

# The Dark-Side of Banks' Nonbank Business: Internal Dividends in Bank Holding Companies \*

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## Abstract

Our study highlights the liquidity and capital pressures created by non-banking activities on banks residing within the same bank holding company (BHC). We use a sample of BHCs with large non-bank subsidiaries between 2002 and 2007 to show that banks bear the pressures of dividend smoothing. Banks in BHCs increase internal dividends to parents regardless of their own income. In contrast, non-banks in BHCs appear to be shielded from the pressures of inflexible external dividend policies. We also show that when faced with declining incomes, the banks fund their internal dividends through increased borrowing. Using a difference-in-differences, we show that banks in BHCs increase their payout ratios by 7 percentage points following major non-bank acquisitions during an expanded sample period of 1993-2007. Our evidence on the extraction of cash from banks to fund non-bank activities and capital market pressures to smooth dividends sheds new light on the debate on the optimal scope of BHCs. These observations support the arguments of a dark-side to internal capital markets in which the federally insured banks become a source of strength to the BHC and its non-bank segment.

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# I. Introduction

In a bank holding company (BHC), federally insured banks can co-exist with uninsured non-bank subsidiaries that operate in the areas of securities, insurance, and merchant banking. The passage of the Gramm-Leach-Bliley Act in November 1999, which eliminated barriers between banking and non-bank businesses, increased the acquisitions of non-banks by BHCs. This paper focuses on the disclosures of BHCs that offers a unique lens through which to view the internal cash flows of their segments. An acquiring bank segment's internal dividend behavior before and after a major non-bank acquisition can uncover how the parent manages internal dividends to meet its external dividend obligations and internal financing needs. Further, this management sheds light on the financial constraints of different subsidiaries following mergers and acquisitions.

Our focus is on two broad but related categories of questions. The first is on the workings of internal capital markets. Internal capital markets can mitigate informational asymmetries between subsidiaries and investors as the parent can borrow directly from external markets and reallocate funds internally among subsidiaries ([Gertner, Scharfstein, and Stein \(1994\)](#), [Stein \(1997\)](#), [Stein \(2003\)](#)). This borrowing creates incentives for conglomerates to acquire financially constrained targets and relieve those constraints. In a recent study, [Erel, Jang, and Weisbach \(2015\)](#) show that acquisitions alleviate the financial constraints faced by the acquired targets. Our study fills in several gaps in this emerging literature. We ask how major non-bank acquisitions affect the existing bank segments of financial conglomerates. Specifically, we ask how the parent taps the existing bank segment to finance non-bank acquisitions and the channels through which newly acquired targets can extract funding from the bank segments after the acquisition.

Another incentive to use banks as a source of capital in a BHC emanates from the external dividend policy. BHCs pay higher and persistent dividends relative to industrials ([Floyd, Li, and Skinner \(2015\)](#), [Acharya, Gujral, Kulkarni, and Shin \(2013\)](#)). When BHCs maintain a smooth dividend stream to shareholders, this stream creates resistance to cutting dividends

even when earnings are down. Such persistence can create increased volatility in the cash flows of the bank and non-bank segments within a BHC because these segments might need to increase internal dividends despite a decline in their earnings. Given the bank segment's ability to tap deposit and secured funding markets, the bank segment can continue to meet the parent's financing needs for the rest of the holding company, even in the face of declining income. For the non-bank segment, external capital markets are a comparatively more expensive source of financing. Hence, non-banks might not share that burden.

To examine how banks behave in the presence of non-bank business affiliates, we use data on the internal dividends of BHCs around the acquisition of a non-bank by a BHC. The sample comprises 101 BHCs with material non-bank subsidiaries (as defined by regulatory filings) whose bank and non-bank financial statements are available for the period from 2002 to 2007. Our empirical tests examine how the parent manages the internal dividends following the entry of a non-bank into the BHC. Briefly, the key results are as follows. We find evidence that acquirers use internal dividends to reallocate cash flows to non-banks and external dividends. We also show that the acquirer's bank segment provides funds to the parent as it expands its non-bank segment. Furthermore, the bank segment shields the target (non-bank) in bad times from paying internal dividends.

Our findings have regulatory implications, especially in light of the revived debate on bank scope. While broad-scope banking potentially helps customers by giving them single-window access to a broad menu of services, these effects are not without costs. Regulatory concerns focus on the systemic risk that banks create because of their non-bank segments within the same BHC.<sup>1</sup> We highlight a different and somewhat subtle channel in which liquidity and capital pressures on the bank segment from its parent are a function of the holding company structure. When banks pay out internal dividends in excess of their income, they primarily use these funds to expand or support non-bank business as well as to fund external payouts.

Thus, the funding and capital of banks residing in BHCs are subject to diversion, which

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<sup>1</sup>Laeven, Ratnovski, and Tong (2014) finds that systemic risk increases with the complexity of a bank. Meanwhile, De Jonghe (2010) finds that heterogeneity in banks' tail risk is attributable to differences in the scope of non-traditional banking activities.

reflects the pressures that the non-bank segments create. We also demonstrate the disparate drivers of dividend policies between the bank and non-bank segments within these BHCs. The parent pulls capital from the bank segment whenever the segment's income increases, but does not decrease its capital demands when the segment's income decreases. In contrast, the non-bank segment internal dividends rise and fall symmetrically with its income.

Our sample of banks appears to be under pressure to meet internal dividend demands by a parent. For those banks with decreased income, we show that the likelihood of the use of brokered deposits increases. Also, these banks increase their reliance on repurchase agreements. However, we do not observe similar behavior in banks with increased income. These findings provide evidence that the bank segment continues to support the financing needs of the parent even in tough times and does so by resorting to expensive borrowing. Financing dividends with debt is also consistent with [Farre-Mensa, Michaely, and Schmalz \(2016\)](#), who find that non-financial firms simultaneously issue debt and distribute capital.

In addition, we estimate the changes in the bank segment's internal dividend payments following a major non-bank acquisition by using a difference-in-differences (DID) specification. We focus on non-bank acquisitions during 1993 to 2007 and compare the bank segments' changes in payout policy around these acquisitions against a control group of bank segments whose parents do not acquire or own any major non-bank subsidiary during this time period.<sup>2</sup> While non-bank acquisition is an endogenous choice by BHCs, the DID analysis allows us to assess whether bank segment payout behavior changes with non-bank acquisitions relative to contemporaneous changes in bank-industry payout policies. We find that the bank segments' payout ratios increase by 7 percentage points following major non-bank acquisitions despite no significant increase in external dividends. Additionally, we find that the asymmetric payout behavior of banks around income increases and decreases is not present in the control bank segments or the bank segments prior to the non-bank acquisition: it is a behavior that only

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<sup>2</sup>Our earlier analysis focuses on the 2002 to 2007 period because a break in data definitions of non-bank filings in 2001 do not allow for a comparison of internal capital flows at the bank and non-bank segments prior to that year. When we focus only on the bank segment, we extend the data prior to this period. The longer time series allows us to examine changes around major non-bank acquisitions.

follows the introduction of the non-bank affiliate. In placebo tests, we do not observe these behaviors in the context of bank acquisitions.

The results show that BHCs use internal capital markets to extract capital and liquidity from the bank segment in the form of internal dividends to help finance the non-bank segment and to pay external dividends. This channel can work for BHCs because the bank segment is less constrained in borrowing relative to the non-bank.

Our paper adds to three bodies of literature. First, in terms of the extensive mergers and acquisitions literature, we focus on the existing segments of the acquiring firm and propose a new channel through which the BHC can relax a target's financial constraints. Namely, the target non-banks in our case do not share the burden of dividends with the existing bank segment and are shielded from the pressures of dividend payments. This strategy clearly can give the non-banks flexibility in terms of financing needs. In this regard, our paper complements [Erel, Jang, and Weisbach \(2015\)](#), who focus on the targets after acquisition by nonfinancial firms. Instead, we focus on the existing segments of the acquirers by using data from financial firms.

Second, our findings also contribute to the literature on internal capital markets at conglomerates literature. The theoretical literature has advanced arguments for both the bright and the dark side of internal capital markets. On the bright side, internal capital markets create value by mitigating the asymmetries of information between subsidiaries and investors. In contrast to this value-enhancing role of an internal capital market, theoretical arguments exist to show its dark side. [Scharfstein and Stein \(2000\)](#) and [Rajan, Servaes, and Zingales \(2000\)](#) argue there could be inefficient cross-subsidization where strong segments subsidize weak ones. This inefficiency arises because of agency problems between rent-seeking division managers and the headquarters. Managers of weak divisions need to be bribed disproportionately, which leads to cross-subsidization and inefficient capital allocation. We explain the workings of internal capital markets not from the classical approach of allocating capital between different segments but through the extraction of capital from different segments to achieve the goals of the parent. Our findings are more consistent with the dark-side of in-

ternal capital markets. We show that BHCs use internal capital markets to extract capital in the form of internal dividends to compensate for cash shortages and to pay external dividends. The parent taxes the segment with less constrained borrowing (banks), and protects the segment with costly borrowing (non-banks) when there is a cash shortage within the organization to pay for external dividends.<sup>3</sup> In our case, inefficiency arises not through the allocation of capital to bribe the weak subsidiary managers but through the exploitation of the segment that has access to the government safety net.

Third, the results presented in the paper also fit into a large literature on the internal capital markets at BHCs. One primary dimension on which the literature focuses is the internal capital markets between banks within a BHC. Evidence exists that multibank holding companies establish internal markets such that loan growth is smooth ([Houston, James, and Marcus \(1997\)](#), [Houston and James \(1998\)](#), [Holod and Peek \(2010\)](#)). The literature also shows that internal capital markets lessen the impact of monetary policy on bank lending and reallocate resources to those banks with greatest need for capital and that this reallocation occurs through loan sales and purchases ([Campello \(2002\)](#)). Further, banks raise deposit rates at branches in one state to help fund loan growth in other states ([Ben-David, Palvia, and Spatt \(2015\)](#)). Another branch of this literature focuses on lending by multinational bank subsidiaries. [De Haas and Van Lelyveld \(2010\)](#) find that the parent's financial strength is an important determinant of credit supply for foreign subsidiaries in times of crisis. The existence of the workings of internal capital markets is also confirmed in [Cetorelli and Goldberg \(2012\)](#) who show liquidity is reallocated within the organization in a manner such that those affiliates deemed most important for revenue generation are protected while traditional funding locations are used as a buffer against shocks to the parent balance sheet. In contrast to these studies, we study the internal capital markets at work between bank and non-bank segments within the conglomerate and we examine the internal dividends rather than focusing on loans sales and purchases.

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<sup>3</sup>This evidence is also consistent with [Shin and Stulz \(1998\)](#) who show that small firms within the conglomerate are protected.

The paper is organized as follows. Section [II](#) describes the regulatory oversight of dividend payments at BHCs. Section [III](#) considers a framework for understanding internal dividends at BHCs. Section [IV](#) describes the data and provides our empirical specifications. Section [V](#) presents an ordinary least squares and Section [VI](#) presents the difference-in-differences results. Section [VII](#) concludes.

## II. Regulatory oversight of dividend payments at BHCs

Capital requirements dictate minimum levels of capital for both bank subsidiaries and the BHCs. These requirements limit the ability of banks to transfer capital (internal dividends) to the parent. Likewise, capital requirements can restrict the ability of the parent to pay dividends to its shareholders. Capital requirements favor capital held at the bank subsidiary level because increases in their capital count toward consolidated capital requirements, but external capital does not, unless it is down-streamed to the bank level. Therefore, excessive internal dividends from the bank subsidiaries can cause depletion of capital and trigger intervention by the primary supervisor, or noncompliance with regulatory capital requirements. Indeed, federal guidelines recognize that “a bank holding company should not maintain a level of cash dividends to its shareholders that places undue pressure on the capital of bank subsidiaries, or that can be funded only through additional borrowings or other arrangements that may undermine the bank holding company’s ability to serve as a source of strength” ([Board of Governors of the Federal Reserve System \(2016\)](#), Bank Holding Company Supervision Manual (BHCSM), Section 2020).

The level of dividends from bank and non-bank segments to the parent is affected by the BHC’s philosophy on the distribution of capital throughout the organization. The BHCSM notes that some BHCs tend to keep minimum capital levels in their subsidiary banks by transferring the excess capital to the parent in the form of dividends. The parent then

invests these funds for its own benefit, and down-streams the funds as needed. Other BHCs calculate dividends based strictly on the parent’s cash needs and thus keep any excess capital at the bank level. Ultimately, the parent has cash inflow from the following primary sources: dividends from subsidiaries, income from activities conducted for its own account, interest income on advances to subsidiaries, management and service fees, borrowings, and tax savings that result from filing a consolidated tax return.<sup>4</sup> The BHCSM underscores that dividends should be internally funded from dividends paid by the subsidiaries, the parent earnings from activities for its own account or from interest income on advances to subsidiaries. The guidelines require that dividends paid by the parent should not exceed cash inflow from these sources; otherwise, the examiners are instructed to determine the actual underlying source of dividend funding.

The BHCSM also indicates that some BHCs manage capital on a consolidated basis, pulling dividends from subsidiaries and reallocating capital those needing it the most (BHCSM, 2016, Section 2010.1). The underlying principle of this strategy is the expectation that BHCs should serve as a source of managerial and financial strength for their subsidiary banks (BHCSM, 2016, Section 2020.5).

However, this principle also allows the BHCs to aid non-banks in times of difficulty by tapping into the resources of the bank segment. The guidance argue that a failing non-bank subsidiary within the BHC structure can undermine confidence and that it might be prudent for the BHC to support the problem non-bank, despite the bankruptcy remoteness of the subsidiary. Furthermore, “because the bank is usually the largest subsidiary, the holding company may attempt to draw upon the resources of the bank to aid the non-bank subsidiary. The bank can transfer a substantial portion of its capital through dividends to the parent company, which may pass these funds on to the troubled non-bank subsidiary.” (BHCSM, 2016 Section 4030.0). Therefore, while Sections 23A and 23B of the Federal Reserve Act require that transactions across affiliates within the BHC can be conducted at arms’

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<sup>4</sup>The parent collects income taxes payable from the segments as if they were standalone companies. However, at the consolidated level the taxes to be paid could be less than the taxes collected from the subsidiaries. The parent keeps the excess tax collections from subsidiaries as income.



length, the guidance permits “substantial” support from the parent through the use of the bank subsidiary’s capital to be reallocated elsewhere in the holding company, including to a struggling non-bank.

The regulations treat bank and non-bank segments differently when a bank fails within the holding company. The Financial Institutions Reform and Recovery Act of 1989 (FIRREA) allows the Federal Deposit Insurance Corporation (FDIC) to assess the cost of resolving a failed depository institution within a BHC against other depository institutions controlled by the same BHC. However, this cross-guarantee provision does not apply to non-banks. Nevertheless, [Ashcraft \(2008\)](#) argues that the Federal Reserve has the authority to force a parent’s divestiture of a non-bank subsidiary to support a struggling depository institution. Yet, Clause (ii) of 12 USC 1831 o(f) (2)(I) specifically notes that the regulating authorities can force divestiture of a non-bank affiliate under the condition that they determine “that the affiliate is in danger of becoming insolvent and poses a significant risk to the institution, or is likely to cause a significant dissipation of the institution’s (IDI’s) assets or earnings.” In addition, there is no precedent that interprets this statute.

### III. Internal dividends at BHCs

Our analysis examines the internal capital markets in BHCs where insured banks operate alongside non-banks. This organizational structure is akin to the conglomerate structure we see in non-financial conglomerates, where multiple but different business lines exist as separate companies within a holding company. Part of the value of having a conglomerate structure among non-financial firms is their ability to use internal capital markets to ease the credit constraints’ on its subsidiaries as discussed in [Stein \(1997\)](#). The parent company can raise more total resources from the financial markets than individual subsidiaries and can allocate funds to the highest net-present-value projects. But, the conglomerates in our setting—BHCs—differ significantly from non-financial conglomerates. Foremost, they already have access to relatively inexpensive and minimally constrained funding through their bank

subsidiaries. Consequently, a BHC parent might not need to tap financial markets to channel funds to its credit-constrained subsidiaries. Instead, the bank segment itself may be the source of relaxed credit constraints for the rest of the holding company.

The presence of a bank segment with access to its own cheap external funding provides two possible channels through which the internal dividends can be used to support the BHC. First, the parent can rely on internal dividends from its bank segment to support its external dividend policies. [Floyd, Li, and Skinner \(2015\)](#) suggests that BHCs are more likely to pay and to increase their dividends relative to other firms. Given these pressures, the acquisition of a non-bank can dampen the pressure on the bank segment if the non-bank supports the parent's dividend policy. Alternatively, a non-bank acquisition can exacerbate pressure on the bank segment if the non-bank contributes to the BHC's consolidated cash flow, but does not use that income to support an inflexible external dividend policy. In this case, the parent must pull resources from the bank segment via internal dividends to support external distributions.

Second, internal dividends from the bank segment can allow the parent to ease the credit constraints on the non-bank in the sense of [Erel, Jang, and Weisbach \(2015\)](#). In particular, the parent can choose to pull resources from the bank segment rather than resorting to financial markets to fund projects outside of the banking segment. For example, bank resources can be used to fund the non-bank acquisitions.

In both channels, the underlying assumption is that the bank segment has access to relatively inexpensive financing (insured deposits) compared to the parent. This channel is viable under the assumption of the imperfect pricing of risk in the deposit insurance or through implicit government support of the bank segment relative to the rest of the holding company. In contrast to the [Stein \(1997\)](#) view of non-financial conglomerates, [Jagtiani, Kaufman, and Lemieux \(2002\)](#) find that a bank's subordinated debt bears similar risk sensitivity as the parent's subordinated debt. Thus, the parent has no comparative advantage in raising external subordinated debt, while the bank has the additional ability to raise insured deposits. Collectively, these arguments support the view that the bank segment has the capacity to be a source of funding, and strength, in the BHC structure.

Our arguments predict that when a nonbank is among the subsidiaries of a financial conglomerate, the bank segment's internal dividends may be insensitive to negative changes in its own income. Observing the insensitivity to negative changes in own income is consistent with the bank segment being a source of strength. In addition, if only the bank segment is sensitive to changes in external dividends, this sensitivity provides further support for this argument. Additionally, because the bank segment has access to information insensitive funds, the bank segment—acting in its capacity as a source of strength—can resort to outside financing when income is down to meet the parent's internal dividend demands.

We can further examine policy changes in bank internal dividends following the addition of a major nonbank subsidiary to the conglomerate. In this case we expect an increase in the bank segment's internal payout ratios to allow the parent the flexibility to allocate capital between the bank and nonbank segments, as well as external claimants. We do not expect this policy change when a new bank subsidiary is acquired because capital pressures are similar across banks within the bank segment and all banks have access to information-insensitive funding. Because a non-bank acquisition is a BHC choice, our results can only establish the extent to which observed payout behaviors are unique to those bank segments with non-bank affiliates.

We follow three steps to construct our tests. First, we examine a sample of financial conglomerates that have bank and nonbank segments. We measure the sensitivity of each subsidiary's internal dividends to changes in income and changes to external dividends while controlling for capital and profitability. Next, we use the difference-in-differences approach to determine whether bank segments' internal payout policy changes following a nonbank acquisition. Finally, we analyze the channels through which the bank segment acts as a source of strength to the bank holding company and the non-bank segment.

## IV. Empirical specification and data

A critical aspect of our analysis is the classification of bank and non-bank subsidiaries into two identifiable segments of a BHC. Over time, the organizational structures of BHCs have become extremely complex and data sources for various segments and the holding company itself have become dispersed because of a number of regulatory filings ([Avraham, Selvaggi, and Vickrey \(2012\)](#)). We explain in Appendix A this complex structure and various regulatory filings that we need to construct the data and the sample. Basically, the regulatory filing of non-bank subsidiaries (FR Y11 filings) of a BHC helps us separate non-banks from banks, which file Call Reports. We aggregate all banks within a BHC into a single “bank segment.” We also aggregate observable non-banks across the BHC into a single “non-bank segment.” Ultimately, data limitations leave us with 101 unique BHCs. This sample has 299 BHC-year observations. Within these 101 distinct BHCs, there are 613 distinct non-bank subsidiaries filing FR Y-11.

Our sample period for the baseline regressions starts in 2002 because of changes to the Y-11 reporting form in that year. This start date coincides nicely with the expansion of BHC non-bank activity after the passage of Gramm-Leach-Bliley Act in November 1999. We end in 2007 so as to not confound our analysis with the 2008 financial crisis. We also follow [Benartzi, Michaely, and Thaler \(1997\)](#) and use annual rather than quarterly data. This is necessary as BHCs pay dividends with differing frequency throughout the year. In addition, dividend changes are often coincidental with annual shareholder meetings that induce institution-specific seasonality. We provide a detailed discussion of the data and the aggregation of segments in Appendix A.

### *A. Determinants of bank and non-bank segments’ internal dividends*

To compare bank and non-bank segments’ internal dividend behaviors, we examine how internal capital markets operate in BHCs. Our base line ordinary least squares (OLS) specification

is as follows:

$$\Delta D_{ijt} = \beta_1 \Delta I_{ijt} + \beta_2 \Delta I_{kjt} + \beta_3 \Delta X D_{jt} + \beta_4 EQ_{ij,t-1} + \beta_5 ROE\_Spread_{j,t-1} + \beta_6 \ln(CA_{jt}), \quad (1)$$

where  $\Delta D_{ijt}$  is the change dividend payment of the  $i$ th segment of BHC  $j$  at time  $t$ . The  $CA_{jt}$  is the average consolidated assets of BHC  $j$  from time  $t-1$  to  $t$ . The  $\Delta I_{ijt}$  and  $\Delta I_{kjt}$  are the changes in net income between period  $t$  and  $t-1$  for segment  $i$  and  $k$ , respectively, of BHC  $j$  at time  $t$ . The  $\Delta X D_{jt}$  is the change in external dividends between period  $t$  and  $t-1$  for BHC  $j$ . We also control for book equity (EQ) of segment  $i$  at time  $t-1$ . All flow variables are deflated by consolidated assets and capital ratios are measured as the asset-weighted average ratios among subsidiaries in the segment.

An important control variable is the investment opportunities at the segment level, where we use lagged values of the return on equity as a proxy for the future return on equity.<sup>5</sup> In particular, we construct ROE Spread as the difference between non-bank and bank segments' returns on equity and interpret it as the non-bank segment investment opportunity relative to the bank segment. If BHCs are efficiently allocating resources to the highest return segment, then we expect the non-bank (bank) segment to pay less (more) internal dividends when the non-bank segment's relative investment opportunity is higher.

This regression equation models the year-to-year change in internal dividends of a segment as a function of three primary factors: sensitivity to its own income, sensitivity to other segments' income, and sensitivity to change in external dividends. However, the sensitivity of a segment's internal dividends to cash flows across the BHC can be misleading in the face of asymmetries. For example, a segment can pay a dividend on its excess cash flow to its parent in good times without the benefit of relaxing dividend payments when earnings are down. Similarly, segments can upstream capital in the case of cash flow shortages elsewhere, without the benefit of a decreased pull from the parent in the face of BHC -wide excess cash

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<sup>5</sup>Both bank and non-bank segments' returns on equity have a statistically and economically significant level of persistence. For banks, the autoregressive coefficient is about 0.65, while for non-banks it is about 0.40. This result holds true both with and without time fixed effects.

flow. Therefore, we need to test for asymmetric responses to changing cash flows to assess whether a segment faces an implicit tax or subsidy from the parent. To provide a test, we estimate Equation 2, a version of Equation 1 that allows for asymmetric responses of the dependent variable to positive and negative values of the segments' own income, the other segment's income, and external dividends. That is, we split each of the flow variables  $X$  in the regression into two:  $X_+ = \max(X, 0)$  and  $X_- = \min(X, 0)$ :

$$\begin{aligned} \Delta D_{ijt} = & \beta_1^+ \Delta I_{ijt}^+ + \beta_1^- \Delta I_{ijt}^- + \beta_2^+ \Delta I_{kjt}^+ + \beta_2^- \Delta I_{kjt}^- \\ & + \beta_3^+ \Delta X D_{jt}^+ + \beta_3^- \Delta X D_{jt}^- + \beta_4 EQ_{ij,t-1} + \beta_5 ROE\_Spread_{j,t-1} + \beta_6 \ln(CA_{jt}) \end{aligned} \quad (2)$$

By allowing for asymmetric responses, we can determine whether the parental taxation rate of one segment responds differently to the positive or negative earnings outcomes of the other segment or the earnings outcome of the BHC.

### *B. Difference-in-differences*

We use a difference-in-differences technique on the time around major non-bank acquisitions by our sample of 101 BHCs to separate systematic bank segment internal dividend policies for our sample BHCs from changes to policies following the addition of non-banks. We compare the changes in the bank segment's payout policies (dividends to net income) around these acquisitions to the coinciding changes in the bank segment's payout policy for those "simple" BHCs that do not acquire or own significant non-bank subsidiaries. Many of our sample BHCs already had major non-bank operations prior to 2002, when the non-bank segment data becomes available. However, because our approach examines payouts of the bank segment, we are able to extend our data and analysis further back in time and we use the sample period 1993-2007. This extended sample period also allows us to capture bank segment behavior in the years prior to major non-bank acquisitions.

For each of the unique BHCs in our baseline sample, we use the parent's investment in

non-bank subsidiaries (from the Y9-LP) relative to total investment in subsidiaries to define the years in which the BHC made its largest non-bank acquisitions.<sup>6</sup> We restrict our analysis to those BHCs whose change in relative non-bank investment is at least 1 percent of total subsidiary investment. This filter leaves 90 of the 101 BHCs from our baseline sample, with two BHCs dropping out because their non-banks are held in intermediate subsidiaries and cannot be captured by our measure using the Y9-LP. The distribution of years of the largest non-bank acquisitions is in Table 1. The table shows that there is a big uptick in the years surrounding the Gramm-Leach-Bliley Act, which enabled the acquisitions of insurance and brokerage companies. However, 21 percent of our BHCs' largest non-bank acquisitions occur prior to 1998. For the "simple" BHCs, we restrict the analysis to those that do not acquire a non-bank at any point between 1993 and 2007.

Table I demonstrates the magnitude and variety of major non-bank acquisitions in our data. For most years, the average major non-bank acquisition represents at least a 10 percentage point increase in the parent's non-bank equity holdings in the non-bank segment relative to all equity holdings in the BHC. This number was as little as a 3.1 percentage point increase in 1996, but is as much as 20.9 percentage point increase in 2002. The nature of these acquisitions is also varied and complex. In the columns under "BHCs with a new subsidiary in:" we show what types of non-bank subsidiaries we find in the years of major non-bank acquisitions. We identify them by using Charter Type codes or NAICS codes. Among the leading subsidiary types non-bank are: insurance, securities brokers and/or dealers, sales financing, and real estate financing. Note that a given BHC's year with a major non-bank acquisition year might be associated with multiple types of non-banks subsidiaries, so that the sum of the columns might be more than the BHC count. In addition, the list is not exhaustive, so the sum could also be less than the total count.

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<sup>6</sup>We hand check that the years identified by this method correspond to major non-bank acquisitions by the BHCs in our sample.

The difference-in differences specification is as follows:

$$Payout_{jt} = \gamma_1 Conglom_{jt} + \gamma_2 Acquisition_{jt} + \Gamma Controls_{jt} + Year_t + FE_j + \epsilon_{jt}, \quad (3)$$

where  $j$  are the BHCs,  $t$  are the years, *Payout* is the bank segments' payout ratio, and the difference-in-differences estimator is the coefficient for the *Acquisition* term. Next, we create an indicator variable called *Conglom* that equals one if the BHC ever obtains a significant non-bank subsidiary during 1993 to 2007 and zero if it remains simple, with no major non-bank affiliates throughout the period. In addition, we define *Acquisition* as equaling one for a BHC after making its largest non-bank acquisition and zero before a BHC makes its largest acquisition or for those that never make a non-bank acquisition.<sup>7</sup> We also add controls for size and capitalization.

We run a similar difference-in-differences analysis for major bank acquisitions of the same set of BHCs to determine whether any changes surrounding of the BHC non-bank acquisitions are generic to acquisitions or specific to non-banks. For this analysis, we use data on bank structures to determine the date at which a bank subsidiary joins a new BHC. For each BHC, we then determine the year of the largest bank acquisition as a fraction of the total bank assets for the difference-in-differences analysis. To be consistent with the non-bank acquisition analysis, we exclude the acquired bank subsidiary in the analysis of bank payouts.

Given our OLS specification in Equation 1, we examine whether the bank segment's internal dividend policies change in response to non-bank acquisitions. To do so, we consider a difference-in-differences version of Equation 1 with interaction terms between various internal

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<sup>7</sup>This approach means that the BHCs in our sample are associated with exactly one non-bank acquisition. In reality, BHCs can acquire multiple non-banks during the sample period. Given the various acquisitions that can occur around our defined date, we test the robustness .



dividend determinants and the Conglom and Acquisition dummies:

$$\begin{aligned}
\Delta D_{ijt} = & (\gamma_1^+ \Delta I_{ijt}^+ + \gamma_1^- \Delta I_{ijt}^-) Acquisition_{jt} \\
& + (\gamma_2^+ \Delta XD_{ijt}^+ + \gamma_2^- \Delta XD_{ijt}^-) Acquisition_{jt} \\
& + Lower\ Order\ Terms + Year_t + \Gamma Controls_{jt}
\end{aligned} \tag{4}$$

In Equation 4, we drop the income variables for non-bank subsidiaries because we have BHCs both before and after significant non-bank acquisitions and because we use simple BHCs—with no substantive non-bank activity—as our control group in the sample. Thus, there is no “other segment” for many observations in this sample. In this specification, we are instead interested in the coefficients for the  $\Delta I_{ijt}$  and  $\Delta XD_{ijt}$  terms that interact with *Acquisition*. These parameters identify changes in the determinants of the bank segment’s payout policies around a non-bank acquisition. As before, we also run a similar version of the analysis for bank acquisitions to determine whether the effects are specific to non-banks or generic to other acquisitions.

## V. Results

### A. Summary statistics

As we indicate above, we create data on bank and non-bank segments by aggregating the respective subsidiary data for each BHC in our sample. Table II provides statistics for the BHC and the bank and non-bank segments. The flow variables are winsorized at the 1st and 99th percentiles. All variables are in 2014 dollars.

We observe that the average BHC in our sample is quite large at \$73.7 billion, although the asset measure has significantly positive skewness. The vast majority of the assets are held in the bank segment, with aggregated average assets of \$64.1 billion. The aggregated non-banks account for \$4.5 billion in assets on average.

Although non-banks are small when measured by assets, the income variables in Table II demonstrate that they play a meaningful role in the cash flow of the BHC. Non-banks' average non-bank net income relative to the BHCs' assets is 0.34%, while the comparable number for the bank segment is 1.30%. Moreover, the standard deviation of this measure for non-banks is three times that of banks. Therefore, while banks still provide most of the cash flows to the parent, non-banks' internal dividends to the parent are non-trivial and are significant drivers of the variations in cash flow. In terms of the parents' statistics, external dividends are the largest (0.48% of BHC assets) item for which parents use cash followed by non-dividend distributions such as repurchases (0.21%) and other expenses (0.21%). Salaries account for 0.11% of parents' cash usage, while external debt servicing accounts for only 0.03%. We also observe that the dividends from subsidiaries are a major source of cash (1.12%) for the parent.

### *B. Baseline results*

In Table III, we report the results from our baseline OLS specification on the changes in internal dividends as a function of income and external payouts. In Panels A and B, the columns labeled 1 correspond to Equation 1, while those labeled 2 correspond to Equation 2. The dependent variable in these columns is external dividends. In Panels C and D the columns have similar correspondence to Equations 1 and 2 but the dependent variable is external payouts, which is the sum of external payouts and share repurchases.

Column 1 of Panel A shows that operational non-banks' internal dividends are driven by changes in their own incomes. A \$1 change in non-bank income is associated with a \$0.30 change in the dividend distribution to the parent after controlling for other variables. Non-banks' internal dividends do not appear to be sensitive to either changes in the rest of the BHC income or external dividends. In contrast, Column 1 of Panel B shows that the bank segment's dividend distributions are strongly sensitive to changes in external dividends and marginally sensitive to changes in its own income. A \$1 change in the parent's external

dividend distribution is associated with a \$0.72 change in the bank segment's dividends to the parent after controlling for other variables and this relationship is significant at the 1% level. This sensitivity has more than four times the effect on dividends to the parent than the bank segment's income has (0.16 versus 0.72). From these results, non-banks appear to transfer resources to the BHC more on the basis of their abilities, while banks transfer cash to the parent more on the basis of its external distribution needs.

In terms of its capital level, we observe that only the bank segment's internal dividends are sensitive to segment-level capital. These sensitivities indicate a strategy in which the parent targets a particular capital level for its bank segment. We do not find statistical significance on the other control variables. Column 2 in Panel A shows that the sensitivity of non-bank segments' incomes to internal dividends is approximately symmetric. Non-banks reduce their internal dividends to the parent in response to negative income shocks and increase internal dividends to the parent in response to positive income shocks. Moreover, when income increases elsewhere in the BHC, there is weak evidence that the parent loosens its dividend demands on the non-banks. A \$1 increase in the rest of the BHC is associated with a reduction of \$0.15 in non-bank dividends to the parent and this relation is statistically significant at the 10% level. However, we observe no significant countervailing effect when income decreases elsewhere in the BHC; non-banks do not contribute any amount to make up the difference. Furthermore, Column 2 in Panel A demonstrates that increases in external dividends are not pulled from non-banks, but decreases in external dividends are weakly associated with a decreased pull on the non-banks by the parent. A \$1 decrease in external dividends is associated with \$0.77 decrease in non-banks' dividends to the parent.

In contrast, Column 2 of Panel B shows that the bank segment internal dividends have a one-sided sensitivity to its own income and a strong sensitivity in both directions to external dividends. When banks' income increases, these increases are passed to the parent (\$0.34 increase in dividends on a \$1 increase in income), but the parent does not decrease the banks' dividend burden when the banks' income decrease. This is in contrast to non-banks that cut internal dividends by \$0.60 for every \$1 decrease in income. In addition, unlike non-

banks, banks bear the brunt of increases in external dividend distributions. A \$1 increase in external dividends is associated with a \$0.56 increase in bank internal dividends. Thus, when the BHC is under pressure to consistently increase dividends (as in [Floyd, Li, and Skinner \(2015\)](#)), the banks must supply the necessary funds to finance such distributions to shareholders, independent of their income.

In Panels C and D, we test the robustness of the results when we define external payouts inclusive of repurchases. The results are qualitatively similar, with banks absorbing the burden of external payouts and the non-banks being protected.

In our framework, we assume decisions on external dividends are exogenous to the parent's decisions on internal dividends. However, external dividends might be endogenous if there is an outstanding regulatory enforcement action against a subsidiary bank that restricts its internal dividend payments. In this case, external dividends might be driven by the dividend restriction, which violates our assumption. Yet, if external dividends are reduced in response to the dividend restriction, then our estimates would be biased downward; the unrestricted BHC would have an even stronger relation between external dividends and banks' internal dividends. We check for regulatory enforcement actions for banks within our sample and find only two BHCs with enforcement actions against their bank segment in 2002 to 2007 that place restrictions on their dividend policies. Removing these two BHCs (corresponding to eight observations in the baseline analysis) does not affect the results.

Mergers and acquisitions were common in the financial industry and within our sample. The aggregation of the data on acquisitions of bank and non-bank subsidiaries by the BHC will identify the pre-acquisition internal dividend policy. For robustness, we run the analysis with the following adjustments to the data. For every subsidiary, we use the structure data to determine the date at which the subsidiary (bank or non-bank) was acquired by the BHC. For the year in which the subsidiary was acquired, we subtract that subsidiary's first observed quarterly filing information (e.g. income, dividends) post-acquisition from the year-end filing data. This subtraction removes any cash flows associated with the subsidiary prior to acquisition, although it also removes cash flows of the subsidiary post-acquisition but

before the first quarterly filing. For example, if a subsidiary is acquired on May 15 its first filing will be on June 30 and the cash flows reported at this date will be subtracted from the cash flows reported on the December 31 filing. After accounting for acquisitions, our results are not materially changed.

In sum, these findings show that non-banks adjust their dividend payments to the parent on the basis of their ability to pay them, decrease dividends in response to increases in the BHC's other incomes, and decrease dividends to the parent in response to a decrease in external distributions. Thus, non-bank subsidiaries appear to be partially insulated from risk because of the BHC structure. In contrast, this protective dividend policy is not at work for the bank segment. Internal dividends are independent of bank income but sensitive to external dividends. This sensitivity indicates that the bank segment serves as a source of strength in the sense that it is the primary source of external dividends.

However, this analysis does not provide evidence for three important aspects. First, whether the borrowing ability of the bank segment makes this channel possible is not clear. Second, whether or not the bank segment's dividends are somehow channeled to the non-bank segment to bolster its equity position or help the parent achieve its acquisition goals is also not clear. Finally, we have not established whether these payout policies are generic to the banking industry or specific to those with non-bank affiliates.

### *C. Robustness of Baseline Results*

The baseline regressions use data from the Y-11 filings, which allow for the direct measurement of major non-bank entities' income and dividends within the BHC. However, Y-11 coverage is limited to those large non-banks that meet the regulatory reporting requirements. For example, non-banks that must file with other regulatory bodies or non-banks that are not individually material are not included in our non-bank measurement.

To check the robustness of our results to sample construction, we construct an alternative indirect measure of non-bank variables using intermediate holding companies' balance

sheets and income statements that include the breakdown of parent capital flows from their segmented subsidiaries. This alternative measure relies on the Y-9LP filings of intermediate BHCs and its separation of data among its bank, non-bank, and holding company subsidiaries. To construct a measure of non-bank dividends for a given BHC, we aggregate the income from non-bank subsidiary dividends across all holding companies within the tiered structure (BHCP Item Code 1275). We measure non-bank income as the summation of non-bank dividends and undistributed income (BHCP Item Code 3147) of non-bank subsidiaries across all holding companies in the tiered structure. Y-9LP filings classify thrifts as non-banks. Consequently, we subtract thrift subsidiary income and dividends (which are classified as part of the “bank segment”) from our measure of Y-9LP non-bank income. Together, these measures provide the necessary data to test the robustness of our results to the Y-11 data.

To check the validity of this construction, we compare the Y-9LP non-bank income variable to the difference between the consolidated holding company income (Y-9C income) and all bank income from the Call Reports (including thrifts) as well as all intermediate and all parent holding company income from Y-9LP filings not derived from dividends and capital gains from subsidiaries. In 79 percent of all 2,788 Y-9LP observations during 2003 to 2007 where non-bank non-thrift assets are strictly positive, the non-bank income using the Y-9LP exactly matches the residual income using the Y-9C income. In 86 percent of cases, the incomes computed from the two measures are within 10 percent of one another. Exact matches between the methods are still above 60 percent even as we restrict the sample to BHCs with consolidated assets above \$10 and \$50 billion. Similarly, the two measures remain within 10 percent of one another for more than 80 percent of the sample at higher asset thresholds. We restrict the Y-9LP sample to those BHCs where the two measures are within 10 percent of one another, though the results are robust to smaller cutoffs.

In Panel A, we examine the baseline specification using a Y-9LP based definition of materiality of the non-bank segment. To keep a similar sample size to our baseline, we restrict attention to BHCs whose non-bank assets<sup>8</sup> are at least three percent of all subsidiary

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<sup>8</sup>Item BHCP4778 in the Y-9LP less thrift assets.

assets. This gives us 291 observations during our baseline sample period, comparable to our initial sample size. In Column (1) we report the results for the the non-bank segment of this sample and in Column (2) we report the results from the bank segment for this sample. Our results are comparable to our baseline regressions. Non-banks transmit income changes to internal dividends, but are not sensitive to external dividends. The bank segment pays out income increases, but does not cut internal dividends upon income decreases. Furthermore, bank segment internal dividends are strongly associated with external dividend increases and decreases. However, it should be noted that overall significance of the variables that pertain to nonbanks decline with indirect measures of income and dividends.

With that caveat in mind, in Panel B we extend the analysis to include all BHCs with any non-bank segment, determined by strictly positive non-bank asset holdings from all Y-9LP filings for a BHC. In Panel B, Column (1) we show in this broader sample that non-bank internal dividends remain highly correlated with non-bank income and marginally correlated with external dividends. Moreover, in Panel B, Column (2), we show that bank internal dividends continue to exhibit an asymmetric response to bank income and are highly associated with external dividends.

In Panel C of Table IV, we check the robustness of our baseline results to alternative measures of external dividends to account for the different relative amounts of equity capital held across the segments. For example, if the non-bank segment represents 10 percent of all parent holdings in its subsidiaries we might expect it to only contribute 10 percent of any changes to external dividends. To account for this, we construct an alternative measure for the changes of external dividends by scaling the change by the lagged proportion of equity held within the relevant segment (10 percent in the example for non-banks, 90 percent for banks). Under this alternative measure, we find that our main conclusions continue to hold. The non-bank internal dividends remain sensitive to non-bank income and the bank segment dividends remain sensitive primarily to external dividends. Under this specification, we also find evidence that the pull on non-bank segment is additionally relaxed when the rest of the holding company income improves or when external dividends are cut. On the bank segment

side, the results are largely unchanged, though the sensitivity to income increases becomes marginally significant.

#### *D. Use of “hot money” to fund dividends*

The observation in Table III that the bank segment’s internal dividends display an asymmetric response to income is plausible given the relative ease with which the bank can raise alternative funds. To evaluate this conjecture, we first divide bank segments into two groups, those with an increase in income and those with a decrease in income. These groups equal 175 and 124, respectively, of the 299 BHC-year observations. Consistent with the results in Table III, the majority (66%) of bank segments with income increases also increase their internal dividends, while the bank segments with income decreases are split almost evenly between internal dividend increases (48%) and decreases. Our conjecture suggests that the group with decreased income can increase reliance on easy-to-raise debt funding (“hot money”), such as brokered deposits and repurchases sold (repos) to pay the internal dividends to the parent.

In Panel A of Table V, we examine the relation between changes in “hot money” usage for bank segments that experience a decrease in income. We first investigate whether these banks use brokered deposits as a financing source as they continue to pay internal dividends. One difficulty with this variable is that many bank-year segments in our sample do not have any brokered deposits or reported changes in this item. For this reason, we construct a binary variable (Brokered Deposit Dummy), that equals one if the bank segment increases its use of brokered deposits during the year and zero otherwise. Columns 1 and 2 in Panel A of Table V report the results of a probit regression for the brokered deposit increases on a binary variable for increases of internal dividends (Bank Div Dummy), along with other controls from previous specifications. The results show that increases in internal dividends for this group are highly correlated with increased use of brokered deposits. For a bank segment with decreased income, the probability of increased usage of brokered deposits (i.e. marginal effect) is 52% when the segment also increases its internal dividends.



In Column 2 of Panel A, we allow for the possibility that brokered deposit funding can be the consequence of the bank segment raising funds for new investment. We add a variable for changes in the bank segment's loans as an additional variable that can drive hot money usage. We observe in Column 2 that loan growth does correlate with brokered deposit usage, but this significant relation does not affect the strong relation between increased internal dividends and brokered deposit funding found in Column 1. After controlling for loan growth, the increased probability of brokered deposits usage when internal dividends increase remains at 52%.

Columns 3 and 4 in Panel A of Table V report the results of the OLS regressions. Here, we examine the relation between the changes in repurchase agreements (repos) and the changes in internal dividends. Because repos are used more consistently across the BHCs in our sample, we do not need to use a probit specification as we did with brokered deposits. Similar to the probit results, Columns 2 and 3 show that the bank segments' internal dividends are highly correlated with the use of repos for those with decreased income. After controlling for changes in external dividends, asset size, equity level, and profitability we find that a \$1 increase in internal dividends is associated with a \$0.60 increase in repos. When we control for loan demand this number goes up to \$0.66.

We next examine whether these results also apply to bank segments that experience increased income. Panel B of Table V shows the results. In contrast to bank segments with decreased income, we observe that bank segments with increased income do not increase their usage of brokered deposits when increasing their internal dividends. Similarly, bank segments' use of repo funding is not responsive to increases in internal dividends. These findings are plausible because we show in Table III that the bank segments increased internal dividends by about \$0.34 for each \$1 increase in income and so, would not be pressured to raise "hot money" either through brokered deposits or repos.

Together, these results are consistent with the hypothesis that banks with income increases pay out dividends from earnings, while banks with income decreases raise new debt to pay out internal dividends. This finding is similar to the findings reported in [Farre-Mensa, Michaely,](#)

and Schmalz (2016), who find that non-financial firms simultaneously issue debt when they distribute capital. Our results add to these findings and show that subsidiaries also borrow to pay internal dividends even if they experience a decline in earnings to meet the demands of the parent.

### *E. Use of internal dividends*

The accumulating evidence shows that banks serve as a source of financing for the BHC. In contrast to the non-bank segment, the parent pulls internal dividends when the bank segment's income decreases that forces that segment to resort to expensive hot money. Also, the bank segment's internal dividends appear to be sensitive to changes in external dividends while the non-bank segment's internal dividends are not. However, we have yet to show whether the non-bank segment directly benefits from the bank segment's internal dividends. In this section, we undertake an accounting exercise to examine who benefits when the increases in the banks' internal dividends outpace their income.

Toward this end, we first construct a measure of "excess" internal dividends that we define as changes in a bank's internal dividends less changes in its income. When this variable takes a value of zero, the bank passes increases (or decreases) in income to its parent one for one. A positive value in excess dividends means that the bank increases its dividend payment by more (or decreases its dividend by less) than the change in its income. We then use this variable to determine where funds go when they are pulled from the bank.

Using the 299 BHC year observations analyzed in Tables III and V, we summarize the excess dividends in Table VI. We observe that roughly half of the time (145) the excess internal dividends are positive. The majority of these cases (86) correspond to declining income, with most of these bank segments increasing internal dividends (65) rather than simply cutting dividends by less than the drop in income (21). In the remaining cases (59) of positive excess dividends, the bank segment's income increased, but the segment increased its dividends by even more than its income. There are also 154 cases in which we observe

negative excess dividends (i.e. income changes exceeding dividend changes). In a minority of cases (38), negative excess dividends correspond to observations in which the bank segment decreased its dividends by more than its income decreased. In the remaining cases (116) of negative excess dividends, the bank segment's income increased by more than the changes in its dividends. Together, these numbers are consistent with our baseline regressions in Table III that showed income decreases are not generally met with declines in internal dividends, while income increases are met with internal dividend increases of lower magnitudes.

We then examine how this additional capital is allocated within the BHC in relation to excess dividends. Among the potential uses of the additional capital are: parent's assets, the non-bank segment, parent expenses, and external claimants. While many of these variables are readily observable on the Y-9LP filings of parents, new investment in the non-bank segment is not, as the Y-9LP does not distinguish between banks and non-banks that are subsidiaries of BHCs.<sup>9</sup> Nevertheless using the Y-9LP data allows us to construct a lower-bound measure of new parental investment in non-bank subsidiaries as the annual change in the non-banks' equity investments plus changes in loans to non-banks (advances, bonds, notes, and debentures) less undistributed earnings in the non-banks' income.

We plot the relation between uses of capital against excess dividends in Figure 1. We use a best fit line for easier visual interpretation. The graph displays a partial decomposition of the uses of excess dividends. For example, when excess dividends equal 0.01 of the consolidated assets (the horizontal axis), about 20 percent of this amount is used for new non-bank investment (0.002 on the vertical axis), 15 percent funds increases in repurchases, 10 percent funds increases in external dividends, 10 percent funds increases in parent's cash holdings, and 5 percent funds the parent's operational expenses. This distribution shows that when excess dividends are positive, new investment in non-bank subsidiaries is the largest use of the funds. High excess dividends are also used to finance external share repurchases. To a lesser extent, the banks' excess internal dividends are used to fund the external dividends

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<sup>9</sup>It is also problematic to use the Y-11 filings in this case, as they are also incomplete in their coverage of non-bank subsidiaries.

and cash holdings of the parent’s insured depository institutions. Each of these is significant at the 95 percent level for at least some positive portions of the graph. While operational expenses are also a statistically significant use of excess dividends, the variation in excess dividends is clearly not driven by demands coming from the parent’s operational expenses.

On the other hand, when excess dividends are negative and banks’ capital is conserved, the parent reacts to the shortfall of internal dividends by cutting external share repurchases. External dividends and the parent’s cash holdings are not cut. Meanwhile, new non-bank investment in non-banks is also not statistically decreased when the bank segment cuts its internal dividends by more than its income.

The results in Table VII further support the observation that some of the bank segment’s internal dividends are channeled to the non-bank segment. In this table, we expand the base-line specification in Table III by adding the changes in the parent’s non-bank investments. We observe that while the results in Table III remain unchanged, the change in non-bank investment variable proves to be significant. The coefficient is significant and positive indicating that the changes in the bank segment’s internal dividends are related to changes in the parent’s investment in non-banks after controlling for major factors for internal determinants.

## VI. Bank Payout Policy and Non-bank Acquisition: Difference-in-Differences

The foregoing discussion provides evidence that internal dividends behavior of bank and non-bank segments differ and that the bank segment carries the burden. However, the analysis in Table III does not demonstrate how these bank segments differ from those in BHCs without a significant non-bank segment or whether these characteristics are specific to those BHCs with a non-bank segment. In this section, we examine the bank segment’s internal dividend policy before and after a major non-bank acquisition using a difference-in-differences approach.

Figure 2 depicts the raw data on bank segment’s payout policy. Prior to the acquisition

of a major non-bank affiliate, the bank segments of BHCs consistently pay out around 60 percent of their income to their parent. This number increases to 67 percent in the year the non-bank affiliate is acquired and remains notably higher thereafter. The following analysis provides a thorough statistical analysis of this observation.

### A. *Difference-in-differences: Baseline*

In Table VIII, we present the results from our difference-in-differences specification for the payout policy before and after major non-bank acquisitions by using bank segments with no current non-bank affiliates as a control. Using *Acquisition* in Equation 3, Panel A shows that the bank segment’s payout policy increases by 6 to 7 percentage points after a major acquisition of a non-bank affiliate while controlling for banks’ and BHC’s assets and capital. This result holds with or without other controls and firm fixed effects. Of the controls, assets are particularly important to the analysis in explaining level differences in BHCs with major non-bank acquisitions and those without non-bank

In Panel B of Table VIII, we investigate whether the results in Panel A follow only from non-bank acquisitions or are a result of acquisitions more generally. We use structure data<sup>10</sup> to identify the dates of the largest bank acquisitions for BHCs in our sample period of 1993 to 2007 and run an analysis comparable to the baseline difference in differences. We observe that large bank acquisitions do not change the existing bank segment’s payout policy.

We also examine the dynamic response of the bank segment’s internal dividends to non-bank acquisition. We modify Equation 3 and interact *Acquisition* with event-time dummies around the non-bank acquisition. Figure 3 shows the results. We observe that the treated group’s (those that acquire a non-bank) and the control group’s internal dividends are similar the years before the acquisition. During this period, the BHCs’ payout ratios are 0.4 to 3.6 percentage points higher than their simple BHC counterparts, and never statistically significant. However, the bank segment’s internal dividends take a notable jump in the year of acquisition and remain higher in the years after. In the year of acquisition the difference

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<sup>10</sup>See Appendix A for more detail on data sources.

in payout policy jumps to 11.5 percentage points higher and remains higher in the year after (10.6 percentage points, which is statistically significant) and two years after (6.0 percentage points, albeit is statistically insignificant).

In addition, the dynamics allow us to examine the parallel trends assumption. In Figure 3 we show that the bank segment’s payout policy does not differ in each of the periods prior to non-bank acquisition, but takes a notable jump in the year of acquisition and remains higher in the years after (although statistically only the first). Regarding the assumption on parallel trends, it visually appears that the bank segment’s payout policy is falling between the simple BHCs and our baseline BHCs during the period. However, the discrete jump at the date of non-bank acquisition followed by a continuation in this trend indicates that the pre-acquisition trends work against our finding. Figure 4 confirms the finding in Panel B of Table VIII by showing that the payout policy of the existing banks is unchanged around bank acquisitions.

In Table IX we demonstrate that the results of Table VIII hold using a matched sample analysis. For each “treated” BHC with a major non-bank acquisition in Year  $T$ , we find a pairwise matched “control” BHC with no major non-bank acquisitions on  $T - 2$  assets and bank capital. We choose  $T - 2$  to avoid any contamination of the acquisition decision on matching variables, such as building up capital in advance of a non-bank purchase. Of the 90 BHCs with major non-bank acquisitions in our sample, 24 violate the no overlap condition. This leaves 66 pairwise matched BHCs. We then collapse each observation into a single two year pre- and single post-acquisition payout ratio for the bank segments of the “treated” and “control” group. We note that the treatment in this set-up is non-random, as BHCs choose to acquire non-banks. However, the matched sample approach and collapsing of data into a single “pre” and “post” period allows us to mitigate concerns regarding standard errors from our panel analysis, as in Bertrand, Duflo, and Mullainathan (2003). Similar to Figure 2 and Table III we find that bank segment payout ratios increase by approximately 8 percentage points following a major non-bank acquisition. In contrast, the “control” set of bank segments at non-acquiring BHCs falls by 9 percentage points during the period surrounding the matched

BHC acquisition date. We find that the difference in differences of 17.6 percentage points is statistically significant at the 5 percent level.

We also examine whether our findings on the determinants of banks' dividend policy in Table III are the result of non-bank acquisition from the specification in Equation 4. One of the main results from Section V.B is that the bank segment of a BHC pays out income increases, but does not decrease payouts in response to income decreases. In Panel A of Table X, we show that the bank segment exhibits this behavior only subsequent to non-bank acquisition (Columns 1-4). Prior to non-bank acquisition, the parent both eases the demands on the bank segment after negative income shocks and increases demands on the bank segment after positive income shocks. Meanwhile, the interaction term between income increases and non-bank acquisition ( $\Delta OwnIncome(+)*Acquisition$ ) shows that the parent pulls more income from the bank in response to positive income shocks after non-bank acquisition (\$0.335 to \$0.386 of each dollar increase in income, depending on the specifications in Columns 1-4). The coefficient for the bank segment's dividend responsiveness to negative income shocks ( $\Delta OwnIncome(-)*Acquisition$ ) shows that the parent does not pull less income from the bank after a non-bank acquisition in response to negative income shocks. Meanwhile, bank segment dividends in conglomerates are no more or less responsive to external dividends after major non-bank acquisitions. Together, these results show that a non-bank acquisition prevents the bank segment from building a capital buffer during good times, but a non-bank acquisition does not decrease the parent's reliance on the bank segment during bad times. This is consistent with the bank segment bearing, but not sharing, the risk in BHCs.

In contrast, the bank segment's internal dividends at BHCs do not show this behavior following bank acquisitions, which we report in Panel B of Table X. Instead, we find weak evidence of the reverse. That is, the coefficients for the interaction term  $\Delta OwnIncome(+)*Acquisition$  are not statistically different from zero, while the coefficient for  $\Delta OwnIncome(-)*Acquisition$  is positive and statistically different from zero at the 90% confidence level for three of the four specifications. These coefficients indicate that the bank segment's dividends are more responsive to negative shocks after a new bank is acquired. This finding corresponds

to demanding \$0.429 to \$0.537 less in internal dividends for each \$1 decrease in income, depending on the specifications in Columns 1-4. This is consistent with risk sharing for banks within the BHC .

### *B. Difference in differences: Robustness*

For many BHCs, non-bank acquisitions occur regularly throughout the sample period. To the extent that there are multiple major non-bank acquisitions, our event date is not cleanly identified. To address this concern, we compare the size of the non-bank acquisitions in the year we examine as the event date to other years in the period from 1993 to 2007 for each BHC. As in Table VIII, we first consider the year of non-bank acquisition to be the largest observed during the period, regardless of its size relative to other acquisitions. We then run a similar analysis, keeping only those conglomerates whose largest non-bank acquisitions are at least 50%, 100%, and 200% larger than the next largest non-bank acquisition during the sample period (along with the control group of simple-BHCs).

Table XI presents the results of this analysis. Using either the Conglom dummy or fixed effects, we find that the more clearly identified non-bank dates are associated with larger changes in banks segments' payout ratios around non-bank acquisitions. Using all BHCs regardless of the relative size of its largest non-bank acquisition and the Conglom specification, we find a 7 percentage point increase in bank segments' payout ratios around non-bank acquisition (Column 1). Using only BHCs whose largest non-bank acquisition is 50% (Column 2), 100% (Column 3), and 200% (Column 4) larger than the next largest acquisition produces increasingly larger estimates. We similarly find increasing effects of non-bank acquisition on banks' payouts as we sharpen the definition of major non-bank acquisitions (Columns 5-8) with a fixed effects specification. In this case, the effect rises from 6.3 percentage points on bank segments' payout ratios using all BHCs to 11.3 percentage points using only those BHCs whose largest acquisition was at least 200% larger than the next.

We also consider different left-hand side variables in Equation 3 to examine the payout



behaviors of BHCs around non-bank acquisition, as well as the drivers of changes in the bank segment's payout policy (i.e. changes to income versus changes to dividends).

First, Columns 1 and 2 in Table XII show that although the bank segment's payout policy changes around non-bank acquisition, the parent external payout ratio does not. Instead, the parent's external payout ratios are similar across simple BHCs and BHCs that acquire non-banks before and after they acquire major non-banks. Therefore, the evidence does not show that the additional capital pulled from the bank segment after a non-bank acquisition funds external dividends and might instead be kept internally.

We also decompose the bank segment's payout policy into its numerator and denominator to determine what drives the changes around a non-bank acquisition. In Columns 3 and 4 of Table XII, we show that bank segment's return on assets are generally higher for the non-bank acquirer prior to the non-bank acquisition but fall to comparable levels after the non-bank acquisition. Meanwhile, in Columns 5 and 6 we find that the ratio of the bank segment's dividends to their assets is generally the same for both simple BHCs and non-bank acquiring BHCs prior to a major non-bank acquisition, with weak evidence that the ratio increase in the bank segment after a non-bank acquisition. Therefore, the driver of changes to the bank segment's payout policy comes from decreases in the returns on assets with no change or a slight increase to the bank segment's dividends.

The decline in the return on assets could simply be the result of reversion to the mean. For example, bank segments with strong performance might belong to BHCs better suited to make non-bank acquisitions. However, after non-bank the acquisition, these bank segments revert to the mean. Alternatively, a non-bank could directly affect the bank segment's performance to the extent that more profitable elements of the bank segment's business (e.g., loans) could be undertaken by the non-bank at the bank's expense.

## VII. Conclusion

Our results show that BHCs use their bank segments and not non-bank segments in their internal capital markets to provide a smooth dividend stream to shareholders when BHC earnings decline. The non-bank segment appears to be insulated from negative shocks to consolidated income, and the banks make up the cash shortage to ensure that shareholders receive a smooth dividend stream. This finding holds when we control for the BHC and the bank segments asset size, capital structure, and the profitability of investment opportunities. We also find that when demand for increased internal dividends cannot be met with increased income, the banks resort to borrowing to finance their internal dividends. We conclude that these results provide evidence that banks are a source of strength for the BHC.

This central result is a novel addition to the literature. It shows how internal capital markets are used to manage internal dividends to attain external dividends, to aid non-banks, and to use banks' resources to achieve the parent's acquisition goals. Toward this end, the paper shows for the first time how BHCs extract capital from segments that differ in financial strengths. This result contrasts with the examination of the workings of internal capital markets through the lens of capital allocation between different segments.

In this respect, we show that acquisitions can have a substantial financial impact on the existing segments of the acquiring firms. However, our paper is silent on whether the bank segment's resources are used to mitigate the financial constraints of the non-bank subsidiaries or whether the motivation is to use non-bank expansion as a vehicle for risk shifting and regulatory arbitrage. Future research can sort out these differing motivations. We merely provide evidence that shows the channel through which the bank segment's resources can be used to provide financial flexibility to the non-bank segment. Banks are, by definition, cash rich, and thus provide a logical insurance mechanism for cash demands imposed by any rigidity from non-banking businesses. This role might be in the primary interest to the BHC. However, it is not necessarily the same policy that would be neither followed by a standalone bank nor optimal from a social welfare perspective or that of a deposit insurer.

How to reconcile these conflicts in an optimal theory of scope is an interesting theoretical and empirical question.

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Table I: Year Distribution of Largest Non-bank Acquisitions. Using Y9-LP data in this table, we identify the years in which the relative investment in non-bank subsidiaries experienced the largest change for the bank holding companies (BHCs) in our baseline sample (using items BHCP1273, BHCP3239, and BHCP0201). We drop the BHC that do not have at least one year in which the non-bank subsidiary share increases by at least one percentage point. Columns beneath "BHCs with a new subsidiary in" represent the number of BHCs with at least one (non-mutually exclusive) new subsidiary acquisition with the corresponding function identified by charter type and/or NAICS code. The remaining non-bank acquisitions are most commonly associated with unidentified "other/miscellaneous" credit intermediation.

Year Acq	Freq	Mean Change							
		Proportion Parent Holdings in Non-banks	Insurance	Real Estate Credit	Security broker and/or dealer	Sales Credit	Commodities Contracts		
1993	4	5.2%	1	1	1	1	1	1	1
1994	4	17.6%	0	1	1	1	1	0	0
1995	4	12.7%	1	1	1	1	1	1	0
1996	2	3.1%	1	0	0	0	0	0	0
1997	5	17.3%	1	0	0	0	0	0	0
1998	4	10.1%	0	0	0	0	0	0	0
1999	12	10.3%	5	5	6	6	4	4	2
2000	15	10.9%	4	4	5	5	4	4	0
2001	7	14.8%	1	2	2	2	2	2	0
2002	8	20.9%	4	0	1	1	2	2	0
2003	9	8.3%	1	3	0	0	0	0	0
2004	6	7.1%	0	0	0	0	0	0	0
2005	4	16.2%	2	1	1	0	1	1	0
2006	3	18.2%	1	2	1	1	1	1	0

BHCs with a new subsidiary in:

Table II: Summary Statistics

	Mean	Median	StDev	P75	P90
<hr/>					
Consolidated					
<hr/>					
Consolidated Cons Assets (2014 dollars, billions, Y-9C)	73.7	3.5	279.0	19.8	126.0
Tier1 Leverage Ratio (Y-9C)	9.20%	8.23%	4.95%	9.86%	11.64%
<hr/>					
Parent					
<hr/>					
Uses of Cash (Parent)					
External Dividends to Cons Assets (Y-9C)	0.69%	0.54%	1.64%	0.69%	0.89%
Interest Expense to Cons Assets (Y-9C)	0.06%	0.03%	0.09%	0.10%	0.17%
Salary Expense to Cons Assets (Y-9C)	0.16%	0.06%	0.31%	0.17%	0.39%
Other Expenses to Cons Assets (Y-9C)	0.20%	0.16%	0.24%	0.25%	0.34%
Non-Dividend Distributions to Cons Assets (Y-9C)	0.33%	0.15%	0.46%	0.51%	0.85%
Sources of Cash (Parent)					
Non-Dividend Op Cash Flow to Cons Assets (Y-9C)	-0.04%	-0.11%	1.31%	-0.01%	0.19%
Other Net Sources of Cash to Cons Assets (Y-9C)	0.45%	0.15%	0.90%	0.76%	1.60%
Dividends from Subsidiaries (Y-9C)	1.12%	0.90%	1.39%	1.30%	1.78%
<hr/>					
Bank Segment					
<hr/>					
Bank Assets					
(2014 dollars, billions)	64.1	3.6	220.0	20.1	122.0
Bank Dividends to Consolidated Assets	0.91%	0.79%	0.57%	1.19%	1.60%
Bank Net Income to Assets	1.30%	1.24%	0.79%	1.47%	1.87%
Bank Net Income to Consolidated Assets	1.26%	1.22%	0.71%	1.44%	1.85%
Tier1 Leverage Ratio	8.49%	7.87%	2.52%	9.13%	10.55%
<hr/>					
Nonbank Segment					
<hr/>					
Non-Bank Assets					
(2014 dollars, billions)	4.5	0.0	32.3	0.5	2.9
Non-Bank Dividends to Consolidated Asset	0.19%	0.00%	1.27%	0.07	0.18%
Non-Bank Net Income to Assets	-2.49%	3.15	160%	6.53%	15.74%
Non-Bank Net Income to Consolidated Assets	0.34%	0.04%	2.15%	0.10%	0.21%
Non-Bank Equity to Assets	57.48%	65.01%	44.43%	94.58%	99.87%
<hr/>					
Average # of HC Observations, BHCs with Operating Non-Bank (2002-2007)	60				

Table III: Baseline Regression Results. This sample includes all bank holding companies (BHCs) with a non-bank Y-11 Filer. Panel A has the results for Non-bank Segments, while Panel B has the results for their bank affiliated segments. Panels C and D have similar calculations that use external payouts including repurchases. The regressions are changes in segment dividends to parents on segment variables, other segment variables, and BHC variables over the period 2003 to 2007. All income and dividend variables are measured as a fraction of the BHC assets, while equity variables are measured as a ratio of segment equity to segment assets. Segment Income is measured as the changes in total income for the segments measured from the Y-11 for non-banks and the Call Reports for Banks. The rest of the BHC Income is defined as the consolidated income less segment Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	External Dividends Only				External Payouts, Incl Dividends and Repurchases			
	Panel A: Nonbank Segment		Panel B: Bank Segment		Panel C: Nonbank Segment		Panel D: Bank Segment	
	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends	$\Delta$ Internal Dividends
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
$\Delta$ Own Income	0.302*** (5.77)		0.160* (1.84)		0.302*** (6.15)		0.171* (1.84)	
$\Delta$ Own Income (+)		0.369*** (3.65)		0.339** (2.22)		0.332*** (4.33)		0.330** (2.10)
$\Delta$ Own Income (-)		0.597*** (2.78)		0.044 (0.35)		0.740*** (3.43)		0.063 (0.48)
$\Delta$ Rest of HC Inc	-0.061 (-1.12)		-0.189 (-1.02)		-0.061 (-1.13)		-0.181 (-0.95)	
$\Delta$ Rest of HC Inc (+)		-0.145* (-1.80)		-0.259 (-1.07)		-0.161* (-1.87)		-0.294 (-1.18)
$\Delta$ Rest of HC Inc (-)		0.031 (1.06)		-0.068 (-0.22)		0.034 (1.12)		0.014 (0.05)
$\Delta$ Ext Div	0.087 (1.19)		0.716*** (3.55)		0.067** (2.26)		0.368*** (3.66)	
$\Delta$ Ext Div (+)		-0.119 (-0.61)		0.557** (2.47)		-0.023 (-0.34)		0.278** (2.03)
$\Delta$ Ext Div (-)		0.772* (1.66)		1.159*** (3.65)		0.187** (2.17)		0.465*** (4.03)
L.Own Book Eq	0.02 (0.83)	-0.012 (-0.35)	3.013** (2.32)	3.025* (1.84)	0.018 (0.75)	-0.006 (-0.20)	2.921*** (2.77)	3.327** (2.20)
log(BHC Assets)	0.065 (0.94)	-0.011 (-0.31)	0.007 (0.06)	0.000	0.054 (0.84)	0.050 (0.83)	-0.056 (-0.55)	0.006 (0.05)
L.ROE Spread	-0.101 (-1.09)	-0.022 (-0.96)	0.000	0.034 (0.57)	-0.101 (-1.12)	-0.042 (-1.54)	-0.017 (-0.25)	0
Year FE	YES	YES	YES	YES	YES	YES	YES	0.00
Adj R <sup>2</sup>	0.182	0.294	0.078	0.076	0.195	0.296	0.127	YES
N	299	299	299	299	299	299	299	299



Table IV: This sample includes all conglomerates with a nonbank presence 2003-2007. Panel A uses a Y-9LP based definition of material non-bank subsidiaries and Y-9LP based definitions for non-bank income and dividends. To maintain a sample size similar to the Y-11 based definition of materiality, Panel A restricts attention to those BHCs whose non-bank equity measured from Y-9LPs is at least 5% of all equity held by parent BHCs in their subsidiaries. Panel B uses Y-9LP data to construct non-bank variables and includes all BHCs that have strictly positive non-bank assets. Panel C considers the Baseline sample and regression, but scales changes in external dividends by the fraction of total equity held in the relevant segment to reflect the proportion of external dividends that we would expect to be funded by each segment. Note that the sample is reduced to 293 due to zero/negative equity values for 6 non-banks in the sample. Segment Income is measured as changes in total income for the segment (e.g. bank or nonbank) measured from the respective data source for nonbanks and Call Reports for Banks. For any variable “X”, the notation is as follows:  $X(+)=\max(X,0)$  and  $X(-)=\min(X,0)$ . Standard errors are clustered at the holding company level. T statistics in parentheses.

	Panel A: Y-9LP Materiality		Panel B: Y-9LP All Nonbank		Panel C: Alt Ext Div	
	Non-bank (1)	Bank (2)	Non-bank (1)	Bank (2)	Non-bank (1)	Bank (2)
$\Delta$ Own Income (+)	0.295** (2.47)	0.275** (2.46)	0.319*** (4.06)	0.198*** (3.80)	0.456*** (2.92)	0.314* (1.98)
$\Delta$ Own Income (-)	0.232* (1.83)	-0.119 (-0.81)	0.157* (1.77)	0.07 (1.25)	0.687*** (3.94)	0.083 (0.71)
$\Delta Rest$ of HC Inc (+)	0.034 (0.60)	-0.259 (-1.07)	0.007 (0.50)	-0.187 (-1.19)	-0.132** (-2.07)	-0.214 (-0.86)
$\Delta Rest$ of HC Inc (-)	-0.092 (-1.50)	-0.03 (-0.09)	-0.024 (-1.29)	0.09 (0.50)	0.029 (0.95)	0.013 (0.04)
$\Delta$ External Div (+)	0.044 (1.15)	0.188** (2.17)	0.020* (1.93)	0.333*** (6.50)	-0.164 (-0.72)	0.454** (2.12)
$\Delta$ External Div (-)	0.057 (1.06)	0.241** (2.29)	0.023 (1.52)	0.244*** (4.55)	0.654** (2.39)	0.544*** (3.42)
L.Own Book Eq	0.047 (0.79)	0.166 (0.29)	0.00 (-0.24)	0.599 (0.86)	0.007 (0.26)	3.008** (2.17)
log(BHC Assets)	0.01 (0.16)	0.02 (0.26)	0.001 (0.04)	-0.013 (-0.29)	0.101 (1.14)	0.036 (0.33)
L.ROE Spread	0.00 (0.20)	0.001** (2.12)	0.00 (0.57)	0.00 (1.27)	-0.046** (-2.08)	0.005 (0.07)
Year FE						
Adj R <sup>2</sup>	0.124	0.093	0.09	0.108	0.32	0.128
N	291	291	1886	1893	299	299

Table V: The Bank Segment's Internal Dividends and Use of "Hot" Liabilities. This sample includes all bank holding companies (BHCs) with a non-bank Y-11 Filer divided between those whose bank segments' experienced a decrease in income (Panel A) and those whose bank segments' experienced an increase in income (Panel B). All results are for the bank segment only. Of the 299 BHC-years in our sample, 124 had decreased income in their bank segments and 175 had increased income in their bank segments. The probit regressions use a dummy for changes in brokered deposits as the left-hand side variable (equals one if brokered deposits strictly increased and zero otherwise) regressed on a dummy for changes in bank segment internal dividends (=1 if increased and =0 otherwise) as well as other controls. Equity variables are measured as a ratio of segment equity to segment assets. Assets are expressed as log consolidated assets, and all other variables are expressed relative to average consolidated assets. The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Bank Segment Income Decreased				Panel B: Bank Segment Income Increased			
	Probit: Brokered Deposit Dummy		OLS: $\Delta$ Repurchases Sold		Probit: Brokered Deposit Dummy		OLS: $\Delta$ Repurchases Sold	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
$\Delta$ Bank Div	0.495** (2.05)	0.610** (2.54)	0.594* (1.92)	0.658** (2.06)	-0.052 (-0.24)	-0.063 (-0.28)	0.122 (0.25)	0.227 (0.47)
$\Delta$ External Div	26.860 (0.47)	53.703 (0.89)	0.461 (0.77)	0.702 (1.15)	-201.250** (-2.50)	-231.010*** (-2.69)	0.395 (0.34)	0.266 (0.24)
log(Cons. Assets)	101.391 (1.37)	102.243 (1.38)	0.164 (-0.79)	0.213 (0.24)	69.188 (1.27)	76.754 (1.40)	-0.470 (-0.29)	-0.401 (-0.29)
L.Bank Equity	-47.329 (-0.09)	-72.984 (-0.14)	-0.003 (-0.00)	-0.381 (-0.06)	-850.081 (-1.55)	-882.872 (-1.59)	-1.713 (-0.26)	-1.173 (-0.21)
L.ROE_Spread	2.867 (0.07)	24.480 (0.59)	-0.387 (-0.79)	-0.123 (-0.25)	-47.448* (-1.75)	-52.227* (-1.93)	0.839** (2.02)	0.783* (1.80)
$\Delta$ Bank Loans		5.965*** (2.99)		0.073 (1.64)		3.152** (2.36)		0.066** (2.36)
Time FE	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo/Adj R <sup>2</sup>	0.09	0.15	0.01	0.04	0.09	0.12	-0.02	0.01
N	124	124	124	124	175	175	175	175

Table VI: Excess Dividends and Bank Segments' Income and Internal Dividends. Excess dividends are defined as changes in bank segment dividends less changes in their income. This table reports the counts of income and dividend increases for positive and negative values of excess dividends for the baseline sample of 299 bank holding companies, 2002 to 2007.

	Excess Dividends > 0	Excess Dividends < 0	Total
$\Delta$ Bank Income > 0	59	59	118
$\Delta$ Bank Internal Dividends > 0	59	57	116
$\Delta$ Bank Income < 0	65	38	103
$\Delta$ Bank Internal Dividends < 0	21	38	59
Total	145	154	299

Table VII: Internal Dividends and Parent Investments in Non-bank Subsidiaries. This sample includes all bank holding companies (BHCs) conglomerates with a non-bank Y-11 Filer. The regressions are changes in bank dividends to parents on bank variables, other segment variables, and BHC variables over the period 2003 to 2007. Panel A measures the changes to non-banks' investments as the parents' non-bank equity holdings change as measured by the Y-9LP filings (Item BHCP1273) less equity in undistributed non-bank earnings (Item BHCP3156). Panel B measures the changes to non-bank investments as the parents' non-bank equity holdings change measured by the Y-9LP filings (Item BHCP1273) plus changes in parents' loans, advances, notes, bonds and debentures to non-bank subsidiaries (BHCP0573) less equity in undistributed non-bank earnings (Item BHCP3156). All income and dividend variables are measured as a fraction of the BHC's assets, equity variables are measured as a ratio of segment equity to segment assets. Bank income is measured as the changes in income measured from the Call Reports for Banks. The rest of the BHC Income is defined as consolidated income less bank Income. For any variable "X", the notation is as follows: X(+)=max(X,0) and X(-)=min(X,0). The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Nonbank Eq Inv Only		Panel B: Nonbank Eq and Debt Inv	
	$\Delta$ Internal Dividends		$\Delta$ Internal Dividends	
	(1)	(2)	(1)	(2)
$\Delta$ Nonbank Investments	0.186** (2.04)	0.185** (2.01)	0.131** (2.03)	0.134** (2.03)
$\Delta$ Own Income	0.171** (1.98)		0.178** (2.04)	
$\Delta$ Own Income (+)		0.344** (2.42)		0.353** (2.44)
$\Delta$ Own Income (-)		0.059 (0.47)		0.065 (0.52)
$\Delta$ Rest of HC Inc	-0.274 (-1.31)		-0.245 (-1.24)	
$\Delta$ Rest of HC Inc (+)		-0.338 (-1.27)		-0.307 (-1.21)
$\Delta$ Rest of HC Inc (-)		-0.159 (-0.50)		-0.138 (-0.44)
$\Delta$ Ext Div	0.712*** (3.55)		0.703*** (3.48)	
$\Delta$ Ext Div (+)		0.549** (2.42)		0.532** (2.32)
$\Delta$ Ext Div (-)		1.171*** (3.83)		1.188*** (3.88)
L.Own Book Eq	2.837** (2.19)	2.879* (1.78)	2.891** (2.25)	2.943* (1.84)
log(BHC Assets)	-0.021 (-0.19)	-0.028 (-0.25)	-0.067 (-0.56)	-0.077 (-0.61)
L.ROE Spread	0.014 (0.24)	0.049 (0.82)	0.008 (0.13)	0.044 (0.75)
Year FE	YES	YES	YES	YES
Adj R <sup>2</sup>	0.087	0.085	0.084	0.083
N	299	299	299	299

Table VIII: Bank Segments' Payouts Policies and Major Non-bank/Bank Acquisitions: Difference-in-Differences. Difference-in-Differences estimates of bank segment payout ratios around major non-bank (Panel A) and bank (Panel B) acquisitions by bank holding companies (BHCs). The sample period is 1993 to 2007 and includes those BHC IDs that survive until the 2002 to 2007 sample period from which our baseline is constructed and also those BHCs that do not have any major non-bank activity from 1993 to 2007. Conglom is a dummy equal to one if the BHC eventually becomes a BHC and zero otherwise. Acquisition is a dummy variable equal to one in the years after major non-banks acquisitions for BHCs and zero otherwise. The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, \*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Bank Payouts Ratios and Nonbank Acquisitions				Panel B: Bank Payout Ratios and Bank Acquisitions			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Conglom	0.043 (1.24)	0.037 (1.07)			0.079* (1.71)	0.07 (1.44)		
Acquisition	0.070** (2.09)	0.070** (2.16)	0.063* (1.75)	0.061* (1.70)	0.049 (1.19)	0.042 (1.00)	0.032 (0.74)	0.044 (1.01)
log(Bank Assets)	0.047*** (5.34)	0.801*** (5.19)	0.001 (0.02)	0.844** (2.36)	0.034*** (3.27)	0.036 (0.54)	-0.01 (-0.27)	0.114* (1.80)
log(BHC Assets)		-0.748*** (-4.86)		-0.908** (-2.52)		0.001 (0.01)		-0.184*** (-2.46)
L.Bank Book Eq		5.316*** (7.87)		4.385*** (5.02)		3.707*** (2.74)		2.441* (1.88)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	NO	NO	YES	YES	NO	NO	YES	YES
Adj R <sup>2</sup>	0.067	0.115	0.259	0.273	0.052	0.084	0.25	0.262
N	3,414	3,290	3,414	3,290	2,944	2,824	2,824	2,824

Table IX: Bank Segments’ Payouts Policies and Major Non-bank/Bank Acquisitions: Matched Sample Difference-in-Differences. Difference-in-Differences estimates of bank segment payout ratios around major non-bank acquisitions by bank holding companies (BHCs). BHCs with a major non-bank acquisition are pairwise matched to a nearest neighbor “control” BHC with no non-bank activity at the same year on pre-event variables of consolidated assets, bank segment capital, and bank return-on-assets. Of the 90 BHCs with major non-bank acquisitions in the baseline difference-in-differences, 26 violate the overlap assumption. Two-year average payout rates are calculated for the acquiring BHC and the control before and after the event date. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Non-Bank Acquiring BHCs	Control BHC	Treated - Controls
Before	0.576 (0.046)	0.660 (0.071)	-0.084 (0.079)
After	0.659 (0.050)	0.567 (0.045)	0.092 (0.056)
Difference	0.083 (0.055)	-0.093 (0.079)	0.176** (0.082)

Table X: Difference-in-Difference estimates of bank dividend to asset sensitivities to bank segment income and external dividends surrounding major nonbank (Panel A) and bank (Panel B) acquisitions by holding companies. The sample period is 1993-2007 and includes those Holding Company IDs that ultimately appears in our baseline sample as well as those BHCs who survive until the 2002-2007 sample period from which our baseline is constructed and also do not have any major nonbank activity from 1993-2007. Conglom is a dummy equal to one if the BHC eventually becomes a financial conglomerate and zero otherwise. Acquisition is a dummy variable equal to 1 in the years after major nonbanks acquisitions for financial conglomerates and zero otherwise. Standard errors are clustered at the holding company level. The t-statistics in parentheses.

	Panel A: $\Delta$ Bank Div to Assets, Nonbank Acq				Panel B: $\Delta$ Bank Div to Assets, Bank Acq			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Conglom	0.000 (1.28)	0.000 (0.78)			0.000 (-0.44)	0.000 (-0.52)		
Acquisition	0.000 (-1.24)	0.000 (-1.04)	0.000 (-1.01)	0.000 (-0.94)	0.000 (0.68)	0.000 (0.78)	0.000 (0.51)	0.000 (0.67)
log(Bank Assets)	0.000 (-1.47)	0.000 (0.07)	0.000 (0.42)	0.000 (-0.08)	-0.000** (-2.47)	0.000 (0.41)	0.000 (0.05)	0.000 (0.12)
log(BHC Assets)	0.000 0.00	0.000 (-0.07)	0.000 0.00	0.000 (0.02)	0.000 0.00	0.000 (-0.58)	0.000 0.00	0.000 (-0.36)
$\Delta$ Own Income (+)	-0.01 (-0.18)	-0.008 (-0.14)	-0.012 (-0.18)	0.017 (0.25)	-0.003 (-0.05)	-0.002 (-0.03)	0 0.00	0.01 (0.14)
$\Delta$ Own Income (-)	-0.061 (-0.82)	-0.037 (-0.52)	-0.077 (-0.87)	-0.054 (-0.62)	-0.058 (-0.77)	-0.049 (-0.66)	-0.078 (-0.87)	-0.071 (-0.80)
$\Delta$ Own Income (+)*Conglom	0.03 (0.26)	0.025 (0.20)	0.042 (0.35)	0.021 (0.15)	0.368* (1.86)	0.380* (1.94)	0.393* (1.81)	0.413** (2.02)
$\Delta$ Own Income (-)*Conglom	0.055 (0.23)	0.065 (0.29)	0.019 (0.07)	0.009 (0.04)	-0.032 (-0.17)	-0.048 (-0.25)	-0.061 (-0.30)	-0.07 (-0.34)
$\Delta$ Own Income (+)*Acquisition	0.386*** (2.68)	0.375** (2.43)	0.373** (2.47)	0.335** (2.01)	0.106 (0.42)	0.065 (0.27)	0.093 (0.34)	0.015 (0.06)
$\Delta$ Own Income (-)*Acquisition	0.027 (0.11)	0.016 (0.07)	0.08 (0.31)	0.095 (0.39)	0.429* (1.69)	0.468* (1.85)	0.458 (1.63)	0.537* (1.91)
$\Delta$ Ext Div (+)	0.839*** (7.97)	0.790*** (7.28)	0.867*** (7.41)	0.788*** (6.64)	0.884*** (8.17)	0.867*** (7.81)	0.914*** (7.62)	0.891*** (7.24)
$\Delta$ Ext Div (-)	1.008*** (5.87)	1.030*** (5.93)	1.015*** (5.04)	1.034*** (5.02)	1.035*** (5.84)	1.044*** (5.87)	1.045*** (5.02)	1.054*** (5.05)
$\Delta$ Ext Div (+)*Conglom	-0.404** (-2.58)	-0.385** (-2.50)	-0.418** (-2.41)	-0.341** (-2.04)	-0.14 (-0.55)	-0.141 (-0.56)	-0.132 (-0.46)	-0.128 (-0.44)
$\Delta$ Ext Div (-)*Conglom	-0.477 (-1.54)	-0.455 (-1.47)	-0.458 (-1.24)	-0.444 (-1.22)	-0.279 (-0.61)	-0.247 (-0.55)	-0.269 (-0.52)	-0.263 (-0.51)
$\Delta$ Ext Div (+)*Acquisition	0.123 (0.69)	0.088 (0.55)	0.147 (0.76)	0.029 (0.17)	-0.328 (-1.36)	-0.336 (-1.41)	-0.326 (-1.24)	-0.376 (-1.41)
$\Delta$ Ext Div (-)*Acquisition	0.134 (0.40)	0.131 (0.39)	0.064 (0.16)	0.116 (0.29)	-0.474 (-0.98)	-0.531 (-1.12)	-0.556 (-0.97)	-0.549 (-0.97)
L.Bank Book Eq		0.026*** (5.21)		0.062*** (6.05)		0.009 (1.02)		0.018 (0.97)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Firm FE	NO	NO	YES	YES	NO	NO	YES	YES
Adj R <sup>2</sup>	0.097	0.104	0.029	0.048	0.115	0.115	0.047	0.05
N	3,323	3,323	3,323	3,323	2,849	2,846	2,849	2,846

Table XI: Bank Segments' Payout Policies by Relative Size of Largest Non-bank Acquisition: Difference-in-Differences. Difference-in-difference estimates comprise the bank segment's payout ratios around major non-bank acquisitions by bank holding companies (BHCs). The sample period is 1993 to 2007 and includes those BHC IDs that survive until the 2002 to 2007 sample period from which our baseline is constructed and also those that do not have any major non-bank activity from 1993 to 2007. Conglom is a dummy variable equal to one if the BHC eventually becomes a BHC and zero otherwise. Acquisition is a dummy variable equal to one in the years after major non-banks acquisitions for BHCs and zero otherwise. The columns represent the minimum multiple difference between the largest non-bank acquisition and the second largest non-bank acquisition during the 1993 to 2007 for inclusion in the sample. For example, 2x means that an (eventual) BHC is included in the analysis only if the largest non-bank acquisition for 1993 to 2007 is at least twice as large as the second largest non-bank acquisition. The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Nonbank Acquisitions by Relative Size of Biggest Acquisition							
	1x (1)	1.5x (2)	2x (3)	3x (4)	1x (5)	1.5x (6)	2x (7)	3x (8)
Conglom	0.043 (1.24)	0.042 (1.06)	0.017 (0.44)	0.025 (0.56)				
Acquisition	0.070**	0.086**	0.093*	0.093*	0.063*	0.079*	0.109**	0.113*
log(Bank Assets)	0.047***	0.047***	0.056***	0.057***	0.001	-0.005	-0.002	-0.002
Year FE	(5.34) YES	(4.96) YES	(4.84) YES	(4.31) YES	(0.02) YES	(-0.12) YES	(-0.04) YES	(-0.04) YES
Firm FE	NO	NO	NO	NO	YES	YES	YES	YES
Adj R <sup>2</sup>	0.067	0.063	0.054	0.049	0.259	0.252	0.245	0.244
N	3,414	3,088	2,808	2,677	3,414	3,088	2,808	2,677



Table XII: Other Income and Dividend Changes Surrounding Non-bank Acquisitions: Difference-in-Differences. Difference-in-difference estimates comprise the bank segment's payout ratios around major non-bank (Panel A) and bank (Panel B) acquisitions by bank holding companies (BHCs). The sample period is 1993 to 2007 and includes those BHC IDs that survive until the 2002 to 2007 sample period from which our baseline is constructed and also those that do not have any major non-bank activity from 1993 to 2007. Conglom is a dummy equal to one if the BHC eventually becomes a BHC and zero otherwise. Acquisition is a dummy variable equal to one in the years after major non-banks acquisitions for BHCs and zero otherwise. The standard errors are clustered at the BHC level. The t-statistics are in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

	Nonbank Acquisitions					
	External Payout Ratio	ROA	Bank Div/Bank Asset			
	(1)	(2)	(3)	(4)	(5)	(6)
Conglom	0.038 (0.94)		0.001*** (2.99)		0.001 (1.41)	
Acquisition	0.015 (0.41)	0.011 (0.33)	-0.001** (-1.99)	-0.001* (-1.93)	0.001* (1.82)	0.000 (0.42)
log(Bank Assets)	0.28 (1.42)	-0.070** (-2.01)	-0.005** (-2.26)	-0.001** (-1.97)	0.009*** (3.87)	-0.001 (-1.46)
log(BHC Assets)	-0.196 (-1.00)	0.000 (0.00)	0.005** (2.25)	0.000 (0.00)	-0.009*** (-3.63)	0.000 (0.00)
L.Bank Book Eq	3.108*** (4.19)	0.000 (0.00)	0.057*** (6.60)	0.000 (0.00)	0.063*** (8.13)	0.000 (0.00)
Year FE	YES	YES	YES	YES	YES	YES
Firm FE	NO	YES	NO	YES	NO	YES
Adj R <sup>2</sup>	0.16	0.368	0.111	0.497	0.262	0.381
N	3,288	3,411	3,323	3,453	3,323	3,453

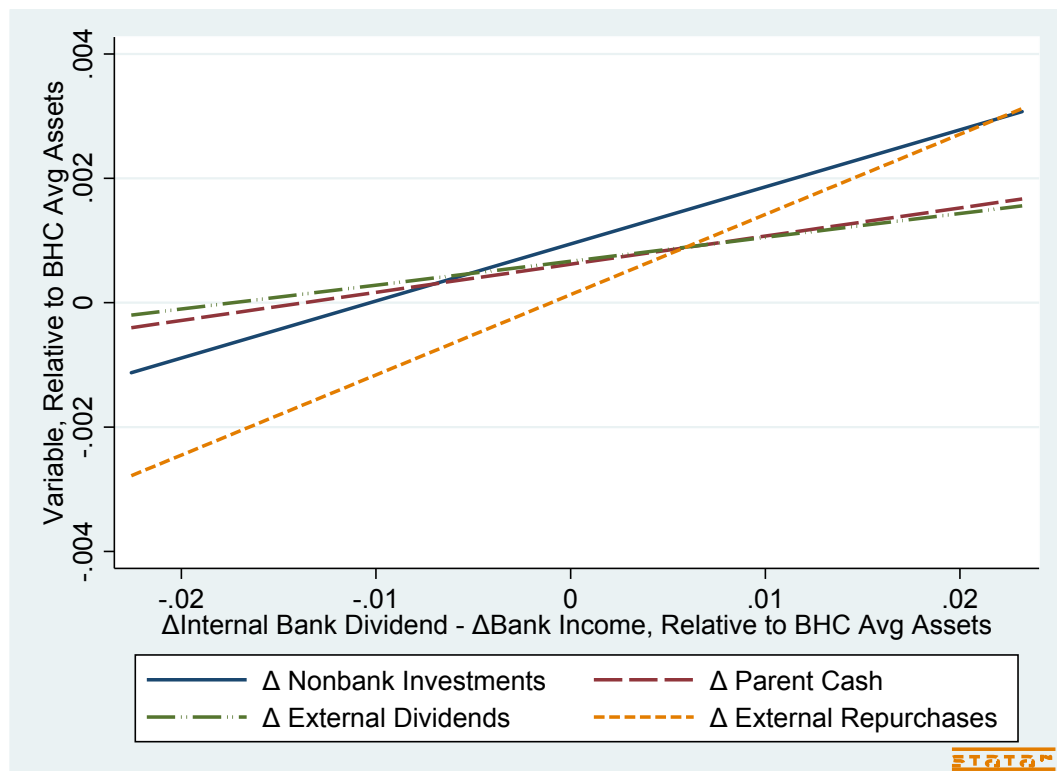


Figure 1: Linear fits between various uses of changes in the parent's cash flows as a function of the changes in bank segment's excess dividends, where excess dividends are defined as internal dividends in excess of the bank's income. Positive values on the horizontal axis indicate increases in banks' internal dividends relative to income, while negative values indicate decreases in internal dividends relative to income. The vertical axis plots various changes in the parent's uses of capital: investment (both equity and debt) in subsidiary non-banks, cash, external dividends, external repurchases, and operating expenses. All variables statistically increase in excess dividends at the 95% confidence level (at least for some portion of the graph). Only external repurchases decrease statistically at that level in the negative portion of the graph.

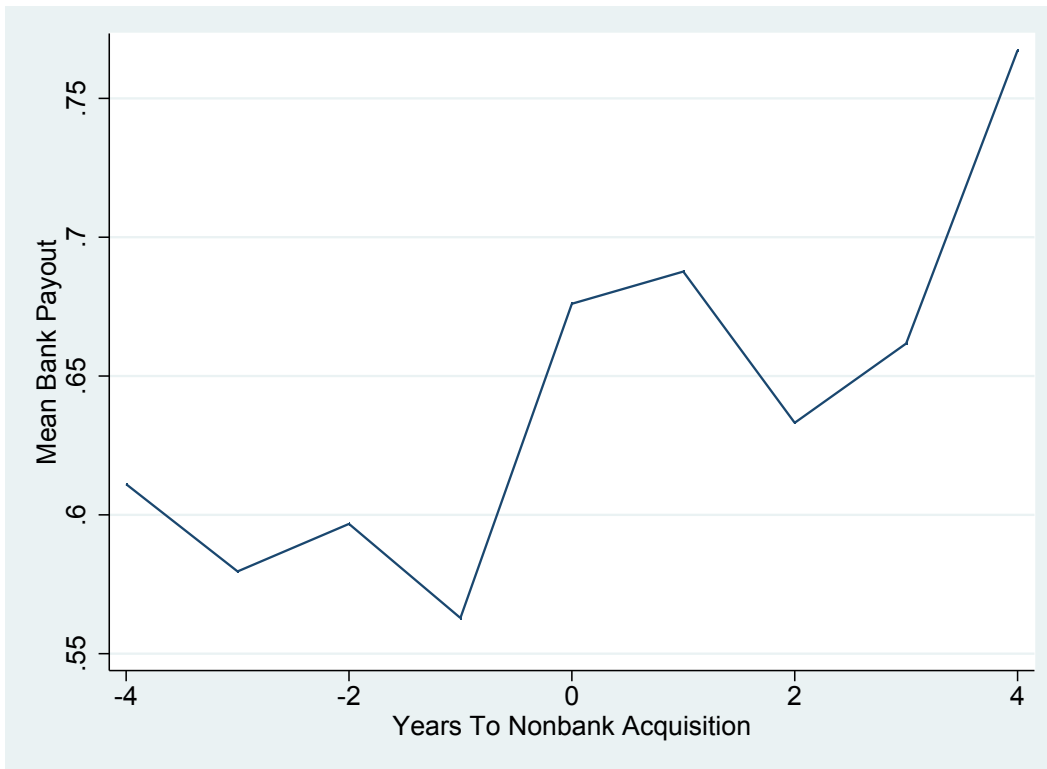


Figure 2: For the bank holding companies (BHCs) in our sample, we define the year of the largest non-bank acquisition between 1993 and 2007 as “Year 0” and take the mean payouts of BHCs centered around the non-bank acquisition year.

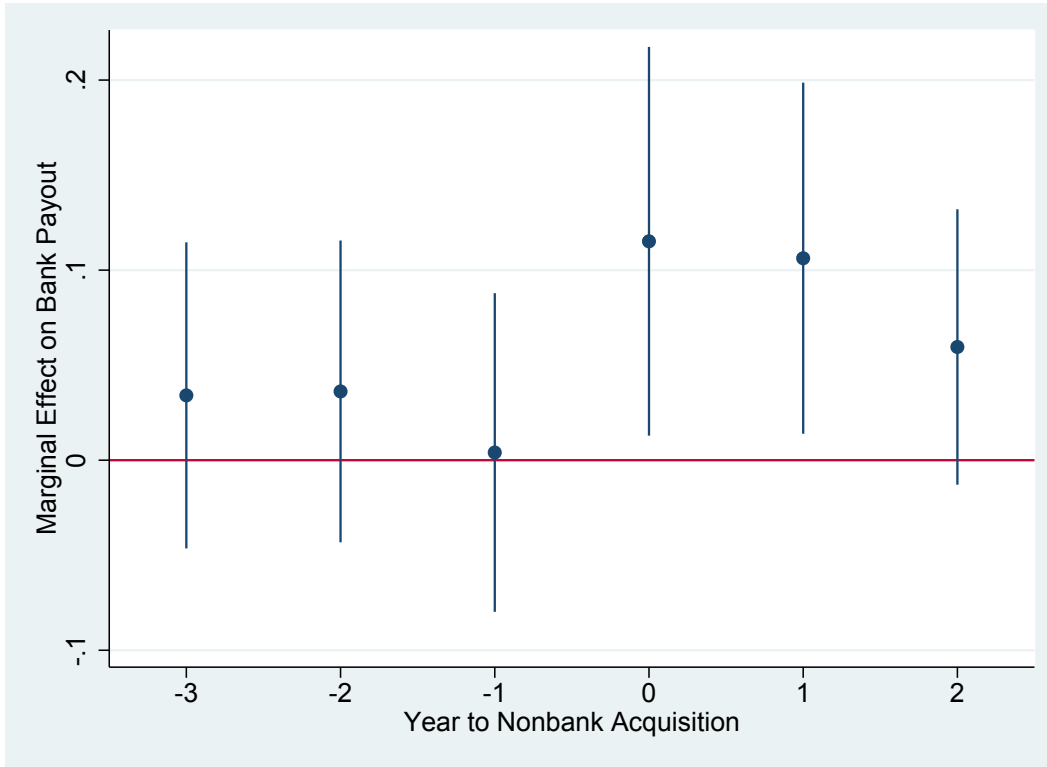


Figure 3: Bank Payout Policy Surrounding Nonbank Acquisition: Difference-in-Difference For the bank holding companies (BHCs) in our sample, we define the year of the largest non-bank acquisition between 1993 and 2007 as “Year T” and run a difference-in differences estimation of the bank segments’ payouts with acquisition year leads and lags and with year fixed effects and size controls.

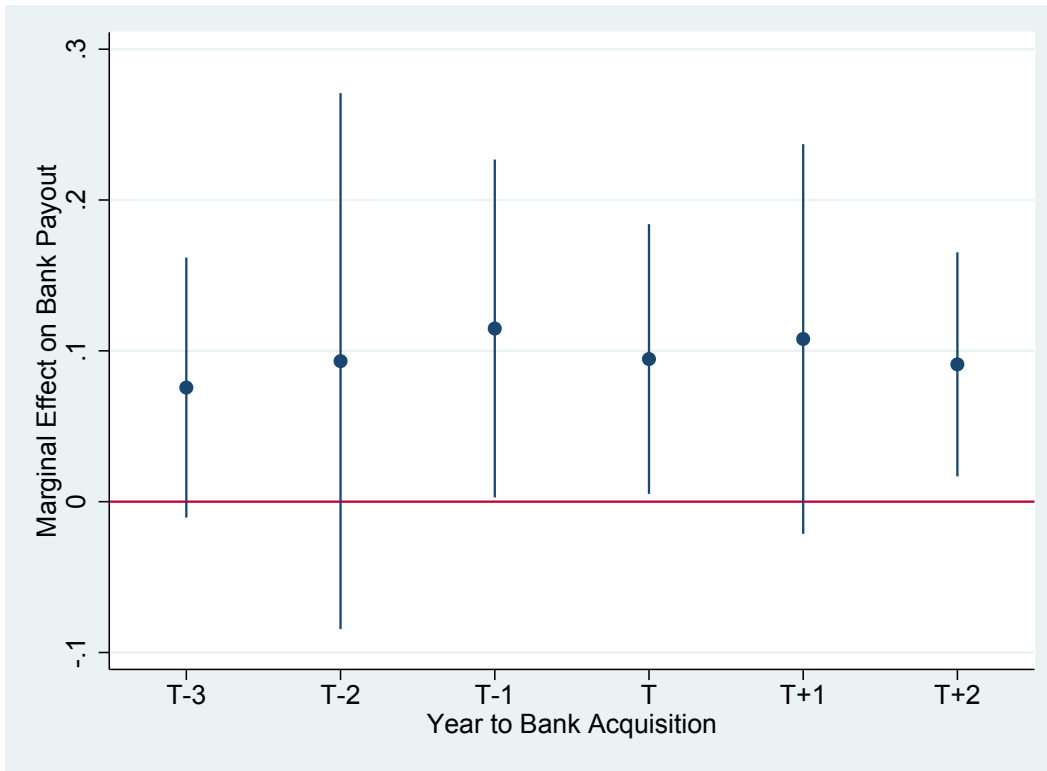


Figure 4: For the bank holding companies (BHCs) in our sample, we define the year of the largest bank acquisition between 1993 and 2007 as “Year T” and run a difference in difference-in-differences estimation of the bank segments’ payouts with acquisition year leads and lags and year fixed effects and size controls.

## Appendix A. Bank and non-bank classification, sample construction, and data sources

**Bank and non-bank classification** Figure A.5 displays a stylized structure of a bank holding company (BHC). Four major types of subsidiaries exist in this BHC; bank (and/or savings and loan), intermediate BHC, intermediate non-bank holding company, and non-bank. Segments in each of these categories can further expand vertically by owning other subsidiaries. To complicate the structure further, these major categories can be divided into domestic and foreign segments creating an extremely complex structure for a BHC, although our analysis focuses only on domestic subsidiaries. In this structure the parent is often referred to as the top-tier holder or high-holder. All top-tier holding companies must file annual reports (FR Y-6, FR Y-7) that explain their organizational structure. In addition, top-tier holding companies must also file a report (FR Y-10) on any changes in their organizational structures that must be filed within 30 days of a reportable event.

We use these structure data to separate banks from non-banks within the organization. In particular, we define banks to be the legal entity filing a Call Report, which may include non-bank subsidiaries held within the bank. Each bank within a BHC is necessarily owned by a holding company (which may be intermediate or top-tier).

We define “non-banks” as those that file Y-11 forms and whose parent is a BHC (entities “F” and “H” in Figure A.5). This is done to avoid double counting income and dividends in the BHC. For example, suppose subsidiary “I” in Figure A.5 made \$1 of income and up-streamed it to its parent “F”, who then up-streamed it to the top-tier (“A”). Both the dollar of income and the dividend would be recorded on the filings of both “I” and “F”. Counting only the Y-11 filing of “F” avoids this problem.

For the dashed non-bank subsidiaries in the figure, entities “I” and “J”, their incomes are included through their parents’ income. Income and dividend behaviors of the entities with regular outlines, entities “D” and “E,” are not included implicitly or explicitly in the analysis, because of a lack of regulatory filing data.

We use this classification to form bank and non-bank segments. We aggregate income and dividend variables of bank and non-bank subsidiaries within each BHC to establish these flow variables for the two segments. We also sum assets across subsidiaries and calculate asset-weighted capital ratios by segment. In the context of Figure A.5, the bank segment variables are created by combining data from entities “C” and “G” and the non-bank segment variables are created by combining data from entities “F” and “H.”

### Sample construction.

During 2002 to 2007, there are 2,247 unique BHCs that have subsidiary banks for which all variables in our final analysis are non-empty for the Y-9C and Call Report filings during our sample period.<sup>11</sup> We restrict attention to BHCs with at least \$500M in consolidated assets to accommodate a structural break in the reporting criteria for Y-9Cs, which raised the minimum consolidated assets to this amount from \$150M in 2006. This filter reduces

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<sup>11</sup>We lose a year of data in the analysis due to the use of lags and first differences.

the number of unique BHCs to 887. To construct our sample for the baseline regression, we impose a restriction that each BHC in our sample must contain at least one bank and at least one non-bank subsidiary. This filter reduces the sample from 887 to 497 distinct BHCs. The eliminated 396 BHCs either do not have any non-bank activity, have immaterial non-bank activity,<sup>12</sup> or have non-banks that are not subject to regulatory reporting.

We also make sure that the internal dividends reported by the parent and the subsidiary banks match. Toward this end, we compare the internal dividends from banks and subsidiary holding companies to the parent reported on the Y-9LP with outgoing dividends reported by banks on the Call Reports. These numbers need not coincide if banks upstream capital to an intermediate holding company that does not further upstream the capital to the parent. We restrict our sample to those cases where the incoming dividends are within 20 percent of the outgoing dividends. This filter reduces the number of distinct BHCs from 497 to 396. Finally, our baseline analysis excludes BHCs who do not have material non-bank operational subsidiaries that eliminates 295 BHCs whose only Y-11 filers are TruPS SPVs, which gives us 101 distinct entities. This sample has 299 BHC-year observations. Within these 101 distinct BHCs, there are 613 distinct non-bank subsidiaries filing FR Y-11 in our sample, of which, 281 are Y-11 filers that are subsidiaries of other Y-11 filers. Meanwhile, there are 481 distinct bank subsidiaries held by the baseline sample of 101 BHCs during 2003 to 2007.

#### **Data Sources**

Our study requires financial statement data for banks, non-banks, and the higher-holder operations on a stand-alone basis. We use a number of regulatory filings to compile our data. Looking at Figure A.5, the set of filings in the analysis are those filed by the entities with the thick outlines. This set includes banks (entities “C” and “G”), Y-11 filings of some non-banks (“F” and “H”), and the high holder (“A”).

For the higher holders’ operations we use the Parent Company Only Financial Statement (FR Y-9LP) that large parents (\$500 million or more) must file with the Federal Reserve System (Fed).<sup>13</sup> In addition, we use the Consolidated Financial Statement for Holding Companies (FR Y-9C) that the holding companies with total consolidated assets of \$500 million or more have to file with the Fed.<sup>14</sup> This consolidated report represents on and off-balance sheet activities of all subsidiaries in the BHC.

For banks, we use the Consolidated Reports of Condition and Income (FFIEC 031/041 or simply Call Report) that each federally insured depository institution (denoted as bank) with branches and subsidiaries in the United States must file with the FDIC or the Board of Governors of the Fed. This is a detailed report of on and off-balance sheet items as well as income statements of the consolidated bank operations. Because a depository institution can

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<sup>12</sup>Materiality of non-bank activity is determined by regulatory filings. The Y-11 filers must meet at least one of the following conditions: total assets greater than \$1 billion, off-balance-sheet activities greater than \$5 billion, equity capital greater than 5 percent of the top-tier BHC’s consolidated equity capital, or operating revenue greater than 5 percent of top-tier BHC’s consolidated operating revenue. Special purpose vehicles have not been required to file Y-11 since 2008.

<sup>13</sup>In 2015 this size limit increased to \$1 billion.

<sup>14</sup>In 2015 this size limit increased to \$1 billion. Prior to 2006, the reporting threshold was \$150 million. For consistency, we include only bank holding companies above the \$500 million threshold throughout.

have its own subsidiaries, the reporting is done on a consolidated basis.

Material domestic non-bank subsidiaries of U.S. holding companies that are Y-9C filers must file financial statements (FR Y-11) with the Fed. However, the Y-11 forms are not required of subsidiaries that have separate reporting requirements (e.g. insurance companies or broker dealers). Therefore, our sample misses these non Y-11 filers, but includes them implicitly if they are owned by another Y-11 filer. The Y-11 forms are filed on a legal entity (not consolidated) basis.<sup>15</sup>

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<sup>15</sup>This distinction does not matter for our income or dividend measures, but does matter for stock variables such as assets. As such, we rely minimally on the latter.



Table A.13: Data Definitions and Sources

Variable	Source	Item
Holding Company Assets	Y-9C	BHCK2170
Bank Subsidiary Income	FFIEC031/041	RIAD4340
Non-Bank Subsidiary Income	Y-11	BHCS4340
Rest of HC Income (Bank perspective)	FFIEC031/041, Y-9C	BHCK4340 - RIAD4340
Rest of HC Income (Non-Bank perspective)	Y-11, Y-9C	BHCK4340 - BHCS4340
Bank Dividends	FFIEC031/041	RIAD4475
Non-Bank Dividends	Y-11	BHCS4598
External Dividends	Y-9LP	BHCP6742
External Payouts	Y-9LP	BHCP6742 + BHCP6741 + BHCP8518
BHC Book Equity	Y-9C	BHCK8274
Bank Book Equity	FFIEC031/041	RCFA8274
Non-Bank Book Equity	Y-11	BHCS3210

"High" Non-bank Filers NIC, Y-11, FR-2314

Average between reports, denominator for all income and dividend variables

Sum over all banks and thrifts

Sum over all "High" Non-bank filers

Difference between Y-9C Income and Bank Income, defined below

Difference between Y-9C Income and Non-Bank Income

Sum over all banks and thrifts. Includes preferred and common dividends

Sum over all "High" Non-bank filers. Includes preferred and common dividends (not separable in reporting)

Cash payouts on common stock

Includes preferred and common dividends and repurchased

Expressed relative to Holding Company Assets. Expressed in bps for more easily readable coefficients.

Sum of Tier I Capital over all banks and thrifts, relative to total bank assets (sum over bank subsidiary assets on FFIEC031/041). Expressed in bps for more easily readable coefficients.

Sum of Capital over all "High" Non-bank Y-11 filers, Expressed relative to total non-bank assets (sum over all "High" Non-Bank subsidiary filer assets on Y-11). Expressed in bps for more easily readable coefficients.

Only "High" Y-11 filers are included in the construction of variables. For every Y-11 and FR-2314 filer it is determined whether or not the filer's parent is a bank holding company or a thrift holding company (from the structured data). "High" Y-11 filers are defined to be filers whose direct parent is either a bank holding company or thrift holding company. This is done to avoid double-counting of income among non-bank filers and/or mixing bank and non-bank income.

For example, if a non-bank Y-11 filer reports \$1 of income and its parent also files a Y-11, then the parent will also earn \$1 of income, either through a dividend from its subsidiary or through unrealized capital gains. In addition, we want to avoid mixing non-bank and bank dividend and income in our calculations. Some Y-11 filers are subsidiaries of banks who report income on a consolidated basis, which includes those non-bank subsidiaries. Other Y-11 filers may be thrift holding companies, whose income reflects both thrift and non-bank subsidiary income. Because such both such entities will have both bank and non-bank income sources, we include only the highest Y-11 filer that is not mixed with bank or thrift income. That is, a Y-11 filer whose parent is a bank or thrift holding company.

Table A.14: Number of subsidiaries in baseline sample.

	Pooled					Unique IDs	
	Mean	Median	StDev	P75	P90	Filing Subs	"Highest" Filing Sub
Number of BHCs with Oper Non-Bank Y-11 filer						101	
Number of Bank Subs (Call Report)	3.4	2	4.8	4	7	481	481
Number of Domestic SPV Subs (Y-11)	1.4	1	2.9	2	3	292	282
Number of Domestic Non-SPV Non-Bank Subs (Y-11)	2.0	1	4.1	2	3	613	332

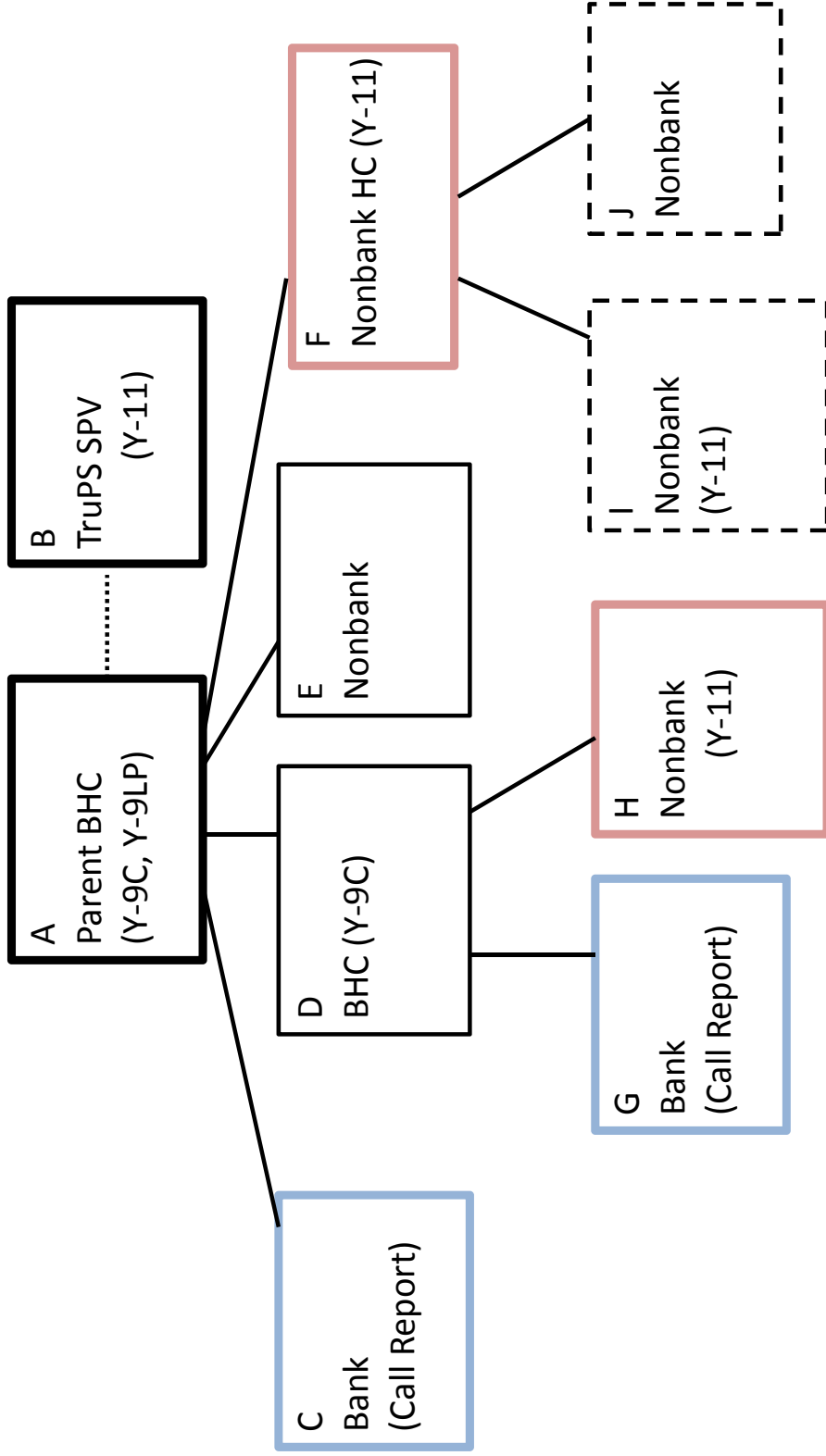


Figure A.5: Stylized Structure of a Bank Holding Company. The bank segment (outlined in blue) in the paper combines data from Banks C and G. The nonbank segment (red) combines data from Nonbanks F and H. The Parent is A. Segment income and dividend variables are obtained by summing over the entities within a segment. Segment capitalization ratios are obtained using weighted-average capital ratios.

## Appendix B. Internal and external dividend flows

In this appendix we use the industry sample to provide industry-level summary information on the internal and external dividend flows from the two segments to the parent during 2002 to 2014.

In Panel A of Table A.15, we show data on the internal dividend payout rates of bank and non-bank segments as well as external payout rates. In Panel B we construct the sources of the parents' income and expenditures. All values are in 2014 constant dollars. Variable definitions and data sources are as in Table A1.

Table A.15 shows that the bank segment has a significantly higher payout rate relative to the non-bank segment in all five years. On average, during 2002 to 2007, the bank segment's payout rate was 66 percent while the non-bank segment's was 45 percent. Except for 2002 and 2007, the bank segment's payout rate appears to be around 60 percent. However, 2007 proves to be a remarkable year when the bank segment paid out 83 percent of its income to the parent as internal dividends. However, this rate is a consequence of remitting the same dollar amounts of internal dividends despite a sharp decline in income. The peak crisis year continues this trend. The bank segment's income declines in aggregate from \$92 billion in 2007 to \$20 billion in 2008 but the internal dividends far exceeds the income yielding a 221 percent payout rate.

When we look at the parent's decision on an external payout we observe that the aggregate dollar amount of dividends (and total payouts) increase steadily in constant dollars from 2002 to 2007 regardless of the income levels. While the dividend payout rate is on average 64 percent, the total payout (dividends and share repurchases) to shareholders is on average 120 percent of income.<sup>16</sup> Once again, 2008 proves to be an interesting year. The external dividend payout rate reaches to be 133 percent and with share repurchases this rate goes up to 149 percent. However, in 2008 TARP enabled BHCs to raise significant amounts of new capital, which totaled to \$317 billion for this sample while dividends and repurchases totaled \$63 billion. So, in aggregate while the bank industry was receiving TARP capital in 2008 it was at the same time paying out and repurchasing shares at significant rates.

From 2010 to 2014 we observe a slight decrease in both bank and non-banks' internal payout ratios. External dividends, on the other hand, decrease significantly to 41 percent. Similarly, the total payout ratio declines to 104 percent. The restrictions on dividend payments and increased capital requirements during 2010 to 2014 are responsible for this change in the payout policy of the BHC.

Panel B of Table A.15 provides sources of income and expenditures at the parent level. In terms of income, we observe that the bank segment provides the bulk of the income (75 percent), non-banks provide a significant portion (21 percent), and parent's income from its own operations generate a small amount (4 percent) during 2002 to 2007. Furthermore, non-banks account for up to 33 percent of the parents' income in 2005 despite their smaller asset size.

On the expense side, interest constitutes the largest expense item (17 percent average over the sample period). Further, the majority of other expenses include interest payments

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<sup>16</sup>Note that this total payout rate excludes TruPS dividends paid to investor.

to TruPs subsidiaries to be paid by the subsidiary to holders of trust preferred stock as preferred dividends. In other words, TruPS payments add an average of 3 percent to total payouts if we assume the entire amount of other expenses consist of TruPS dividends.<sup>17</sup> Another noteworthy item among expenses is the tax savings. This item emerges when the consolidated tax expense is less than the tax remittances that individual subsidiaries send to the parent. The parent keeps the difference as an additional source of income. During the sample period such tax savings (or excess taxes collected from the subsidiaries) amount to 4 percent of the operating income.

The difference between income and expense (net income after taxes, NIAT) establishes the basis for the external distributions to shareholders reported in Panel A. Table B2 also shows inflow-outflow numbers at the parent level during the crisis year of 2008. We observe that the income received from banks as a percent of the parent's total income (88 percent) exceeded the average during 2002 to 2007, which is 74 percent. The non-banks' income's share also increased. However, parents' losses on their own operations put a substantial hit on the total income. On the expense side, interest expense increased drastically but tax savings created an important resource for the parent.

Finally, we observe that during 2002 to 2007, 35 percent of the parent BHCs have distributions to shareholders that exceed NIAT, which implies a depletion of capital. During 2010 to 2014 this ratio declines to 30 percent that indicates more discipline in bolstering the banks' capital ratios after the crisis.

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<sup>17</sup>TruPS dividends are counted as expense because the parent pays tax-deductible interest payments to subsidiaries, which issue TruPS. The interest payments are passed through these subsidiaries and paid to the investors as preferred dividends.

Table A.15: Subsidiary Income and Distributions (Panel A) and Parent Income and Distributions (Panel B)

Panel A															
Holding Company	2002	2003	2004	2005	2006	2007	02-07 Avg	2008	2009	2010	2011	2012	2013	2014	10-14 Avg
Banks															
Net Income (\$bn, '14)	98	111	109	116	127	92	109	20	-9	79	108	121	134	126	114
Internal Div (\$bn, '14)	72	70	58	69	79	76	71	45	40	56	70	83	74	76	72
Payout Ratio	74%	63%	54%	59%	63%	83%	66%	221%	N/A	71%	65%	69%	55%	61%	64%
NonBanks															
Net Income (\$bn, '14)	20	26	25	43	48	31	32	-22	78	46	49	40	43	36	43
Internal Div (\$bn, '14)	9	9	6	31	21	15	15	7	16	21	20	11	14	22	17
Payout Ratio	44%	35%	25%	73%	43%	49%	45%	N/A	20%	46%	41%	27%	31%	60%	41%
Parent															
Net Income (\$bn, '14)	79	75	60	96	92	81	80	43	34	58	70	65	69	80	69
External Div (\$bn, '14)	38	43	49	56	58	62	52	56	31	20	26	29	32	36	29
Div Plus Repurch (\$bn, '14)	77	84	81	109	114	116	97	63	190	48	74	62	90	83	72
Equity Raises (\$bn, '14)	13	26	28	23	27	19	22	317	193	38	36	35	30	46	37
Dividend Payout Ratio	48%	57%	81%	58%	63%	77%	64%	133%	92%	34%	37%	45%	46%	45%	41%
Total Payout Ratio	97%	111%	135%	113%	125%	144%	120%	149%	560%	83%	106%	95%	131%	103%	104%

Panel B Holding Company Inflows from Banks and Subsidiary HCs (% Total Op Inc)	2002	2003	2004	2005	2006	2007	02-07 Avg	2008	2009	2010	2011	2012	2013	2014	10-14 Avg
Dividends	70%	69%	66%	51%	57%	57%	62%	58%	42%	45%	52%	68%	60%	61%	57%
Interest	5%	5%	8%	7%	9%	12%	8%	14%	6%	3%	3%	2%	2%	2%	2%
Fees	5%	7%	7%	4%	5%	5%	5%	3%	3%	4%	2%	2%	2%	2%	3%
Total	80%	81%	81%	63%	71%	75%	75	85%	39%	53%	60%	72%	66%	63%	63%
Inflows from Non-Banks (% Total Op Inc)															
Dividends	11%	12%	9%	28%	17%	13%	15%	11%	18%	18%	16%	9%	11%	17%	14%
Interest	3%	2%	3%	4%	7%	8%	5%	11%	16%	10%	9%	10%	10%	9%	10%
Fees	1%	1%	1%	1%	1%	1%	1%	0%	1%	1%	0%	1%	1%	1%	1%
Total	14%	15%	13%	33%	26%	23%	21%	22%	47%	35%	26%	25%	28%	29%	29%
Parent Operational Revenue (% Total Operating Income)															
Securities Gain/Loss	2%	1%	2%	0%	0%	0%	1%	-2%	-6%	2%	9%	-3%	1%	1%	2%
Other	3%	3%	5%	4%	3%	2%	3%	-5%	20%	10%	5%	5%	5%	7%	6%
Total	5%	4%	7%	4%	3%	2%	4%	-7%	14%	12%	14%	3%	6%	8%	8%
Total Parent Operating Income (\$Bn, 2014)	100	98	84	129	133	129	112	81	76	111	128	117	117	118	118
Parental Operational Expenses (% Total Op Inc)															
Salary	4%	5%	6%	4%	4%	4%	5%	3%	7%	5%	4%	5%	5%	3%	4%
Interest	12%	11%	14%	16%	22%	28%	17%	39%	41%	29%	28%	27%	22%	24%	26%
Other Expenses	9%	10%	13%	8%	9%	11%	10%	20%	23%	22%	21%	23%	28%	12%	21%
Tax Savings (Parent)	-4%	-3%	-4%	-3%	-4%	-5%	-4%	-14%	-16%	-7%	-7%	-11%	-14%	-8%	-10%
Total	21%	23%	29%	26%	31%	37%	28%	48%	55%	48%	45%	44%	41%	32%	42%
Parent Expenses (\$Bn, '14)	21	23	24	33	42	48	31	39	42	53	57	51	48	37	49
Par Net Inc After Tax (\$Bn, '14)	79	75	60	96	92	81	80	43	34	58	70	65	69	80	69
External Distributions															
Payout Ratio (External dividends/NIAT)	48%	57%	81%	58%	63%	77%	64%	133%	92%	34%	37%	45%	46%	45%	41%
Repurchase (Rep-Eq Raise / NIAT)	32%	19%	7%	30%	32%	42%	27%	-766%	-80%	-14%	18%	-4%	39%	1%	8%
Total Payout Ratio (Ext div+Repurch/NIAT)	80%	77%	88%	88%	94%	119%	91%	N/A	12%	20%	55%	41%	85%	46%	49%
Proportion of BHCs with Distributions>NIAT	32%	32%	32%	37%	35%	42%	35%	37%	33%	32%	29%	31%	28%	28%	30%
N	606	647	687	759	796	799	716	813	848	845	863	870	878	889	869