Doidge et al. 2009; Leuz, Lins, and Warnock 2009). As mentioned, prior work regarding blockholder control and crisis period valuation finds that firms with a high level of managerial control are associated with lower valuations, but the sample contains only eight emerging market countries (Lemmon and Lins 2003).

As a first test, we split the sample into emerging and developed markets based on the 2006 classification of *The Economist* and re-estimate our Table 3 models. The results (untabulated for the sake of brevity) show that the negative coefficient of family control is larger in emerging markets than for the full sample, while there is no significant negative effect of family control in developed markets. We also find that the beneficial effect of nonfamily blockholders is present in both the emerging and developed market subsamples. Thus, minority shareholders appear to discount family-controlled firms more heavily when they are likely to be least protected, to the extent that in 2006 an emerging market classification corresponds to lower shareholder protection.

We take this analysis further and split our sample by country-level measures that explicitly assess shareholder protection, such as indices for antidirector rights (La Porta et al. 1998; Spamann 2010) and anti-self-dealing (Djankov et al. 2008), rule of law and legal origin (La Porta et al. 1998), and several securities law indicators from La Porta, Lopez-de-Silanes, and Shleifer (2006). In these splits, we find no consistent evidence that family control has a uniquely different impact on valuation when minority shareholder protection is lower. Next, despite small sample sizes in many cases, we estimate individual country regressions and generally find negative coefficients for family control (as would be expected) but note that family control

coefficients are positive and marginally significant for two countries (Belgium and Brazil) and are positive but insignificant for thirteen countries (Austria, Canada, Finland, Indonesia, Israel, Italy, Japan, Norway, Philippines, Sweden, South Africa, South Korea, and Taiwan).[18] Thus, although we cannot say that costs of family control outweigh the benefits in each of our sample countries, we do conclude that family control is costly to minority shareholders around the world on average during a financial crisis.

4. Conclusion

A large number of publicly traded firms around the world are controlled by families. Whether and how family control can influence firm value has been studied extensively, yet the literature has not produced a conclusive answer. This paper provides new evidence on the value of family control around the world by studying its effect during the 2008–2009 financial crisis.

The unexpected liquidity shock from the financial crisis changes the benefits and costs of family control for minority shareholders. For instance, a controlling family may be beneficial to the extent that it provides greater access to finance via other firms under its control. On the other hand, protection of a family's private benefits of control may become a greater priority during a liquidity shock. Controlling families tend to have their wealth tied up in the firm(s) they control. Thus, relative to firms controlled by more diversified shareholders, family-controlled firms may take survival-oriented actions that preserve the family's control benefits even if these actions are not in the interests of minority shareholders.

[18] For some countries, mixed prior evidence exists. For example, in the case of South Korea, Baek, Kang, and Park (2004) find that family control was costly during the 1997 Asian financial crisis, whereas Almeida and Kim (2012) find that being part of a chaebol business group, which significantly overlaps with family control, was on net beneficial. Also, the recent crisis was truly global, and was arguably more pronounced economically in countries typically viewed as having better governance, and less pronounced in countries with weaker governance. This would make it difficult to detect incremental underperformance of family firms in weaker governance countries, should such underperformance exist.

Across a large sample of firms from thirty-five countries, we find that family-controlled firms underperform relative to other firms during the global financial crisis, controlling for firm, industry, and country characteristics. The underperformance is robust to many different model specifications and to matched-sample analysis. When we explore the corporate actions that explain this performance differential, we find no evidence that financing choices play a role as there are no significant differences in terms of cash holdings, dividend policy, leverage, debt maturity, credit lines, and equity issues between family firms and other firms.

We next explore real-side decisions taken during the crisis and find that family-controlled firms reduce their investment relative to other firms. We also find that these investment changes affect performance, as firms that cut investment more suffer greater stock price declines during the crisis. In further tests, we show that when a family controls multiple firms in a group and one of the firms in the family group is hit strongly by the crisis, the family reduces investment in the other relatively healthy group firms.

Taken together, our evidence points toward a conflict-of-interest explanation for the underperformance of family-controlled firms during the crisis. Families become increasingly interested in preserving their control rights. Thus, they take actions geared toward enhancing the survival of the firm(s) under their control. Outside shareholders anticipate these shifting incentives on the part of family blockholders and mark down share prices accordingly.

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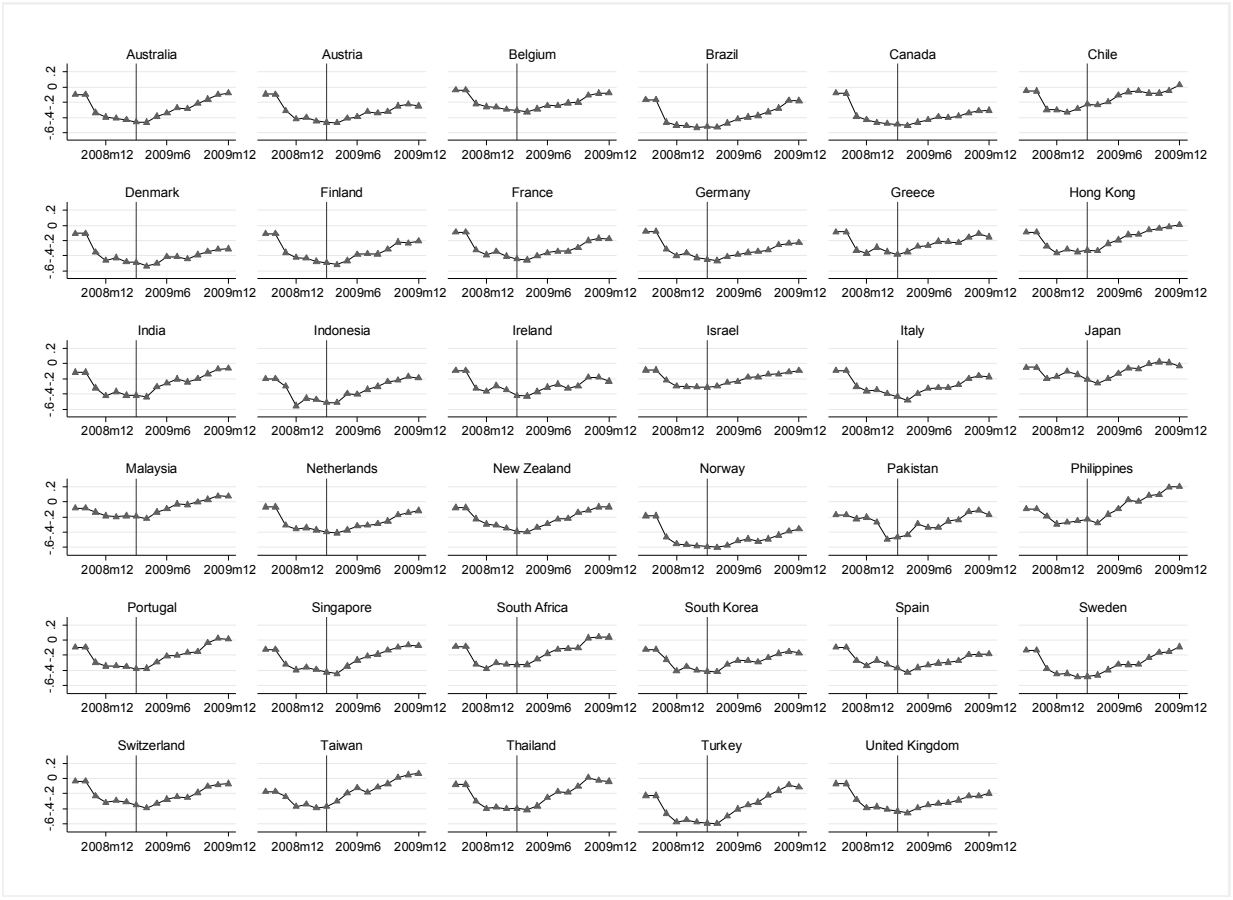

Figure 1. Stock Market Returns During the 2008-2009 Financial Crisis Around The World
Monthly stock market returns (value-weighted) for all 35 sample countries. Returns are buy-and-hold returns calculated using all sample firms and begin August 2008. The vertical line indicates March 2009, the MSCI World Total Return Index' lowest point during the crisis.

Table 1. Descriptive statistics

Summary statistics for the main variables used in subsequent regression analyses. Total assets and market capitalization are in millions of US dollars; Leverage is the ratio of total debt to total assets; Short-term debt is the ratio of short-term debt to total debt; Beta is the correlation between the stock return and the local market return estimated over the previous year; Momentum is a firm's stock return over the year preceding August 2008; Liquidity is the percentage of days during which the stock return was different from zero in the one-year period preceding August 2008; Freefloat is defined as 100 minus the percentage of shares closely held; MSCI is an indicator variable for whether (1) or not (0) a firm's stock belongs to an MSCI index; Cross-listing is an indicator variable for whether (1) or not (0) a firm has a U.S. exchange-listed ADR as of December 2006; Cash holdings is the ratio of cash to total assets; Book-to-market is the ratio of the book value of equity to the market value of equity; Profitability is operating profit (measured as EBITDA) divided by total assets; Investment is the ratio of capital expenditures to total assets; and Crisis period return is the buy-and-hold stock return of a firm from the middle of August 2008 to the middle of March 2009. All firm-level statistics other than beta, momentum, liquidity, and crisis period return are as of December 2006. All nonbinary variables are winsorized at the 1st and 99th percentiles.

Variable	N	Mean	25th pctl.	Median	75th pctl.	SD
Total assets	8,584	1,492	71	239	876	3,977
Market capitalization	8,584	1,328	60	220	842	3,212
Leverage	8,584	0.20	0.03	0.17	0.32	0.17
Short term debt	8,584	0.49	0.24	0.50	0.73	0.31
Beta	8,584	0.92	0.56	0.87	1.22	0.51
Momentum	8,584	-0.25	-0.47	-0.26	-0.05	0.30
Liquidity	8,584	0.88	0.87	0.97	0.99	0.20
Freefloat	8,584	0.57	0.39	0.57	0.75	0.24
MSCI	8,584	0.53	0.00	1.00	1.00	0.50
Cross-listing	8,584	0.01	0.00	0.00	0.00	0.12
Cash holdings	8,584	0.16	0.05	0.11	0.22	0.17
Book-to-market	8,584	0.68	0.31	0.53	0.87	0.57
Profitability	8,584	0.04	0.01	0.06	0.10	0.15
Investment	8,584	0.06	0.02	0.04	0.07	0.07
Crisis period return	8,584	-0.40	-0.59	-0.41	-0.23	0.27

Table 2. Controlling blockholder categories by country

Blockholder statistics by country as of December 2006 for the full sample of 8,584 nonfinancial firms. Firms are separated into the following categories: (1) ultimately controlled by a family, (2) ultimately controlled by a nonfamily blockholder, and (3) widely held. A firm that is ultimately controlled by a family is one in which the ultimate stake of the family (members) in aggregate exceeds the 25% threshold. A non-family-controlled firm is one with an ultimate blockholder at the 25% threshold that is not affiliated with a family. Non-family-controlled firms include firms known to have multiple blockholders that collectively exceed the 25% threshold (so the firm is not widely held) but individually do not control the firm at the 25% threshold. A widely held firm is a company that is known to have no ultimate owner at the 25% threshold of control.

Country	Family-controlled	Non-family-controlled	Widely held	*N*
Australia	0.05	0.25	0.70	733
Austria	0.20	0.49	0.31	35
Belgium	0.20	0.49	0.31	65
Brazil	0.08	0.57	0.35	65
Canada	0.05	0.27	0.68	381
Chile	0.04	0.54	0.43	56
Denmark	0.11	0.43	0.46	63
Finland	0.09	0.39	0.52	79
France	0.36	0.35	0.29	366
Germany	0.32	0.37	0.31	292
Greece	0.20	0.40	0.40	45
Hong Kong	0.28	0.31	0.41	398
India	0.08	0.36	0.56	290
Indonesia	0.03	0.60	0.37	92
Ireland	0.08	0.14	0.78	36
Israel	0.14	0.17	0.69	29
Italy	0.32	0.44	0.24	149
Japan	0.01	0.10	0.89	1,577
Korea, Republic of	0.23	0.20	0.56	460
Malaysia	0.08	0.22	0.70	508
Netherlands	0.11	0.31	0.58	83
New Zealand	0.07	0.33	0.60	45
Norway	0.19	0.41	0.41	69
Pakistan	0.04	0.43	0.54	28
Philippines	0.09	0.62	0.29	68
Portugal	0.15	0.41	0.44	27
Singapore	0.15	0.32	0.53	347
South Africa	0.15	0.30	0.55	110
Spain	0.23	0.25	0.52	79
Sweden	0.09	0.27	0.64	116
Switzerland	0.15	0.32	0.53	132
Taiwan	0.01	0.14	0.85	440
Thailand	0.05	0.21	0.74	174
Turkey	0.23	0.56	0.21	111
United Kingdom	0.09	0.15	0.77	1,036
Total	0.11	0.25	0.64	8,584

Table 3. Crisis period stock returns for widely held and blockholder-controlled firms

Regressions of the dependent variable, crisis period stock returns, on blockholder categories and control variables. Crisis period return is the buy-and-hold stock return of a firm from mid-August 2008 to mid-March 2009. All specifications include country and two-digit SIC code industry fixed effects. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
Controlling blockholder of any type	0.012*	
	[0.006]	
Family-controlled		-0.017**
		[0.007]
Non-family-controlled		0.023***
		[0.007]
Ln(Firm size)	0.009*	0.008*
	[0.005]	[0.005]
Leverage	-0.146***	-0.143***
	[0.025]	[0.024]
Short-term debt	-0.003	-0.003
	[0.011]	[0.010]
Beta	-0.084***	-0.084***
	[0.014]	[0.014]
Momentum	0.004	0.005
	[0.007]	[0.007]
Liquidity	0.093	0.094
	[0.060]	[0.060]
Freefloat	-0.033**	-0.033**
	[0.015]	[0.015]
MSCI	-0.004	-0.004
	[0.006]	[0.006]
Cross-listing	0.043	0.043
	[0.033]	[0.033]
Cash holdings	0.014	0.016
	[0.015]	[0.016]
Book-to-market	0.014*	0.014*
	[0.008]	[0.008]
Country and industry fixed effects	yes	yes
Observations	8,584	8,584
Adjusted R^2	0.325	0.326

Table 4. Blockholder control and corporate decisions during the crisis

Panels A and B report panel regressions with yearly data from 2006 to 2009; dependent variables are shown in the column titles. Dividends is the ratio of common dividends to total assets; Short-term debt is the ratio of short-term debt to total debt; Credit lines is revolving credit facilities (obtained from Capital IQ) divided by total assets; and Equity issues is the percentage change in number of shares outstanding (obtained from Datastream). Cash and leverage are as described in Table 1. Crisis period takes the value of one for years 2008 and 2009 and the value of zero for years 2006 and 2007. Unless noted otherwise, control variables include profitability, the log of total assets, the log of market capitalization, leverage, Q (total assets plus market value of equity minus book value of equity, divided by total assets), and firm and industry-year fixed effects. Control variables are excluded as follows: Column 1 excludes profitability, and Column 5 excludes leverage. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Financing decisions

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Cash	Dividends	Leverage	Short-term debt	Credit lines	Equity issues
(Family control) × (crisis period)	0.003	0.000	0.004	-0.005	-0.000	0.004
	[0.003]	[0.001]	[0.004]	[0.011]	[0.003]	[0.040]
(Nonfamily control) × (crisis period)	0.002	-0.001	0.001	-0.006	0.002	-0.024
	[0.003]	[0.001]	[0.002]	[0.006]	[0.002]	[0.056]
Control variables	yes	yes	yes	yes	yes	yes
Industry-year fixed effects	yes	yes	yes	yes	yes	yes
Firm fixed effects	yes	yes	yes	yes	yes	yes
Observations	31,387	31,387	31,387	31,387	16,599	30,356
Adjusted R^2	0.062	0.035	0.132	0.022	0.087	0.007
Family versus Nonfamily, *F*-statistic	0.051	0.755	0.412	0.012	0.398	0.315
p-value	0.823	0.391	0.526	0.915	0.532	0.578

Panel B: Investment decisions

	(7)	(8)
Dependent variable	(Capex/assets)	Log(1+Capex)
(Family control) × (crisis period)	-0.005**	-0.096**
	[0.002]	[0.042]
(Nonfamily control) × (crisis period)	-0.001	-0.000
	[0.001]	[0.026]
Control variables	yes	yes
Industry-year fixed effects	yes	yes
Firm fixed effects	yes	yes
Observations	31,387	31,387
Adjusted R^2	0.040	0.171
Family versus Non-family, *F*-statistic	9.144	5.239
p-value	0.005	0.028

Table 5. Investment decisions, blockholder control, and crisis period stock returns

Panel A reports changes in investment (capital expenditures/assets) from before to after the crisis. ΔInv_1 variables, in the second column, are based on the change in investment from the 2006/2007 average to 2008/2009 average; variables in the third column are based on the change from 2006 to 2009. The table reports several indicator variables that correspond to absolute or relative postcrisis cuts in investment. Panel B reports regressions of the dependent variable, crisis period stock returns, on blockholder categories, control variables, and changes in investment from before to after the crisis. Crisis period stock returns and control and fixed effect variables are as described in Table 3. Standard errors clustered at the country level are reported in brackets. Mediating effect is the decrease in the coefficient on Family-controlled from including the column-specific investment cut indicator variable. Confidence intervals at the 99% level are obtained by bootstrapping Sobel mediation test statistics with 5000 replications. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Investment cuts

	$\Delta Inv_1 = \frac{AvgInvA_{i,2008,2009} - (AvgInvA_{i,2006,2007})}{AvgInvA_{i,2006,2007}}$			$\Delta Inv_2 = \frac{InvA_{i,2009} - InvA_{i,2006}}{InvA_{i,2006}}$		
		Mean	SD		Mean	SD
Family-controlled	$I(\Delta Inv_1 < 0)$	0.57	0.49	$I(\Delta Inv_2 < 0)$	0.69	0.46
(N=969)	$I(\Delta Inv_1 <$ Median)	0.52	0.50	$I(\Delta Inv_2 <$ Median)	0.57	0.50
	$I(\Delta Inv_1 <$ 25th Pctl.)	0.27	0.45	$I(\Delta Inv_2 <$ 25th Pctl.)	0.30	0.46
Non-family-controlled	$I(\Delta Inv_1 < 0)$	0.47	0.50	$I(\Delta Inv_2 < 0)$	0.55	0.50
(N=2121)	$I(\Delta Inv_1 <$ Median)	0.39	0.49	$I(\Delta Inv_2 <$ Median)	0.41	0.49
	$I(\Delta Inv_1 <$ 25th Pctl.)	0.20	0.40	$I(\Delta Inv_2 <$ 25th Pctl.)	0.20	0.40
Widely held	$I(\Delta Inv_1 < 0)$	0.48	0.50	$I(\Delta Inv_2 < 0)$	0.59	0.49
(N=5494)	$I(\Delta Inv_1 <$ Median)	0.39	0.49	$I(\Delta Inv_2 <$ Median)	0.43	0.49
	$I(\Delta Inv_1 <$ 25th Pctl.)	0.19	0.39	$I(\Delta Inv_2 <$ 25th Pctl.)	0.21	0.41
		Diff.	SE		Diff.	SE
(Family-controlled) –	$I(\Delta Inv_1 < 0)$	0.105***	[0.019]	$I(\Delta Inv_2 < 0)$	0.134***	[0.019]
(Non-fam.-controlled)	$I(\Delta Inv_1 <$ Median)	0.130***	[0.019]	$I(\Delta Inv_2 <$ Median)	0.164***	[0.019]
	$I(\Delta Inv_1 <$ 25th Pctl.)	0.074***	[0.016]	$I(\Delta Inv_2 <$ 25th Pctl.)	0.103***	[0.016]
(Family-controlled) –	$I(\Delta Inv_1 < 0)$	0.093***	[0.017]	$I(\Delta Inv_2 < 0)$	0.100***	[0.017]
(Widely held)	$I(\Delta Inv_1 <$ Median)	0.129***	[0.017]	$I(\Delta Inv_2 <$ Median)	0.144***	[0.017]
	$I(\Delta Inv_1 <$ 25th Pctl.)	0.087***	[0.014]	$I(\Delta Inv_2 <$ 25th Pctl.)	0.095***	[0.014]

Panel B: Regressions of crisis period stock returns						
Chg. in investment variable:	$\Delta Inv_1 = \frac{AvgInvA_{i,2008,2009} - (AvgInvA_{i,2006,2007})}{AvgInvA_{i,2006,2007}}$			$\Delta Inv_2 = \frac{InvA_{i,2009} - InvA_{i,2006}}{InvA_{i,2006}}$		
	(1)	(2)	(3)	(4)	(5)	(6)
Family-controlled	-0.012	-0.011	-0.013*	-0.012	-0.010	-0.014*
	[0.007]	[0.007]	[0.007]	[0.008]	[0.008]	[0.008]
I(ΔInv <0)	-0.048***			-0.060***		
	[0.014]			[0.016]		
I(ΔInv <Median)		-0.050***			-0.061***	
		[0.012]			[0.015]	
I(ΔInv<25th Pctl.)			-0.047***			-0.052***
			[0.010]			[0.013]
Non-family-controlled	0.023***	0.023***	0.023***	0.022***	0.022***	0.022***
	[0.007]	[0.007]	[0.008]	[0.007]	[0.007]	[0.007]
Mediating effect	-0.005***	-0.006***	-0.004***	-0.005***	-0.007***	-0.004***
Bootstrapped confidence	(-0.008,	(-0.010,	(-0.007,	(-0.008,	(-0.010,	(-0.006,
interval (99%)	-0.003)	-0.004)	-0.002)	-0.002)	-0.004)	-0.001)
% of total effect mediated	31.9	37.3	23.9	29.8	39.2	21.5
Control variables	yes	yes	yes	yes	yes	yes
Country and industry FE	yes	yes	yes	yes	yes	yes
Observations	8,584	8,584	8,584	8,584	8,584	8,584
R^2	0.333	0.333	0.330	0.337	0.337	0.331

Table 6. Financial shocks and investment decisions in groups

Characteristics of family-controlled and non-family-controlled firms that belong to family or nonfamily groups are reported in Panel A. Changes in investment (ΔInv_1, ΔInv_2) and the investment-cut indicator functions are as defined in Table 5. Group size is the number of listed firms within a group. Geographic diversification indicates whether (1) or not (0) a group contains firms from more than one country. Panel B compares investment decisions of a subset of family firms (the treatment group) with four alternative control groups. The treatment group consists of family-controlled firms that belong to a group in which at least one firm in the group experiences a large financial shock during the crisis (the firm(s) that experience the shock themselves are excluded). Control group 1 contains firms in family-controlled groups for which *no* firm experiences a large shock. Control group 2 includes firms in non-family-controlled groups for which *no* firm experiences a large shock. Control group 3 includes non-family-controlled groups for which at least one firm experiences a shock (the firm(s) that experience the shock themselves are excluded). Control group 4 contains the union of control group 1 and control group 3. Firms experience a large financial shock if their crisis period stock return (as described in Table 1) places them among the lowest 5% (p5), the lowest decile (p10), the lowest two deciles (p20), or the lowest three deciles (p30) of returns for the entire sample of 8,584 firms. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Group characteristics				
	Family-controlled firms (1)	Non-family-controlled firms (2)	Diff. (1)-(2)	SE
Number of firms	240	844		
Crisis period return	-0.43	-0.37	-0.06***	[0.018]
ΔInv_1	-0.13	-0.06	-0.06***	[0.008]
ΔInv_2	-0.09	-0.00	-0.10***	[0.024]
$I(\Delta Inv_1 < 0)$	0.87	0.73	0.14***	[0.031]
$I(\Delta Inv_1 <$ Median)	0.75	0.46	0.30***	[0.035]
$I(\Delta Inv_1 <$ 25th Pctl.)	0.40	0.22	0.18***	[0.032]
$I(\Delta Inv_2 < 0)$	0.73	0.56	0.17***	[0.035]
$I(\Delta Inv_2 <$ Median)	0.65	0.45	0.20***	[0.036]
$I(\Delta Inv_2 <$ 25th Pctl.)	0.32	0.22	0.10***	[0.031]
Group size	5.02	7.15	-2.13***	[0.538]
Geographic diversification	0.53	0.50	0.03	[0.037]

Panel B: Investment decisions of family groups experiencing large financial shocks versus control groups						
Large shock cutoff	Investment decision variable	Treatment group (1)	Control group 1 (2)	Control group 2 (3)	Control group 3 (4)	Control group 4 (5)
Lowest 5% (p5)	Obs	15	220	786	38	258
	ΔInv_1	-0.18	-0.12	-0.06	-0.09	-0.12
	(treatment)-(control)		-0.06**	-0.12***	-0.09***	-0.06**
	SE		[0.026]	[0.031]	[0.028]	[0.026]
	ΔInv_2	-0.29	-0.08	0.00	0.01	-0.06
	(treatment)-(control)		-0.21***	-0.29***	-0.29***	-0.22***
	SE		[0.063]	[0.088]	[0.089]	[0.067]
Lowest decile (p10)	Obs	29	198	711	87	285
	ΔInv_1	-0.16	-0.12	-0.06	-0.09	-0.11
	(treatment)-(control)		-0.04**	-0.10***	-0.07***	-0.05**
	SE		[0.019]	[0.022]	[0.024]	[0.021]
	ΔInv_2	-0.22	-0.07	0.01	0.01	-0.05
	(treatment)-(control)		-0.14***	-0.23***	-0.23**	-0.17**
	SE		[0.048]	[0.060]	[0.102]	[0.069]
Lowest quintile (p20)	Obs	46	150	548	174	324
	ΔInv_1	-0.13	-0.12	-0.06	-0.07	-0.09
	(treatment)-(control)		-0.01	-0.07***	-0.06***	-0.03**
	SE		[0.017]	[0.018]	[0.019]	[0.017]
	ΔInv_2	-0.06	-0.09	0.00	0.04	-0.02
	(treatment)-(control)		0.03	-0.07	-0.1	-0.04
	SE		[0.042]	[0.046]	[0.068]	[0.055]
Lowest 3 deciles (p30)	Obs	66	100	402	245	345
	ΔInv_1	-0.13	-0.10	-0.05	-0.07	-0.08
	(treatment)-(control)		-0.03*	-0.08***	-0.07***	-0.06***
	SE		[0.016]	[0.016]	[0.016]	[0.015]
	ΔInv_2	-0.10	-0.06	0.01	0.03	0.00
	(treatment)-(control)		-0.04	-0.11***	-0.13**	-0.10**
	SE		[0.041]	[0.040]	[0.054]	[0.048]

Table 7. Blockholder control and firm-level expected agency costs

Regressions of the dependent variable, crisis period stock returns, on blockholder control variables. The table reports results for subsamples, split by whether firms have high or low expected agency costs using three criteria: Free cash flow ((EBITDA – Capital expenditures)/Assets); Cash holdings (defined in Table 1); and an indicator of whether (1) or not (0) the firm uses local GAAP accounting standards. For the free cash flow and cash holdings splits, a firm is classified as having high expected agency costs if the variable value is above the sample median and having low costs otherwise. Firms are also considered to have high expected agency costs if they use local GAAP accounting standards and low costs otherwise. Crisis period stock returns and control and fixed effect variables are as described in Table 3. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Sample split by	Free cash flow		Cash holdings		Firm uses local GAAP	
Expected agency costs	High	Low	High	Low	High	Low
Family-controlled	-0.031**	-0.003	-0.024*	-0.010	-0.025**	-0.007
	[0.012]	[0.012]	[0.013]	[0.010]	[0.012]	[0.008]
Non-family-controlled	0.016**	0.032***	0.020*	0.028***	0.021**	0.033***
	[0.008]	[0.011]	[0.010]	[0.009]	[0.011]	[0.009]
Control variables	yes	yes	yes	yes	yes	yes
Country and industry FE	yes	yes	yes	yes	yes	yes
Observations	4,292	4,292	4,292	4,292	5,423	316
Adjusted R^2	0.342	0.303	0.348	0.307	0.346	0.196

Table 8. Crisis period stock returns for matched samples

The table reports firm characteristics by type of control, as of December, 2006 in Panel A; propensity score matching results in Panel B; and crisis period returns for family-controlled firms and matched firms in Panel C. All variables are as defined in Table 1. In Panel B, propensity scores are estimated using probit regressions of treatment status on the control variables and fixed effects used in Table 3. In Panel C, control firms are selected four ways: (1) with replacement using all matching firms within the predefined propensity score distance (caliper) δ=0.0001; (2) with replacement using all matching firms within the caliper δ=0.001; (3) using the control firm with the closest propensity score (nearest neighbor), with resampling and distance restrictions (control firms can be drawn a maximum of three times, nearest neighbor distance cannot exceed δ=0.02); and (4) using the nearest neighbor, without resampling or distance restrictions. In Panels A and B, standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Precrisis firm characteristics by controlling blockholder type

	(1) Family-controlled firms		(2) Non-family-controlled firms		(3) Widely held firms		Diff. (1)-(2)	SE	Diff. (1)-(3)	SE
	Mean	SD	Mean	SD	Mean	SD				
Ln(Firm size)	5.05	1.96	5.64	1.97	5.44	1.91	-0.585***	[0.076]	-0.383***	[0.067]
Leverage	0.20	0.17	0.20	0.18	0.19	0.17	0.003	[0.007]	0.011*	[0.006]
Short-term debt	0.50	0.31	0.47	0.31	0.50	0.30	0.029	[0.012]	0.001	[0.011]
Beta	0.82	0.49	0.85	0.51	0.96	0.50	-0.029**	[0.020]	-0.133***	[0.018]
Momentum	0.06	0.37	0.06	0.38	-0.01	0.39	-0.004	[0.015]	0.065***	[0.013]
Liquidity	0.87	0.21	0.88	0.22	0.87	0.19	-0.005	[0.008]	0.005	[0.007]
Freefloat	0.42	0.19	0.43	0.22	0.65	0.22	-0.005	[0.008]	-0.224***	[0.007]
MSCI	0.38	0.49	0.52	0.50	0.56	0.50	-0.134***	[0.019]	-0.172***	[0.017]
Cross-listing	0.01	0.07	0.01	0.11	0.01	0.12	-0.008**	[0.004]	-0.010**	[0.004]
Cash holdings	0.16	0.16	0.15	0.15	0.17	0.17	0.017***	[0.006]	-0.005	[0.006]
Book-to-market	0.72	0.64	0.64	0.52	0.69	0.57	0.079***	[0.022]	0.0300	[0.020]

Panel B: Propensity score matching

Control group	Widely held		Non-family-controlled	
	Coef.	SE	Coef.	SE
Size	-0.022	[0.021]	-0.076***	[0.022]
Leverage	0.221	[0.164]	0.415**	[0.173]
Short-term debt	0.045	[0.086]	-0.035	[0.091]
Beta	-0.068	[0.060]	-0.000	[0.063]
Momentum	-0.128	[0.090]	-0.343***	[0.098]
Liquidity	-0.089	[0.175]	0.245	[0.221]
Freefloat	-2.849***	[0.129]	-0.241*	[0.141]
MSCI	0.030	[0.069]	-0.047	[0.070]
Cross-listing	-0.344	[0.241]	-0.136	[0.283]
Cash holdings	-0.068	[0.161]	0.392**	[0.187]
Book-to-market	-0.096*	[0.049]	0.020	[0.054]
Country and industry fixed effects	yes		Yes	
Observations/Pseudo R^2	6,463	0.358	3,090	0.149

Panel C: Matched sample analysis of crisis period stock returns

Matching method	Control group	Control group		Treatment group		Difference	SE	*p*-value
		Obs.	Return	Obs.	Return			
Caliper, δ=0.0001	Widely held	918	-0.427	375	-0.481	0.054	0.016	0.001
	Nonfamily control	537	-0.422	391	-0.466	0.044	0.015	0.004
Caliper, δ=0.001	Widely held	9049	-0.430	797	-0.473	0.043	0.010	0.000
	Nonfamily control	5037	-0.433	898	-0.470	0.037	0.009	0.000
Closest neighbor, restricted	Widely held	920	-0.442	920	-0.470	0.027	0.011	0.018
	Nonfamily control	956	-0.443	956	-0.467	0.024	0.011	0.026
Closest neighbor, unrestricted	Widely held	969	-0.438	969	-0.467	0.029	0.011	0.010
	Nonfamily control	969	-0.446	969	-0.467	0.023	0.011	0.045

Table 9. Blockholder control and employment decisions during the crisis

Panels A and B report panel regressions with yearly data from 2006 to 2009; dependent variables are shown in the column titles. Crisis period takes the value of one for years 2008 and 2009 and the value of zero for years 2006 and 2007. Control variables include profitability, the log of total assets, the log of market capitalization, leverage, Q (total assets plus market value of equity minus book value of equity, divided by total assets), and firm and industry-year fixed effects. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)
Dependent variable	Number of employees	Log(Wages)
(Family control) × (crisis period)	-0.266	-0.009
	[0.187]	[0.026]
(Nonfamily control) × (crisis period)	-0.076	0.008
	[0.107]	[0.022]
Control variables	yes	yes
Industry-year fixed effects	yes	yes
Firm fixed effects	yes	yes
Observations	25,457	21,799
Adjusted R^2	0.054	0.255
Family versus nonfamily, *F*-statistic	1.584	0.621
p-value	0.217	0.436

Table 10. Crisis period stock returns for alternative blockholder control definitions

Regressions of the dependent variable, crisis period stock returns, on alternative definitions of family control in Panel A and breakdown by subcategories of nonfamily blockholders in Panel B. In Column 1 of Panel A, family-controlled firms are defined as in Table 1; in Column 2, family control additionally includes firms in which one or more board members control at least 25% of voting rights; in Column 3, the threshold for board members is reduced to 20% of voting rights; and, in Column 4, the threshold for board members is reduced to 10% of voting rights. In Panel B, noncontrolling blockholders are classified into subcategories of (1) nonfinancial firms, (2) financial investors that are neither a bank nor an insurance company, (3) governments, (4) banks, or (5) insurance firms. Crisis period stock returns and control and fixed effect variables are as described in Table 3. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Alternative family control definitions

	(1)	(2)	(3)	(4)
Family-controlled	-0.017**			
	[0.007]			
Family-controlled alternative 1		-0.018**		
		[0.007]		
Family-controlled alternative 2			-0.018**	
			[0.007]	
Family-controlled alternative 3				-0.016**
				[0.007]
Non-family-controlled	0.023***	0.023***	0.023***	0.023***
	[0.007]	[0.007]	[0.007]	[0.007]
Control variables	Yes	Yes	Yes	Yes
Country and industry fixed effects	Yes	Yes	Yes	Yes
Observations	8,584	8,584	8,584	8,584
Adjusted R^2	0.326	0.326	0.326	0.326

Panel B: Decomposition of nonfamily controlling blockholders

	(1)	(2)	% of non-family-controlled firms
Family-controlled	-0.017**	-0.017**	
	[0.007]	[0.007]	
Non-family-controlled	0.023***		100
	[0.007]		
A nonfamily controlling blockholder is…			
a nonfinancial firm		0.022**	74.2
		[0.010]	
a financial investor		0.024**	15.9
		[0.011]	
a state		0.034	5.8
		[0.022]	
a bank		0.041*	3.5
		[0.021]	
an insurance firm		0.023	0.6
		[0.014]	
Control variables	yes	yes	
Country and industry fixed effects	yes	yes	
Observations	8,584	8,584	
Adjusted R^2	0.326	0.326	

Table 11. Crisis period stock returns for alternative event windows

Regressions of the dependent variable, crisis period stock returns, on blockholder categories and control variables. Crisis period stock returns are calculated over six alternative crisis periods. All crisis periods begin in mid-August 2008. In Columns 1 to 4, the returns are compounded over *n* months as indicated in the column title, across all countries. In Columns 5 and 6, returns are compounded over country-specific time periods. In Column 5, the crisis return period ends in the month prior to the country's first positive monthly return, that is, before the country's first uptick. In Column 6, the crisis period ends in the month prior to the country's first three consecutive positive monthly returns, that is, before the country's first three consecutive upticks. Control and fixed effect variables are as described in Table 3. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Crisis period identical across countries				Country-specific crisis period	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	3 months (Nov. 2008)	5 months (Jan. 2009)	7 months (Mar. 2009)	9 months (May 2009)	Until first uptick	Until three consecutive upticks
Family-controlled	-0.009	-0.016**	-0.017**	-0.016*	-0.020***	-0.016**
	[0.007]	[0.008]	[0.007]	[0.008]	[0.007]	[0.007]
Non-family-controlled	0.012**	0.018**	0.023***	0.022***	0.023***	0.027***
	[0.005]	[0.007]	[0.007]	[0.007]	[0.006]	[0.009]
Control variables	yes	yes	yes	yes	yes	yes
Country and industry fixed effects	yes	yes	yes	yes	yes	yes
Observations	8,584	8,584	8,584	8,582	8,584	8,584
Adjusted R^2	0.286	0.396	0.326	0.256	0.289	0.249

Table 12. Risk-adjusted crisis period stock returns

Risk-adjusted crisis period returns are obtained by estimating factor loadings of a stock on one or more risk factors and then using these estimates to compute monthly risk-adjusted returns that are compounded over the August 2008 to March 2009 period to obtain risk-adjusted buy-and-hold crisis period returns. Seven models are used: a single-factor domestic market model (DOM); a single-factor global market model (GLOBAL); a three-factor model incorporating valuation, momentum, and market factors in the spirit of Hou, Karolyi, and Kho (2011), in a domestic (HKK3 DOM) and international (HKK3 INT) version; a four-factor model incorporating valuation, size, momentum, and market factors, in a domestic (FF4 DOM) and international (FF4 INT) version; and an eight-factor model incorporating domestic and international valuation, size, momentum, and market factors. Domestic factors are country specific. International factors are calculated for each country as the weighted (by country market capitalization) average of all other countries' domestic factors. In Panel A, factor loadings are estimated over 60 months preceding the crisis with a minimum of 30 monthly observations (8,524 out of 8,584 sample firms have sufficient data). Panel B shows regressions of the dependent variable, risk-adjusted crisis period return, on blockholder categories and control variables. Control and fixed effect variables are as described in Table 3 but exclude size, momentum, beta, and market-to-book. Standard errors clustered at the country level are reported in brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A: Estimated factor loadings

		Family-controlled		Widely held		Non-family-controlled				Family-controlled		Widely held		Non-family-controlled	
		Mean	SD	Mean	SD	Mean	SD			Mean	SD	Mean	SD	Mean	SD
DOM	$\hat{\beta}_{MKT}^{DOM}$	0.78	0.46	0.91	0.489	0.78	0.47	FF4 INT	$\hat{\beta}_{MKT}^{INT}$	0.74	0.65	0.75	0.62	0.76	0.68
GLOBAL	$\hat{\beta}_{MKT}^{GLOBAL}$	0.86	0.49	0.99	0.501	0.91	0.55		$\hat{\beta}_{SMB}^{INT}$	0.369	1.63	0.58	1.45	0.47	1.70
HKK3 DOM	$\hat{\beta}_{MKT}^{DOM}$	0.56	0.50	0.59	0.488	0.52	0.47		$\hat{\beta}_{HML}^{INT}$	0.794	2.26	1.26	2.019	1.02	2.33
	$\hat{\beta}_{MOM}^{DOM}$	0.09	0.88	0.13	0.779	0.11	0.73		$\hat{\beta}_{MOM}^{INT}$	-0.043	1.10	-0.04	1.04	-0.10	1.02
	$\hat{\beta}_{HML}^{DOM}$	0.18	0.83	-0.07	1.09	0.12	0.89	FF8 DI	$\hat{\beta}_{MKT}^{DOM}$	0.657	0.86	0.56	0.80	0.52	0.78
HKK3 INT	$\hat{\beta}_{MKT}^{INT}$	0.73	0.65	0.74	0.618	0.75	0.68		$\hat{\beta}_{SMB}^{DOM}$	0.823	0.97	0.99	0.98	0.76	1.15
	$\hat{\beta}_{MOM}^{INT}$	0.03	1.07	0.07	0.99	-0.01	0.94		$\hat{\beta}_{HML}^{DOM}$	0.267	0.99	0.36	1.05	0.28	0.92
	$\hat{\beta}_{HML}^{INT}$	0.87	2.25	1.40	2.014	1.15	2.03		$\hat{\beta}_{MOM}^{DOM}$	0.029	0.99	0.07	0.86	0.10	0.82
FF4 DOM	$\hat{\beta}_{MKT}^{DOM}$	0.68	0.57	0.68	0.521	0.61	0.52		$\hat{\beta}_{MKT}^{INT}$	0.093	1.03	0.24	0.97	0.22	1.01
	$\hat{\beta}_{SMB}^{DOM}$	0.82	0.88	0.97	0.902	0.75	0.89		$\hat{\beta}_{SMB}^{INT}$	0.037	1.86	0.14	1.54	0.13	1.52
	$\hat{\beta}_{SMB}^{DOM}$	0.29	0.89	0.37	0.981	0.31	0.87		$\hat{\beta}_{HML}^{INT}$	0.447	2.22	0.60	2.03	0.62	2.07
	$\hat{\beta}_{MOM}^{DOM}$	-0.02	0.87	0.01	0.751	0.02	0.73		$\hat{\beta}_{MOM}^{INT}$	-0.174	1.28	-0.23	1.11	-0.27	1.13

Panel B: Risk-adjusted crisis period stock returns for widely held and blockholder controlled firms

Risk adjustment	Domestic single-factor market model DOM	Global single-factor market model GLOBAL	Domestic Hou-Karolyi-Kho 3-factor model HKK3 DOM	International Hou-Karolyi-Kho 3-factor model HKK INT	Domestic Fama-French 4-factor model FF4 DOM	International Fama-French 4-factor model FF4 INT	Dom./ Int. Fama-French 8-factor model FF8 DI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Family-controlled	-0.028***	-0.035***	-0.020*	-0.043***	-0.024*	-0.039***	-0.035**
	[0.007]	[0.012]	[0.010]	[0.015]	[0.012]	[0.014]	[0.015]
Non-family-controlled	0.015*	0.020**	0.015*	0.017	0.012	0.018	0.023
	[0.008]	[0.007]	[0.008]	[0.014]	[0.010]	[0.013]	[0.016]
Control variables	yes	yes	yes	yes	yes	yes	yes
Country and industry FE	yes	yes	yes	yes	yes	yes	yes
Observations	8,524	8,524	8,524	8,524	8,524	8,524	8,524
Adjusted R^2	0.192	0.184	0.129	0.092	0.104	0.085	0.083