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Do Credit Unions have Distinct Objectives?

Evidence from Executive Compensation Structures

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Abstract:

Credit unions compete directly with for-profit commercial banks in markets for consumer financial services yet receive an exemption from federal corporate income tax. Commercial banks claim that credit unions are no different than for-profit banks and that the credit union tax exemption represents an unfair competitive advantage. Credit unions counter that while they offer similar products and services, they differ from commercial banks in terms of structure and mission, given their not-for-profit, cooperative status. In this paper, we test for substantive differences in the objective functions of for-profit commercial banks and nonprofit credit unions by comparing CEO compensation structures. We use a stylized principal-agent model and provide several arguments to support the hypotheses that credit union boards of directors establish lower-powered incentive contracts with their CEOs relative to similarly-sized commercial banks, and lower overall expected compensation. We find that bank CEOs receive approximately two-and-a-half times more performance-based compensation relative to credit union CEOs. Bank CEOs also earn approximately 10% to 20% more total compensation on average, depending on the measure. The results are generally robust to controlling for CEO characteristics (gender, tenure and retirement income), institution-level variables (e.g., asset size, growth, earnings, risk, complexity and market share), and local economic conditions (house price index and unemployment). The findings suggest important differences in incentive structures and objectives between banks and credit unions and serve as a foundation for further research.

Keywords:

Executive compensation; Banks; Credit unions; Prosocial behavior; Cooperatives; Principal-agent

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1. Introduction

Credit unions compete directly with for-profit commercial banks in markets for consumer financial services. For example, in the first quarter of 2017, Credit unions originated 28% of auto loans and 26% of personal loans—versus 25% and 16% at commercial banks—and 13% of mortgages (versus 33% at banks) (Experian). However, unlike commercial banks, credit unions receive an exemption from corporate income tax. Banks argue that there are no substantive differences between credit unions and commercial banks, and that credit unions should therefore not receive any form of preferential treatment from the U.S. government or regulators. For example, the American Bankers Association (ABA) includes credit unions as one of their “Issues of Interest” and argues: “Though these institutions look and act like banks, they do not pay taxes or abide by the same rules as banks.”¹ In arguing against the credit union tax exemption, the President of the Independent Community Bankers Association (ICBA) offers a similar argument: “Today’s credit unions are virtually indistinguishable from taxpaying community and regional banks.”² Credit unions, for their part, contend that while they may offer similar products and services, they differ from commercial banks in terms of their “ownership structure” and “special mission”.³ Unlike banks, credit unions are structured as not-for-profit, member-owned (“cooperative”) financial institutions, and are generally overseen by volunteer boards of directors. They are also restricted to serving individuals within defined “fields of membership”, such as a common employer, church, interest group, industry or geographic area.

Are credit unions substantively different from banks? More specifically, do credit unions have distinct objective functions relative to banks, and focus more on intangible and prosocial goals that are not directly related to growth and earnings (such as financial education, member satisfaction, or micro-loans)? While it is tempting to address these questions using observational data from credit union and bank customers, this endeavor proves challenging when one considers the significant data limitations, potential for selection bias, and credit union field of membership restrictions which limit who credit unions are able to serve. However, an alternative approach is to compare executive compensation structures at banks and credit unions, which provide insights into the institutions’ respective goals and objectives. Economic theories based on principal-agent models suggest that nonprofit organizations with multiple objectives, prosocial missions or goals that are difficult to measure will offer executives lower-powered incentive contracts relative to similar for-profit organizations, and lower overall compensation (e.g., Holmstrom & Milgrom, 1991; Besley & Ghatak, 2005, 2017). On the other hand, theories based on property rights posit that since credit unions have no shareholders and monitoring is diffuse, credit union CEOs may find it easier to extract relatively higher salaries and more expensive perquisites, since they face less pressure to reduce costs (DeYoung et al., 2016; Newton, 2015; Preston, 1988). Fortunately, executive compensation data from banks and credit unions is now more easily accessible, allowing for a direct comparison of incentive structures. We hope that this initial exploration of compensation contracts at banks and credit unions will serve two main purposes: 1) provide policymakers and researchers with a better understanding of incentive structures at banks and credit unions; and 2) create a foundation for further research, which we consider in the Discussion section at the end of the paper.

We find that credit union CEOs receive compensation packages with a significantly lower proportion of variable pay compared to CEOs of similarly-sized banks. In our sample of publicly traded banks and state-chartered credit unions with under \$3 billion in assets, 23.3% of bank CEO compensation is variable compared with only 7.2% of credit union CEO compensation. In absolute terms, after controlling for year and region fixed effects, CEO characteristics (gender, tenure and retirement income), institution-level variables (e.g., asset size, growth, earnings, risk, complexity and market

¹ Source: <https://www.aba.com/Press/Pages/CreditUnions.aspx#>

² Source: <https://www.icba.org/news/news-details/2018/02/21/icba-calls-for-senate-hearing-on-credit-union-tax-subsidy>

³ Source: [https://www.cuna.org/uploadedFiles/Global/About_Credit_Unions/CUTaxStatusWhitePaper_JULY18_FINAL\(2\).pdf](https://www.cuna.org/uploadedFiles/Global/About_Credit_Unions/CUTaxStatusWhitePaper_JULY18_FINAL(2).pdf)

share), and local economic conditions (house price index and unemployment), bank CEOs receive approximately two-and-a-half times more performance-based compensation relative to credit union executives. With no differences in stated “bonus” compensation between bank and credit union CEOs, these differences in performance-based compensation are ostensibly driven by the additional stock and option components among bank CEO compensation contracts. In other words, credit unions do not appear to increase their CEOs’ bonus pay to substitute for the absence of stock and options, despite the existence of extremely flexible executive bonus products for credit union executives that can closely mimic bank CEO contracts.⁴ Thus, credit union CEOs receive a significantly larger proportion of compensation that is fixed and not directly tied to performance relative to bank CEOs. Furthermore, we find no significant differences in absolute base pay, and thus bank CEOs earn about 10% to 20% more total compensation compared to credit union executives (depending on the measure). The results are robust to adding and removing potentially endogenous control variables, accounting for the immediate post-recession period, including both federal- and state-chartered credit unions, and attempting various methods of controlling for asset size. The findings indicate large and meaningful differences in compensation structures between banks and credit unions, and suggest important differences in goals and objectives.

The remainder of the paper is organized as follows: Section 2 reviews the relevant literature and outlines our contribution to both theory and policy. Section 3.1 provides a detailed description of our data and the nontrivial process of obtaining it. Sections 3.2 and 3.3 describe our main econometric specification and results. Section 4 includes a variety of robustness checks, including various linear and nonlinear methods for controlling for asset size, removing potentially endogenous control variables, and accounting for the post-financial crisis period. Finally, Section 5 concludes with a discussion of our main findings, including limitations, alternative explanations, policy implications and suggestions for further research.

2. Contribution to literature & development of empirical hypotheses

As both bank and credit union executives are responsible to boards of directors, economists often use the principal-agent framework to study management’s behavior and incentive structures at both types of financial institutions. In the standard principal-agent model, the “agent” (CEO) is self-interested and his or her preferences do not directly align with the goals of the “principal” (board of directors). Since the board cannot always directly monitor the CEO, it must create an incentive-based contract that links executive compensation to the goals and performance of the organization, thereby motivating the manager to exert effort even when he or she is not directly observed.

Holmstrom and Milgrom (1991) famously extend the principal-agent model to include multiple tasks or goals. In this multitask principal agent model, an agent’s compensation in any one activity reallocates attention from other tasks. The model seems particularly appropriate for credit unions, who have a variety of goals beyond simply maximizing earnings, such as financial education, serving people of modest means, community development, and returning wealth to member-depositors. If these goals are unobservable or difficult to measure, a credit union CEO with a high-powered compensation package may devote more effort to observable outcomes that are directly tied to performance, such as loan growth, earnings or asset quality. Since the board does not want this, it creates a low-powered contract with a high fixed salary in order to allow the CEO flexibility to focus on other less observable goals without being “punished” by losing incentives tied to well-measured outcomes. At banks, since the principal objective is maximizing shareholder value and related indicators are relatively observable

⁴ For example, see CUNA Mutual’s Executive Benefits Plans: <https://www.cunamutual.com/products/executive-benefits/executive-benefits>

and easy to measure (e.g., ROA, stock price, asset growth), bank CEOs are offered compensation that is more directly tied to performance based on these metrics, creating a larger variable component of their overall compensation. However, the greater variable income also creates more income variation for the manager, so the model predicts that for-profit executives will receive greater overall expected compensation in order to compensate for the higher risk.

In another variation of the principal-agent model, Besley and Ghatak (2005, 2017) develop an extension in which an organization generates a non-pecuniary benefit that goes beyond the private benefits of consumers or the financial benefit of the organization. Moreover, as in the multitask model, there are limits to the monitorability of inputs or the measurement of outputs, preventing a fully efficient solution. Finally, agents may be motivated to serve the beneficiaries and are willing to commit more effort “for free.” For instance, executives of nonprofit organizations may be motivated by the mission of the organization (mission alignment), the inherent satisfaction of the work (intrinsic motivation), or the desire to maintain a positive self-image or reputation. While these motivations fall under the category of “warm glow”—in which the agent is only motivated if directly involved in the project—a manager may also be motivated by pure altruism and attach weight to the social surplus of the organization’s beneficiaries regardless of direct participation (Akerlof & Kranton, 2005; Andreoni, 1989; Ashraf & Bandiera, 2018; Benabou & Tirole, 2011; Besley & Ghatak, 2017; Cassar & Meier, 2018).⁵ Since motivation and financial incentives are substitutes, the board can offer motivated managers lower overall expected compensation. To the extent that credit union CEOs care about the social objectives of the organization, they receive a non-pecuniary payoff and are more motivated to exert effort, obviating the need for substantial performance-based incentives. Thus, the Besley-Ghatak prosocial model also predicts lower-powered incentives for credit union CEOs relative to banks. With similar base pay, the theory also predicts that bank CEOs will receive higher overall expected compensation; however, in this case the greater expected income is not to compensate for income risk (as in the Holmstrom-Milgrom model), but because credit unions are able to hire motivated CEOs at a lower cost.

This study contributes to several sets of literature. Perhaps most established is the literature comparing nonprofit and for-profit wages, which is driven by two competing theories: Similar in spirit to Besley and Ghatak (2005, 2017) is the hypothesis that nonprofit workers derive utility from the nature of their work and are thus willing to accept a lower wage relative to similar work at for-profit companies (e.g., Leete, 2001). On the other hand, a property rights argument contends that nonprofit organizations may pay higher wages than their for-profit counterparts since there is less demand from the board to minimize costs (e.g., Preston, 1988). Systematic differences in the external monitoring mechanisms of nonprofit organizations relative to their for-profit counterparts may create unique opportunities by which managers can extract corporate resources or manipulate corporate outcomes for personal gain (Newton, 2015). Examples of this include expense and fundraising misreporting, which tends to be more common at small nonprofit organizations with boards that engage in less monitoring and oversight (Keating et al., 2008; Krishnan, et al., 2006). Moreover, research demonstrates that relatively powerful nonprofit CEOs—such as those that have a seat on the board or work in states with poor government oversight—are able to divert funds for personal use and, in some cases, extract above-market compensation (Brickley et al., 2010; Fisman & Hubbard, 2004). With respect to credit unions, DeYoung and co-authors (2016) argue that since credit unions are not-for-profit organizations that do not have shareholders, credit union management must balance the interests of multiple stakeholders—including depositors, borrowers and employees—none of which has a strong incentive to monitor management. Furthermore, credit union board members are mostly volunteers with little stake in the financial returns of the credit union, and may not possess sufficient acumen to effectively monitor the CEO (DeYoung et al., 2016). Therefore, it may be easier for credit

⁵ Ashraf and Bandiera (2017) refer to this inherent desire to serve others as “altruistic capital” and consider it another asset that can be accumulated or depleted over time, or affected by policy and incentive structures.

union management to extract rent from the institution, in the form of higher base compensation, additional bonuses, and/or expensive managerial perquisites.

The existing evidence regarding these competing theories is mixed, with empirical support for both positive and negative nonprofit wage differentials in certain industries, depending on the degree of competition and the share of prosocially motivated workers in the market (Jones, 2015; Leete, 2001; Mocan & Tekin, 2003; Preston, 1988; Ruhm & Borkoski, 2003). When there is a sufficient number of motivated workers to meet labor demand, Jones (2015) provides evidence that nonprofit workers are paid less than for-profit counterparts but supply higher effort and are more productive. He argues that this is due to nonprofits' ability to exclusively hire motivated types when demand is low. On the other hand, in the day care industry Preston (1988) finds that nonprofit salaries are 5% to 10% higher than comparable for-profit salaries, but only in the less competitive, government subsidized segment of the industry. However, a limitation of these studies is that they tend to focus on wages and total compensation, and ignore the extent to which compensation is variable or fixed. Moreover, they may be biased if more productive employees self-select into the private sector (Cassar & Meier, 2018).

Another related literature explicitly tests the Holmstrom-Milgrom (2001) model with data from the healthcare sector, where performance-based executive compensation is common and there is a wide diversity of hospital structures, including public, nonprofit secular, nonprofit religious, and for-profit private hospitals. Preyra and Pink (2001) test the multitask principal agent model with data from Ontario hospitals and find that, in line with the theoretical predictions of the model, the variable component of CEO compensation for for-profit hospitals is eight times that in the nonprofit hospital sector. Furthermore, conditional on firm size and relative performance, CEOs of nonprofit hospitals earn 50% less on average in overall compensation compared with those in the industrial sector. Similar results are found by Roomkin and Weisbord (1999) among a 1992 sample of U.S. hospitals: CEOs receive approximately 25% more total compensation at for-profit hospitals relative to nonprofit, and 2½ times more bonus compensation. Ballou and Weisbrod (2003) use the same sample to further deconstruct hospitals into public, religious nonprofit, secular nonprofit and for-profit hospitals. They find that CEOs at for-profit hospitals receive 43.9% of their income from bonuses compared with just 5.7% at religious nonprofit organizations and 7.7% at secular nonprofits. They also find that for-profit American hospitals pay a higher base salary, on average, leading to greater overall compensation at commercial hospitals. While consistent with the Holmstrom-Milgrom model, these studies often ignore alternative explanations—such as prosocial motives—that might help explain observed variation in compensation structures.

Among credit unions, if the Holmstrom-Milgrom (1991) and Besley-Ghatak (2005, 2017) principal-agent models are correct we expect credit union CEOs to receive lower performance-based compensation and total compensation relative to bank CEOs. Hence, we derive the following two hypotheses⁶:

H1— Performance-Based Compensation: *Credit union CEOs receive lower expected performance-based compensation relative to bank CEOs.*

H2— Total Compensation: *Credit union CEOs receive lower expected total compensation relative to bank CEOs.*

On the other hand, if property rights are relatively more important, we may find that credit union CEOs earn relatively higher total compensation. They may also receive relatively higher performance-

⁶ For concision and because we do not extend or amend their original models, we omit a detailed review of the relevant theoretical models here, but refer the interested reader to the original papers.

based or other compensation if, as the property rights literature suggests, they are able to extract additional bonus, perquisites or other forms of income from the credit union.

To the best of our knowledge, this study is the first attempt to directly compare executive compensation structures at for-profit banks and nonprofit credit unions, despite the importance of financial institutions for the economy and well-being of households. Evidence suggests that the composition of compensation structures at firms and financial institutions creates important consequences for consumers. For example, many studies demonstrate that equity-based incentives (i.e., stock and option holdings) in bank compensation packages promote short-term planning and thus greater risk-taking by bank executives (Bliss & Rosen, 2000; Chen, Steiner & White, 2006; Coles, Daniel & Naveen, 2006; Fahlenbrach & Stulz, 2011; Fortin, Goldberg & Roth, 2010; Hagendorff & Vallasca, 2011). Furthermore, at firms, large variable or performance-based compensation is shown to increase the likelihood of unethical behavior, such as earnings manipulations (Efendi et al. 2007; Harris & Bromily, 2007; Johnson et al. 2009), shareholder lawsuits (Peng & Roell, 2008), fraud (Denis, Hanouna & Sarin, 2006; Johnson, Ryan & Tian, 2003; Haß, Müller & Vergaue, 2015), misreporting (Burns & Kedia, 2005), product safety problems (Wowak, Mannor & Wowak, 2014), and uncooperative behavior and sabotage between workers (Drago & Garvey, 1998; Falk, Fehr & Huffman, 2008). It is also widely cited as a contributing factor of the financial crisis of 2007 to 2009 (Bebchuk & Spamann, 2009; Bhagat & Bolton, 2014; Blinder, 2013; Board of Governors of the Federal Reserve System, 2010; Fortin, Goldberg & Roth, 2010; Hagendorff & Vallasca, 2011). In fact, as we write this, Wells Fargo was just fined another \$2.1 billion for misrepresenting the quality of tens of thousands of mortgages packaged and sold to investors, mortgages that resulted in bonuses for Wells Fargo employees and executives. And this is in addition to numerous commercial bank settlements with the Justice Department over mortgage-backed securities, including \$16.7 billion with Bank of America, \$7.0 billion with Citigroup, and \$13.0 billion with JP Morgan Chase.⁷

Our study aims to empirically test the theoretical predictions of relevant principal-agent models among a large sample of nonprofit and for-profit financial institutions. We exploit a unique large dataset of detailed CEO compensation information for nonprofit credit unions and for-profit commercial banks. The dataset was created by culling publicly available 990 tax forms for state-chartered credit unions and annual reports of for-profit publicly-traded commercial banks. Credit unions represent an auspicious opportunity to assess the theoretical predictions of principal-agent models for at least two reasons: First, credit unions offer many of the same financial products and services as commercial banks yet differ in having a nonprofit mission and structure. Second, unlike most other nonprofit organizations, performance-based incentives are very common among credit unions; thus, we can investigate not only whether total executive compensation varies according to theory, but also the extent to which executive compensation is directly tied to performance.

In addition to contributing to the principal-agent literature, our study also contributes to the relatively more contemporary literature of mostly experimental studies that examines the effects of job characteristics and compensation structures on the selection, performance and motivation of workers. For instance, several studies evaluate the effect of incentive pay on the performance of employees for the delivery of health services (Ashraf et al. 2014; Celhay et al. 2015; Miller et al. 2012; Miller and Babiarczyk 2014) and education (Duflo et al. 2012; Glewwe et al. 2010; Fryer 2013; Muralidharan and Sundararaman 2011; Rockoff et al. 2012; Staiger and Rockoff 2010). Other studies focus on how earnings levels, financial incentives and career prospects affect the traits of applicants for public-service government and NGO jobs (Bertrand et al., 2016; Dal Bó et al., 2013; Desarranno, 2017). Related to prosocial motivations, several experiments show that workers exert more effort and are more productive when effort is tied directly to charitable contributions (DellaVigna & Pope, 2018;

⁷ Source: <https://www.wsj.com/articles/wells-fargo-agrees-to-2-09-billion-settlement-for-crisis-era-mortgage-loans-1533147302?mod=searchresults&page=1&pos=4>

Imas, 2014), and when “matched” with an organization that is more aligned with their personal views (Carpenter & Gong, 2016; Fehrler & Kosfeld, 2014; Tonin & Vlassopoulos, 2010, 2012, 2014). For instance, Carpenter and Gong (2016) add piece-rate incentives to mimic high-powered incentives and find that the incentives have a much stronger effect on mismatched workers, suggesting that high-powered incentives substitute for mission alignment. Similar results are found by Cassar (2018), who conducts a variety of lab experiments and finds that job mission acts as a substitute to monetary incentives; a prosocial mission allows principals to offer lower monetary incentives, but the substitution is not perfect due to fairness concerns. Recent field experiments also demonstrate that the mission of the organization affects self-selection and recruitment: Hedblom, Hickman, and List (2016) show that data-collection jobs that have a social mission (benefiting underprivileged children) increased the number of interested candidates by 26%. Finally, in a field experiment in Zambia Ashraf et al. (2018) find that highlighting career benefits for civil service recruitment attracts less prosocial applicants, on average; however, the marginal applicants in the treatment group are more talented and equally prosocial.

Lastly, our paper contributes to the literature regarding the tax treatment of financial institutions and the policy debate regarding whether credit unions should be taxed in the same way as commercial banks (Cook & D’Antonio, 1984; DeYoung et al., 2017; Flannery, 1974; Tatom, 2005). A critical question in this debate is whether credit unions use their preferential tax treatment to the benefit of members, or whether it mainly advantages managers via expense-preference behavior (DeYoung et al., 2017; Feinberg & Meade, 2014; Frame, Karels & McClatchey, 2003). A related question is whether credit unions are less “efficient” relative to commercial banks, which would imply a suboptimal allocation of taxpayer resources. Credit unions may be less efficient if dispersed ownership reduces monitoring of managers and employees, and subsequently leads to less value maximization (Caprio, Laeven & Levine, 2007; Demsetz & Lehn, 1985; Laeven & Levine, 2008; Morck, Shleifer, Vishny, 1988). In a recent paper, DeYoung et al. (2016) find that the bulk of the credit union tax subsidy does get passed along to credit union members—mainly in the form of above-market deposit interest rates. Numerous studies confirm that credit unions offer higher rates on deposits compared with commercial banks, and also charge lower interest rates on loans (Feinberg & Rahman, 2001; Heinrich & Kashian, 2007; Tokle, 2005; Tokle, Fullerton & Walke, 2014). However, DeYoung and coauthors also find that some of the subsidy gets diverted away from members, mainly by hiring excess workers and earning below-market returns on investment securities. Nonetheless, the authors do not consider that credit unions may appear less “efficient” if focused on more prosocial goals and activities; for example, by hiring additional workers to focus on financial education.

3. Data, variables and methodology

This section describes the sample and data used in our study, and details the process of obtaining the executive compensation data. Then, we describe the key variables of interest and control variables, and provide summary statistics. Finally, we explain our main empirical methodology.

3.1 *Data*

The main dataset for our empirical analysis consists of publicly available executive compensation data for state-chartered credit unions and publicly traded commercial banks. Any publicly traded corporation is required to file a Form DEF 14A with the Securities and Exchange Commission (SEC) each year that details executive compensation information to be disclosed with shareholders. All DEF

14A filings are available on the SEC’s EDGAR website.⁸ State-chartered credit unions are required to publicly disclose executive compensation information via 990 tax forms; however, federally-chartered credit unions are not required to disclose this information. Approximately 39% of the roughly 5,800 credit unions in the United States were state-chartered as of 2017. While state-chartered credit unions face somewhat different regulations compared to federally-chartered credit unions—depending on the state-level rules and regulations—they tend to be similar in terms of size and performance. For example, in 2017, the median assets, members and ROA of state-chartered credit unions were \$15.5 million, 2,835 and 0.60%, versus \$11.2 million, 2,217 and 0.58% at federally-chartered credit unions. Nonetheless, we include a robustness check using annual Credit Union National Association (CUNA) surveys of credit union employees and show that executive compensation at state- and federally-chartered credit unions tend to be similar (CUNA); moreover, the results change little when including available federally chartered credit union data in the analysis.

Historically, while public, obtaining nonprofit 990 compensation data was time-consuming and costly, as it had to be manually pulled from PDF forms or purchased from vendors like Guidestar. However, recent developments have made this data more easily accessible and affordable, such as via Amazon’s Registry of Open Data on Amazon Web Services (AWS). AWS provides machine-readable data of 990 forms filed with the IRS from 2010 to the present. However, as far as we are aware, obtaining bank executive compensation data remains challenging, as there is no comparable database of SEC forms.

Our credit union executive compensation data comes from 990 forms filed with the IRS and was sourced from AWS. This sample includes data from 2010 to 2016.⁹ To identify credit unions from the many nonprofit organizations who file 990 forms, a list of Employer Identification Numbers (EINs) for state-chartered credit unions was compiled. This list is not entirely comprehensive, but it allowed us to obtain 990s filed in the AWS database for between 75% and 83% of all state-chartered credit unions annually from 2010 to 2016. This includes 95% of state-charted credit unions with greater than \$20 million in assets for each year. Although credit unions are required to disclose compensation information for various officers, directors, trustees, key employees, independent contractors, and highest compensated employees, we focus on CEO compensation in the present study. Nonetheless, one challenge with processing the data is that the title of the CEO is not consistent. For example, some CEOs list “Chief Executive Officer,” others list “CEO”, or “President/CEO”, etc. Therefore, in order to identify the CEO for each credit union within the sourced data we utilize two main techniques: 1) identify each CEO by the highest compensated employee; and 2) identify the CEO by any job title that includes “CEO”, “Chief Executive Officer”, or a related synonym. The former approach has the drawback that it may include some officers that are not the CEO if that officer receives the highest compensation in any given year (for example, a highly compensated Chief Financial Officer or a Senior Loan Officer that had a particularly good year of loan disbursement). The latter strategy, on the other hand, may not properly identify some CEOs, for example, if they include a typo in the title (e.g., “Cheif Executive Officer”) or use an uncommon synonym of a CEO, such as “exec”, “principal” or “head”. For robustness, we compare the data using both methods and find very similar results with no significant differences. However, throughout the paper we only present results using the latter strategy based on the job title. While this approach omits a small portion of the overall sample, we feel it is less prone to bias; focusing on the highest paid officer could, for example, inadvertently include loan officers that may have a higher proportion of bonus in a given year. It is less likely that minor differences in job title would be systematically correlated with compensation structures.

⁸ Source: <https://www.sec.gov/edgar/searchedgar/companysearch.html>

⁹ The data was pulled in October 2018, so 2017 data was also available for a number of credit unions that had already filed their 2017 tax returns and had their data uploaded to AWS. However, since this only includes 46.5% of the full sample of state-chartered credit unions, and since there may be bias with regard to which credit unions file earlier, we omit all 2017 data from our analysis.

Nonprofit organizations that pay any individual greater than \$150,000 in total compensation in any one calendar year must file a Schedule J Form along with the 990.¹⁰ The Schedule J further divides total compensation into base compensation, bonus and incentive compensation, other reportable compensation, retirement and other deferred compensation, and nontaxable benefits. In our sample, 56.9% of credit unions file Schedule J forms. As might be expected, credit unions that do not file Schedule J forms tend to be the smallest credit unions: in our sample, average assets of credit unions that file Schedule J is \$618 million versus only \$39 million for credit unions that do not. In general, our analysis includes only those credit unions that file Schedule J forms, since we require the more detailed base and bonus compensation data in order to test our hypotheses. This provides a sample of 4,922 credit union-year observations. If we also include credit unions that do not file a Schedule J, the sample is 11,071 observations.

The credit union executive compensation data is then matched to end-of-year “call report” financial data, which all credit unions are required to file with the National Credit Union Administration (NCUA) on a quarterly basis.¹¹ This data contain detailed credit union financial information—such as assets, earnings and delinquencies—as well as information regarding credit union products and services. We further combine this data with an internal CUNA database that includes the gender of the credit union CEO in order to control for gender differences in risk preferences, management and pay. On the bank side, CUNA employees and the authors undertook the task of manually entering bank CEO compensation data from the corporate SEC DEF 14A filings on the SEC EDGAR website into Excel spreadsheets. In order to provide a comparable sample to the credit union data—and since 98.9% of credit unions have less than \$3 billion in assets—we only compiled bank compensation data for banks with under \$3 billion in assets (and for the same period of 2010 to 2016). Creating a sample of credit unions and banks of similar asset size is critical, since commercial banks are typically much larger than credit unions—the median credit union in 2017 had \$31.2 million in total assets versus the median bank which reported \$212.7 million in assets. Furthermore, as is well documented, executive compensation increases with asset size (Baker & Hall, 2004; Gabaix, Landier & Sauvagnat, 2013; Zhou, 2003). Our initial sample frame of banks consisted of the Compustat list which includes the ticker symbol, and then we used the ticker symbols to obtain a sample of 432 banks who were in operation and had less than \$3 billion in assets for at least one year between 2010 to 2016.

Corporate DEF 14A forms include various categories of CEO compensation that are not standardized and may differ slightly between institutions. Therefore, we classify bank executive compensation into the most common categories, which include: base pay, bonus, stock, options, non-equity incentives, change in pension value and nonqualified deferred earnings, other compensation, and total compensation. Similar to the credit union data, we match the executive compensation data to year-end bank “call report” data, which is available through the Federal Deposit Insurance Corporation (FDIC) and includes similar financial information as the credit union call reports.¹² However, we note that the corporation listed on the SEC EDGAR website is often a “parent” or “holding company” of the bank, and may include multiple banks under each company. Fortunately, in 95% of cases, the corporate holding company includes only one bank; however, in 5% of cases the holding company has more than one bank in their operations. For robustness, we generate an indicator variable to identify institutions with multiple banks and conduct our analysis both with and without them, and find very similar results.¹³ The total sample of banks includes 2,150 bank-year observations. As far as we are

¹⁰ Technically, the Schedule J is also required for any former officer/director/trustee/employee for that year, or if an individual received compensation from an unrelated organization, or from individual services rendered to the organization. However, these cases tend to be rare.

¹¹ Available at: <https://www.ncua.gov/analysis/Pages/call-report-data.aspx>

¹² Available at: <https://www.fdic.gov/bank/statistical/>

¹³ Results omitted for concision but available upon request.

aware, the combined unique dataset is the most comprehensive sample of bank and credit union executive compensation data to date.

3.2 Variables

To avoid potential omitted variable bias, our regressions contain a broad set of control variables based on the relevant banking literature (e.g., Berger & Bouwman, 2013; Demircug-Kunt & Huizinga, 2010; Ivashina & Scharfstein, 2010; Vazquez & Federico, 2015). These include year and region fixed effects, indicators of local economic conditions, CEO-level characteristics, and institution-level proxies for risk, size, growth, market share, complexity and competition. However, we also note that—as discussed well by Frydman and Jenter (2010)—many control variables are intimately related to compensation, particularly variables related to institutional performance. In their words, “CEO pay and firm performance may be correlated because compensation affects performance, because firm performance affects pay, or because an unobserved firm or CEO characteristic affects both variables.” To address this, our main model includes standard institution-level controls with one-year lags, and we avoid variables that are highly correlated with compensation, such as ROA. We also conduct various robustness checks later in the paper that exclude variables that are potentially endogenous.

3.2.1 Outcome variables

In order to compare bank and credit union executive compensation, we combine the data from the 990 forms and SEC filings into one dataset and denote any fixed annual salary income from the 990s or DEF14A forms as “base salary.” We further create a variable for “performance-based income”, which includes any form of income that is directly tied to institution performance. For credit union executives, performance-based income only includes income denoted “bonus” on the 990 forms. For bank executives, performance-based income includes any income denoted “bonus,” “incentives,” “stock” or “options” on the DEF 14A proxy statements. We group the remaining sources of income into “other”—which may include items such as perquisites, educational assistance, transportation, disability premiums, club dues or insurance premiums—and “retirement or deferred compensation”, which includes any income related to retirement (e.g., 401K contributions, pensions, etc.). In rare cases, executives may also report other forms of income that do not fit nicely into the aforementioned categories, such as income from related organizations. Therefore, given the complexities involved in directly comparing credit union and bank “total compensation” we construct three measures of this variable: 1) *performance plus base compensation* (only includes the fixed base salary plus any performance-related income); 2) *total compensation minus retirement & deferred compensation* (includes base, performance-based and “other” income but not retirement and deferred compensation); and 3) *total compensation* (includes all reported forms of compensation). These distinctions are also important since it could be, for example, that credit union boards compensate CEOs for a lack of performance-based compensation by offering higher retirement income or perquisites.

Table 1 displays summary statistics of executive compensation. In the cross-section, CEOs at commercial banks receive higher average compensation compared with CEOs at credit unions in terms of base salary and performance-based income. However, we find no significant differences in average retirement & deferred income or other income. Figure 1 shows that 73.9% of total compensation for credit union CEOs consists of a fixed base salary versus only 62.5% for bank CEOs. Compensation for bank CEOs is significantly more tied to performance, which makes up 23.3% of total compensation versus only 7.2% for CEOs of credit unions. Finally, we find substantially higher total CEO compensation among all three measures at banks versus credit unions.

3.2.2 *CEO-level control variables*

To account for any gender differences in social preferences, management or compensation, we include an indicator variable for whether the CEO is female to the main model (1). Notably, 21.8% of credit union CEOs in our sample are female versus only 4.8% of bank CEOs; therefore, there is strong potential for gender differences in social preferences, risk management or performance to influence our results. For instance, female CEOs may prefer and negotiate relatively low-powered compensation structures, as females are shown to be more risk-averse relative to males (Croson & Gneezy, 2009; Charness & Gneezy, 2012; Eckel & Grossman, 2008). Other studies show evidence of a “savior effect” in which females are more likely to be hired as CEOs of underperforming and failing firms (Adams, Gupta & Leeth, 2007; Cook & Glass, 2014). Therefore, we may find lower variable pay and overall compensation at credit unions simply due to unobserved variables related to CEO gender.

Other confounding variables that may explain the observed differences in compensation structures between banks and credit union CEOs include tenure and retirement income. A recent Filene Research Institute study finds that credit union executives have particularly long tenures at the same organization, with an average of 19.2 years versus only 11.2 years for executives at for-profit corporations (Shoemaker, Day & Dopico, 2018). Furthermore, as is well established, executive pay is related to tenure, which is also related to performance, since increased experience may improve outcomes; however, the relationship is complex and executives with particularly long tenures may become complacent and prone to status-quo bias and inertia (Hambrick & Fukutomi, 1991; Henderson, Miller & Hambrick, 2006; Luo, Kanuri & Andrews, 2014; Miller & Shamsie, 2001; Simsek, 2007). On the other hand, shorter tenures might indicate less job security for bank CEOs, who may in turn demand higher income to compensate for this additional risk. Retirement may affect the results if, for example, we see more bank executives step down in our sample and receive big retirement payouts—or are fired and receive “golden parachutes”—while this does not occur as much for credit union executives. Therefore, we add an additional control variable for CEO tenure and an indicator variable for the year in which a CEO retires or otherwise leaves the institution.

While we do not know the exact tenure of a CEO from our sample, we construct two versions of this variable to serve as proxies for CEO tenure: 1) a running count for years of experience starting at one in 2010 (when our sample period begins) and restarting with the appointment of a new CEO; and 2) a running count for years of experience but starting at five to account for the likely existing tenure of a CEO that first appears in our data in 2010. The tenure variable shown in Table 2 is defined as values starting at one. The average tenure of credit union CEOs is 3.66 years versus 3.63 years for commercial bank CEOs, indicating comparable average tenures at both types of institutions in our sample.

3.2.3 *Institution-level control variables*

Various institution-level variables might also help explain differences in executive compensation at banks and credit unions. For instance, even with the limited sample of financial institutions with less than \$3 billion in assets, banks still tend to be larger than credit unions, and size is an important determinant of financial institution performance and survival (Berger & Bouwman, 2013; Drehmann and Tarashev, 2011; Huang et al., 2011; Mian & Sufi, 2009; Tarashev et al., 2009). Therefore, we include the log of total assets as a proxy for institution size. In our robustness checks, we also perform

various additional methods of accounting for the effects of size on financial institution performance, such as nonlinear approaches, interaction terms and by excluding outliers.

In addition to differences in size, it may be that banks are not only larger than credit unions but more complex, and the different compensation contracts of bank and credit union CEOs may simply reflect these differences in institutional complexity. For example, one important difference between credit unions and banks is that the latter focus more on commercial lending relative to credit unions, while the former tend to focus primarily on consumer lending. Commercial loans require significantly different underwriting standards, unique products and services, and employees with relevant experience. Therefore, it is quite conceivable that a financial institution with a large proportion of commercial loans may pursue CEOs with more experience in this area, who in turn require higher compensation. In our sample, commercial loans make up 54.2% of banks' outstanding loan portfolio versus only 7.9% at credit unions. Therefore, we include *commercial loan concentration* (commercial loans outstanding divided by total loans outstanding) as a control variable. We also include *branches* (branches divided by total assets) and *number of states* (number of states in which institution is active) as additional proxies for organizational complexity and strategy, as in Berger and Bouwman (2013).

Bank CEOs may also earn more than credit union CEOs because they have a greater appetite for risk, manage riskier loan portfolios, and engage in endeavors with potentially higher expected returns but greater variation in outcomes. Therefore, we include several indicators of risk that are standard in the banking literature and shown to be important for financial institution outcomes;¹⁴ however, we focus on variables that are common to banks and credit unions, available in both NCUA and FDIC call reports, and applicable to smaller financial institutions such as those in our sample. These include *cash holdings* (cash divided by total assets), *loan-to-deposits ratio* (total loans outstanding divided by total deposits), *delinquency ratio* (total delinquent loans divided by total loans), *mortgage concentration* (mortgages outstanding divided by total assets) and the *net worth ratio* (capital divided by total assets).

Finally, particularly fast growth is also shown to affect financial institution performance and survival (e.g., Altunbas et al., 2011; Vazquez & Federico, 2015), and may affect CEO compensation; therefore, we also include *asset growth* and *loan growth* as an additional control variables. As noted, besides total assets, all of our institution-level variables include one-year lags, as lagged variables are less likely to be endogenously related to current compensation.

3.2.4 Location

Local economic conditions also influence financial institution performance and outcomes (e.g., Berger & Bouwman, 2013; Mian & Sufi, 2009), and may help explain variation in compensation structures. For example, unlike credit unions, banks are not subject to field of membership restrictions and may be better situated to take advantage of opportunities for expansion into areas with high potential for growth and profits. If banks are more likely to locate in areas with, for example, higher incomes, lower unemployment, and faster rises in home values, then compensation at banks may in part reflect these regional differences in economic performance. Regulations may also vary from state to state, as well as organizational culture, education, and other related factors. To help account for this, we include a region fixed effect, $Region_i$, for each of the five regions that correspond to the NCUA's regional offices, with states generally categorized into West, Midwest, Northeast, East and South regions.¹⁵ Unfortunately, limitations in sample size within each period preclude a greater number of regions or

¹⁴ Examples include Berger and Bouwman (2013), Beltratti and Schulz (2011), Cornett et al. (2011), Demirguc-Kunt et al. (2010), Huang and Ratnovski (2009), Ivashina and Scharfstein (2009) and Vazquez and Federico (2015).

¹⁵ The distribution of the NCUA's regional offices can be found here: <https://www.ncua.gov/About/leadership/Pages/regional-offices.aspx>.

fixed effects at the state level. Nonetheless, to proxy for state-level economic conditions, we also include the unemployment rate for each state, as well as two indicators of housing prices: *HPI growth* (growth in the state-level house price index) and *average house price index* (average housing prices at the state-level).

3.3 Summary statistics of control variables

Table 2 displays the summary statistics of the control variables. Notably, in our sample, despite the restriction to institutions with under \$3 billion in assets, the average bank in the sample is over twice as large as the average credit union. The mean asset size for banks is \$1,406 million versus \$639 million for credit unions. Banks were also growing slightly faster than credit unions in terms of both loans and assets during our sample period. As might be expected, banks also appear to have riskier loan portfolios by almost every measure: for instance, the average *loan-to-deposits* ratio in the sample is 85.9% at banks versus only 73.8% at credit unions, bank delinquencies represent 1.98% of loans versus only 1.05% at credit unions, and the average net worth ratio is only 9.9% at banks versus 10.9% at credit unions. As expected, banks also hold a higher percentage of commercial loans and mortgages, which is partly due to credit unions' historic focus on consumer loans, such as auto loans. Banks also tend to serve customer in more states on average (1.45 vs. 1.18 for credit unions); however, they have fewer branches per \$1 million in assets (0.017 vs. 0.026 for credit unions). This is likely a result of our restricted sample which focuses on the smallest banks with under \$3 billion in assets, since most total bank branches are from significantly larger commercial banks. Finally, average home prices are slightly higher and experienced faster growth in areas where credit union CEOs are located relative to bank CEOs, and average unemployment rates are also slightly lower in these areas (6.75% versus 6.96%). Therefore, if anything, economic conditions are slightly better in states where credit unions are located, on average.

3.4 Main empirical approach

Our main estimating equation is as follows:

$$(1) \quad \text{COMP}_{it} = \alpha_{\text{CU}} \text{CU}_{it} + \alpha_{\text{CEO}} \text{CEO}_{it} + \alpha_{\text{Inst}} \text{Inst}_{it} + \alpha_{\text{Location}} \text{Location}_{it} + \text{Year}_t + \text{Region}_i + \varepsilon_{it}$$

where i denotes a credit union or commercial bank, t denotes a year, CU_{it} is an indicator variable identifying a credit union (versus a commercial bank), and ε_{it} is a stochastic error term. As discussed in section 3.2, we include a broad set of control variables in the regression analysis: CEO_{it} indicates our vector of CEO-level control variables. Inst_{it} is a vector of institution-level proxies, which controls for the effect of institutional performance, risk-taking, complexity and related indicators. We also include a vector related to local economic conditions, Location_{it} , to account for regional differences in rules, regulation, culture and other factors which may influence financial institution performance and outcomes. The corresponding vectors of coefficients are represented by α_{CEO} , α_{Inst} and α_{Location} . We also include a region fixed effect, Region_i , to account for regional differences in rules, regulation, culture and other factors. Finally, we include a year fixed effect, Year_t , to account for macro-level time trends, such as economic growth, unemployment, inflation and changes to rules and regulations that are common to all financial institutions. Standard errors are clustered at the level of the financial institution to account for autocorrelation and heteroscedasticity.

Our coefficient of interest is α_{CU} and represents the marginal difference in $COMP_{it}$ of a credit union CEO relative to a bank CEO, conditional on regional fixed effects, year fixed effects and the other control variables. We run this regression six separate times with the various measures of compensation outlined above, including *base salary*, *performance-based compensation*, *performance plus base compensation*, *other income*, *total compensation minus retirement and deferred compensation*, and *total compensation*. All outcome variables are transformed by the logarithmic scale with zero values replaced by \$1's.¹⁶

4. Main Regression Results

Table 3 presents the estimation results from our main model (1) with the different measures of CEO compensation as our dependent variables. First, we note that the coefficients on total assets are positive and statistically significant in all six regressions, suggesting that the level of CEO compensation is closely related to institution size: larger credit unions and banks tend to pay higher levels of executive compensation. Tenure is also statistically significant in all six regressions and positively related to compensation. The coefficient on *loan-to-deposits ratio* is positive and significant in all regressions except for *other income*, suggesting that financial institutions with less liquidity have higher CEO compensation. The *delinquency ratio* and *loan growth* are generally negatively related to CEO compensation with coefficients that are statistically significant in four of the six regressions, suggesting that institutions with poorer portfolio quality and fast growth offer lower CEO compensation. Finally, it is interesting to note that none of the indicators of local economic conditions are statistically significant determinants of CEO compensation.

Turning to the coefficient of interest, column (1) shows that there is no statistically significant difference in average base compensation between credit union and bank CEOs. Column (2) confirms that credit union CEOs receive significantly lower performance-based compensation relative to bank CEOs. Moreover, all three measures of total compensation are negative and statistically significant. The coefficients suggest that credit union CEOs receive 19.9% lower *base plus performance compensation* and 16.8% less *total compensation minus retirement & deferred compensation*. The coefficient on *total compensation* suggests that, after accounting for all forms of income, bank CEOs earn 9.6% higher total compensation relative to credit union CEOs. Overall, the findings confirm both hypotheses: relative to for-profit bank CEOs, nonprofit credit union CEOs receive lower expected performance-based compensation and lower expected total compensation.

5. Robustness checks

In this section, we perform a variety of robustness checks to verify whether our findings are consistent under different econometric specifications. Specifically, we test the model with various control variables and attempt different approaches to controlling for asset size. We also run regressions that include the entire sample of credit unions (including those that do not file Schedule J), that test whether the inclusion of federally-chartered credit unions change the results, and that focus on the immediate post-financial crisis period of 2010 to 2012.

¹⁶ Note that we also run all of the regressions with the inverse hyperbolic sine transformation as an alternative method to account for zero values but present the results with logarithmic transformations in our tables for ease of interpretation. Regardless, both approaches provide consistent results.

5.1 *Different control variables*

First, Table 4 displays the regressions results without CEO-level controls to account for potential endogeneity concerns among these variables. For example, although we find a positive relationship between tenure and CEO compensation, it could be that tenure influences compensation or that compensation influences tenure. The latter might occur if bank boards are more likely than credit union boards to fire or encourage the retirement of relatively highly compensated CEOs in order to cut costs. However, even after removing all CEO-level control variables, the coefficients on our variable of interest are all of similar magnitude and statistical significance as our main model.

Next, we attempt removing the institutional-level control variables, with the results presented in Table 5. As Frydman and Jenter (2010) indicate, these variables are the most likely to present endogeneity concerns since compensation is based on performance, yet performance is also affected by compensation. Even though we include a one-year lag on the institution-level control variables to account for these concerns, CEO compensation—particularly performance-based compensation—may still be endogenously related to past performance. Nonetheless, even after removing the institution-level control variables the coefficients of interest remain statistically significant and in the expected direction. However, we note that the magnitudes are substantially reduced relative to our main specification.

Finally, there may be some concern that when we use a one-year lag for our institutional-level variables, we lose an entire year of data, which is significant given our relatively short sample period (2010-2016). In other words, our main model includes 5,975 institution-year observations relative to the entire available sample of 7,026 observations. Therefore, although this is not our preferred model given the potential endogeneity concerns discussed above, we attempt econometric specification (1) but without any lags in order to utilize the full dataset. Fortunately, we find that the regression results related to our hypotheses remain robust to this approach as well.¹⁷

5.2 *Further controlling for differences in asset size*

We now turn to additional approaches to control for asset size, given the large differences in size between banks and credit unions. For instance, one possible concern is that the sampled credit unions are more skewed towards small asset sizes than commercial banks, even when restricting the sample to institutions with less than \$3 billion in assets. Indeed, the median asset size of a credit union in our sample is \$261 million versus \$1,110 million for banks. While we attempt to control for this by including the log of total assets as an independent variable, there may be important differences in organization and structure between small and large institutions that the covariate cannot entirely account for. Therefore, we perform additional robustness checks by first excluding the smallest credit unions of under \$100 million in assets, since there are only three bank-year observations in our sample with assets in this range. Despite the slightly smaller sample size, the signs, statistical significance and magnitudes of our coefficients of interest are similar to our original model.¹⁸

A related approach is to add an additional interaction term between the credit union indicator and total assets. While compensation is likely to increase for executives in relation to institution asset size,

¹⁷ Results omitted but available upon request. Note that we also run our main specification with two lags. While this approach significantly reduces our sample size, there is an argument to be made that institutional-level variables with two lags are likely even less correlated with current compensation. The results are also consistent with our main model and are available upon request.

¹⁸ Results omitted for concision but available upon request.

the relationship between asset size and compensation may vary between credit unions and banks. This approach allows for different size-compensation relationships between banks and credit unions. Table 6 presents the calculated marginal effects (at the mean) for the CU Indicator after including the additional interaction term (at bottom). The results are once again consistent with our main model, except that the coefficient of interest for *total compensation* is no longer statistically significant (but is still in the expected direction).

Next, we attempt adding squares and cubes of the total assets variable to determine whether there is a nonlinear relationship between asset size and compensation that may be better approximated using polynomials. Table 7 displays the results. The coefficients for total assets, total assets squared and total assets cubed are only statistically significant in the regression with *performance-based compensation* as the dependent variable. Regardless, as in the previous regression, the results remain consistent with our original model except that the coefficient of interest for *total compensation* is once again not statistically significant (but still negative).

Finally, to attempt to further model a potential nonlinear relationship between asset size and compensation, we employ regression splines to allow for different marginal effects within different asset intervals (“knots”). In Table 8, we split the sample into three groups of equal percentiles as recommended by Harrell (2001). The coefficients for asset size are positive and statistically significant, and the magnitude of marginal effects change across different asset size groups. Nonetheless, the coefficients for *CU Indicator* are similar to the previous two regression results. These results are also robust to attempting 2, 3, 4 and 5 regression spline knots.

While there may be some concern that the coefficient of interest for *total compensation* is not statistically significant in the past three regressions, we note that all three are in the expected direction (negative), and the latter two include p-values that are very close to statistical significance at the 90% confidence level (0.128 and 0.103). Furthermore, all of the other coefficients of interest for our other measures of total compensation (*base plus performance compensation* and *total compensation minus retirement and deferred compensation*) remain highly statistically significant and negative, as before. Therefore, we argue that the overall picture still points to credit union CEOs earning less total compensation, on average, relative to bank CEOs.

5.3 Federally chartered credit unions

One potential criticism is that our analysis thus far only includes state-chartered credit unions and not federally-chartered credit unions. Federally chartered credit unions make up approximately 61% of all credit unions and are not required to file IRS 990 forms. Therefore, our analysis may suffer from selection bias if state-chartered credit unions depress or understate CEO compensation relative to federally-chartered credit unions due to different disclosure requirements. For example, boards of directors of federally-chartered credit unions may feel less pressure to reduce CEO compensation since they do not have to publicly disclose it to the IRS, and thus CEOs of federally-chartered credit unions may receive higher average compensation relative to similar state-chartered credit unions as a result. Fortunately, CUNA conducts an annual compensation survey that includes both state and federally chartered credit unions and asks respondents to provide both base and performance-based compensation (i.e., bonus income). During the period of our sample frame (2010-2016), on average 1,192 credit unions responded to the compensation survey each year, including 669 federally-chartered credit unions. This represents approximately 15% to 20% of all federally-chartered credit unions per year.

Unfortunately, if we compare the CUNA survey data with the 990 data for the same state-chartered credit unions, we find that the differences are statistically significant and large in magnitude. As might be expected, the reported survey compensation is slightly lower than what is reported in the 990 filings. While the difference between 990 data and CUNA survey data is just 2.4% at the mean for *base salary* and 6.7% at the mean for *base plus performance compensation*, the difference is a nontrivial 53.4% at the mean for *performance-based compensation*. This may be due to underreporting in the CUNA survey, or because CEOs poorly estimate end-of-year bonuses that had not yet materialized at the time of the survey. Regardless, we feel we cannot simply include the CUNA survey data in the same regression as the two sets of data are quite unique. However, we can test whether—using just the CUNA compensation survey data—CEOs of federally-chartered credit unions indeed receive higher compensation relative to CEOs of state-chartered credit unions.

To accomplish this, we run another regression similar to our main model, but comparing state- and federally-chartered credit unions, and only using the internal CUNA compensation survey data. This includes 4,944 credit union-year observations. Of course, this approach assumes that if there is self-reporting bias in the CUNA survey, it is similar for both CEOs of federally- and state-chartered credit unions, which seems reasonable. The results are displayed in Table 9 and indicate that there are no statistically significant differences in *base salary*, *performance-based compensation* or *base plus performance-based compensation* between CEOs of federally-chartered credit unions and state-chartered credit unions, at least within their self-reported compensation to CUNA. The findings make us more confident that CEO compensation at state-chartered credit unions is indeed comparable to CEO compensation at federally-chartered credit unions.

5.4 Including CUs that did not file Schedule J forms

In our main econometric model, we only include credit unions that file a Schedule J Form, since it enables us to obtain more detailed base and performance-based compensation data necessary for testing our hypotheses. However, this excludes 43.1% of the available credit union executive compensation data (albeit for the smallest institutions). Therefore, as a final robustness check, we re-run our main model but with the entire sample of credit unions, including those that did not file a Schedule J. However, since we cannot break up total compensation into base and performance-based income, we only test for differences in total reported compensation (Hypothesis 2). We do this for all credit unions, as well as for those above \$50 million and above \$100 million.

Table 10 columns (1) – (3) display the results and confirm that CEOs of credit unions receive significantly lower total compensation than CEOs of commercial banks. The coefficients for *CU Indicator* are negative and statistically significant at the 90% confidence level all three regressions, and the coefficient is statistically significant at the 99% confidence level when including full sample. The magnitudes suggest that bank CEOs earn approximately 8.6% to 11.7% more total compensation relative to credit union CEOs.

5.5 CEO compensation during the post-recession period 2011 - 2012

When we run our main econometric specification (1) with compensation designated as “bonus” as the dependent variable, we find no statistically significant differences in stated CEO bonus compensation between bank and credit union CEOs.¹⁹ Therefore, the large differences in performance-based

¹⁹ Results omitted for concision.

executive compensation between banks and credit unions is ostensibly due to the existence of stock and options among bank CEO compensation packages. Given that bank stock prices—and therefore, option values—are driven both by the performance of banks as well as more general macroeconomic factors that influence average stock values—such as economic growth, unemployment and inflation—a natural question is: Are there always differences in bank and credit union executive compensation, even when the economy is not performing well? Our sample period of 2010 – 2016 covers the post-financial crisis period, when the U.S. economy was recovering and doing relatively well, and stock prices rose sharply; however, during other periods, we may not see such stark differences in compensation between bank and credit union CEOs.

While we cannot examine periods prior to 2011 with our main model, we can compare bank and credit union executive compensation during the period 2011 – 2012, immediately after the financial crisis of 2007 – 2009. During the crisis U.S. real GDP fell 2.5% and unemployment reached 10.0%—the highest level since 1983—before falling to 8.0% by the end of 2012. The stock market also fell precipitously, with the S&P Index losing approximately 50% of its value between 2007 and 2009. Relative to credit unions, commercial banks were hit particularly hard by the crisis, as bank delinquency and charge-off rates rose to 6.97% and 3.00%, respectively, in 2010, compared to just 2.30% and 1.14% at credit unions (despite starting at similar levels pre-crisis) (CUNA; FDIC; Smith & Woodbury, 2010). Bank loan activity also fell significantly more than credit union lending. For example, commercial lending at banks fell 6.5% in 2009 and 15.1% in 2010, before recovering 3.8% in 2011. Among credit unions, annual growth in commercial lending remained positive throughout that period (Smith, 2012). Moreover, the total volume of bank loans fell from \$701.5 billion in the second quarter of 2007 to \$150.2 billion by the end of 2008, while during this same period credit union lending actually grew 6.6% (Ivashina, Scharfsten, 2010; CUNA). Finally, between 2009 and 2011, 448 commercial banks failed versus only 94 credit unions, despite comparable numbers of banks and credit unions prior to the crisis (FDIC, NCUA & CUNA). All of this has led researchers to argue that banks are significantly more sensitive to business cycles and economic downturns relative to credit unions (Smith & Woodbury, 2010; Smith, 2012). And the poor economic performance during this period is reflected in bank CEO compensation, particularly compensation from stock and options: in our data, compensation from stock and options represents 15.2% of total bank CEO compensation in 2015 and 12.7% in 2016, but only 7.8% in 2010, 8.9% in 2011 and 11.3% in 2012.

Table 11 displays the results of our main econometric specification (1), but restricted to the three years from 2011 to 2012. Now, the coefficient for *total compensation* is not statistically significant (but in the expected direction); however, the other results are once again consistent with our original model, including two of the three measures of total compensation. The findings highlight an interesting result: even when banks were significantly underperforming credit unions and restricted lending activity, bank CEOs still received significantly higher total compensation and performance-based compensation compared to credit union CEOs.

6. Discussion

The results of our empirical analysis comparing bank and credit union executive compensation structures support the predictions of the Holmstrom-Milgrom and Besley-Ghatak principal-agent models: CEOs of nonprofit credit unions receive significantly lower-powered incentive contracts relative to comparably-sized for-profit banks that offer similar products and services, and lower overall expected compensation. However, we admit that this is a relatively preliminary exploration of this data and there may be various other important considerations besides prosocial motivation and multiple

tasks that explain the variation in compensation structures between banks and credit unions. We discuss various possibilities here, but due to data limitations and in the interests of brevity, we leave a more detailed analysis to future research.

First, in addition to being not-for-profit, credit unions are also member-owned cooperatives typically overseen by volunteer boards of directors. Hueth and Marcoul (2009) suggest that since cooperatives tend to be local and have board members that are also patrons, the repeated interactions and transactional relationship between cooperative board members and CEOs may substitute for performance-based incentives, and help explain the relatively low-powered incentive structures at cooperative organizations. The cooperative structure may also create more complexity than at other types of organizations, since in theory the board represents the interests of the cooperative's members, yet each board member may have his or her own views and objectives, with decisions regarding compensation derived from a complicated process of bargaining and consensus-building. However, in our data we are unable to distinguish between the not-for-profit and cooperative structures at credit unions.

Another important difference between banks and credit unions is that publicly-traded banks—such as those in our sample—have public stock prices while credit unions do not. In the corporate finance literature, stock prices are strongly correlated with CEO compensation at publicly traded firms and contain important information about CEO reputation (Hall & Liebman, 1998; Jensen & Murphy, 1990; Milbourn, 2003). Therefore, one reason why banks may rely more on performance-based compensation is that they have this simple, clear, objective and independent metric that summarizes both shareholder wealth and bank performance, and which can be easily tied to CEO compensation. Furthermore, unlike other indicators—such as ROA or asset growth—it is more difficult to manipulate stock prices, so board members may be more confident tying stock price to CEO compensation. Credit unions, of course, do not have the benefit of such an independent, simple metric that can be easily tied to CEO compensation, and this fact might explain their lower performance-based income. An interesting area of future research would be to compare executive compensation at credit unions with banks that are *not* publicly traded to determine the extent to which differences in compensation structures arise from the existence of a stock price versus other differences between banks and credit unions. However, as far as we are aware, obtaining executive compensation data for banks that are not publicly traded would be challenging since these banks are not required to publicly report executive salaries or income to the SEC.

Our approach also ignores self-selection, which may explain many elements of our findings. For instance, relatively more risk-averse and altruistic CEOs may prefer to work at credit unions and request low-powered incentives, while more competitive, risk-loving and overconfident CEOs prefer to work at banks and subsequently negotiate higher-powered compensation structures (Ashraf et al., 2017; Fehrler & Kosfeld, 2014; Kolstad & Lindkvist, 2013). Bank CEOs may also have more previous experience and education in business, finance and commercial lending, which may partly explain their relatively higher compensation. Thus, it is somewhat unclear to what extent the observed differences in compensation structures are explained by boards attempting to motivate effort among different types of workers, or by differences in CEO preferences, experience and self-selection. Future research would benefit from additional CEO-level data, such as education, previous work experience, age, and preferences. One strategy to further explore these questions could include in-depth interviews or surveys of credit union and bank executives and board members—similar to Hueth and Marcoul (2009) but on a larger scale—to shed light on board strategies and CEO motivations at banks versus credit unions. Employee surveys of credit unions by CUNA suggest that approximately 40% of credit union employees have experience working at commercial banks; why do they switch to credit unions, particularly if expected income is lower? Do prosocial motivations play a role? If not, do prosocial motivations build up over time in an organization more focused on social outcomes, as suggested by

Ashraf and Bandiera's (2017) model of "altruistic capital"? Might this lead to higher job satisfaction and longer tenures at credit unions relative to banks? And to what extent do CEOs have a say in compensation packages? Are compensation contracts completely dictated by the board, or do social preferences help determine compensation and the extent to which it is performance-based?

Future research may also seek to disentangle the principal components of compensation at banks versus credit unions, for example, by exploring the main determinants of performance-based compensation and overall compensation for bank CEOs versus credit union CEOs. We suspect that bank CEO compensation—particularly variable compensation—is largely determined by observable variables such as earnings, shareholder value and asset growth, while credit union CEO compensation is tied to more intangible goals such as financial education and member satisfaction. As found among other corporations, CEO compensation at banks may also be more influenced by "luck", such as local economic booms or stock bubbles (e.g., Bertrand & Mullainathan, 2001).

Another intriguing area of research would be to investigate the reasons behind the vast gender disparities at credit unions versus banks, and its role in determining executive compensation. Among all credit unions, 52% of CEOs are female, versus only 4% of commercial bank CEOs, and these large disparities hold even after controlling for asset size: At similarly-sized institutions with between \$1 and \$3 billion in assets, the CEO of a credit union is roughly four times more likely to be female compared to the CEO of a bank. There is an extensive literature demonstrating that females are more altruistic and prosocially motivated relative to males (e.g., Bekkers, 2004; Eckel & Grossman, 2008; Mesch et al., 2011; van Rijn, Barham & Sundaram-Stukel, 2017); therefore, females may be more attracted to careers at nonprofit credit unions relative to commercial banks, and willing to accept lower compensation in order to have meaningful work that aligns with their preferences and personal values. While we control for CEO gender in our regressions, we are unable to directly observe gender differences in preferences and self-selection with our data.

Despite the unanswered questions and exciting areas for future research, the difference in performance-based executive compensation between credit union and bank CEOs in our sample is particularly large and robust. It is unlikely that this result is completely due to selection or unobservable variable bias. The substantial difference in the degree to which incentives are directly tied to performance point to important structural differences between banks and credit unions, and has potentially far-reaching implications for policy and welfare. Many studies demonstrate that equity-based incentives (i.e., stock and option holdings) in bank compensation packages promote short-term planning and thus greater risk-taking by bank executives (Bliss & Rosen, 2000; Chen, Steiner & White, 2006; Coles, Daniel & Naveen, 2006; Fahlenbrach & Stulz, 2011; Hagendorff and Vallascas, 2011). At firms, performance-based compensation has also been shown to increase the likelihood of unethical behavior, such as earnings manipulations (Efendi et al. 2007; Harris & Bromily, 2007; Johnson et al. 2009), shareholder lawsuits (Peng & Roell, 2008), fraud (Denis, Hanouna & Sarin, 2006; Johnson, Ryan & Tian, 2003), misreporting (Burns & Kedia, 2005) and product safety problems (Wowak, Mannor & Wowak, 2014). Furthermore, in work situations where learning and creativity are important, focusing on performance or outcome goals can have a negative effect on performance, and crowd out intrinsic motivation (Deci, Koestner & Ryan, 1999; Kanfer & Ackerman, 1989; Kanfer, 1990; Locke, 2000). Previous research also indicates that compensation structures may in fact have played an important role in the financial crisis of 2007 to 2009, when bank delinquency and charge-off rates skyrocketed to more than double the rates at credit unions, and over four times as many banks failed (Smith, 2010). Therefore, a final area of future research could attempt to determine the extent to which the relatively poor performance at banks during the financial crisis was due to a greater reliance on performance-based incentives, which may have led to excessive short-term planning and risk-taking. For example, in 2006, 41.5% of all mortgage originations at mortgage companies and 23.6% of all mortgage originations at commercial banks were "subprime" compared with only 3.6% of mortgage

originations at credit unions.²⁰ To what extent was this vast difference in subprime lending due to differences in CEO compensation and related incentives?

At credit unions, a proportionally higher fixed salary may allow managers the flexibility and creativity to focus on customer service, long-term planning and mission, thereby creating a bulwark against excessive risk-taking and short-term planning that could harm their members' best interests. To the extent that prosocial motives induce effort beyond the market wage at nonprofit organizations—and this effort contributes to positive social outcomes—policymakers should be keen to support such initiatives. Nonprofit credit unions may provide a space for talented, motivated agents with altruistic preferences to generate social surplus that would otherwise be underprovided by commercial institutions.

²⁰ Based on analysis of Home Mortgage Disclosure Act (HMDA) data by the authors. In the HMDA data, a mortgage is considered “subprime” if the spread between the mortgage’s interest rate and the Treasury yield for a comparable maturity is greater than three percentage points.

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Figure 1. Comparison of Compensation Components between Credit Union and Bank CEOs

Table 1: Summary Statistics of Executive Compensation in Banks vs. Credit Unions (2010 - 2016)

VARIABLES	CU		Bank	
	Mean	Std. Dev.	Mean	Std. Dev.
Base Salary	266.1**	206.3	541.3	2,298
Performance-Based	44.41**	123.8	314.4	905.1
Base plus Performance-Based	310.5**	274.5	855.7	2,887
Total Compensation	444.4**	553.5	1,067	4,839
Retirement & Deferred	60.61	180.9	84.96	1,048
Total minus Retirement & Deferred	383.8**	485.7	981.9	4,386
Other Income	73.34	351.2	126.2	2,240
Number of Obs.	4,349		1,678	

Note: (1) ** indicates t-test between credit union and bank groups is statistically significant at 95% level; (2) Unit of variables in this table is 1,000 \$; (3) Credit union data is from credit unions that file Schedule J forms.

Table 2: Summary Statistics of CEO-level, Institutional and Regional Control Characteristics

VARIABLES	Unit	Credit Union		Bank	
		Mean	Std. Dev.	Mean	Std. Dev.
<i>Institutional Controls</i>					
Total assets	1million \$	638.6	1,495	1,406	1,175
Asset growth	%	6.577	41.00	7.944	15.73
Loan growth	%	8.321	69.09	8.885	17.22
Loan-to-deposits ratio		73.83	19.04	85.85	16.45
Delinquency ratio		1.048	1.037	1.984	2.197
Mortgage concentration	%	30.72	14.66	56.13	12.53
Net worth ratio		0.109	0.0298	0.0990	0.0210
Commercial loan concentration	%	7.892	12.16	54.24	20.86
Cash holdings	%	23.69	14.81	25.09	11.32
Number of states	#	1.177	0.789	1.452	0.799
Branches	#/ 1 million \$	0.0255	0.0206	0.0173	0.00770
<i>CEO characteristics</i>					
Female CEO	0/1	0.218	0.413	0.0477	0.213
CEO Gender Undefined	0/1	0.0437	0.204	0.0703	0.256
Tenure	Year	3.514	1.822	3.602	1.693
Last Year as CEO	0/1	0.0809	0.273	0.0334	0.180
<i>Location controls</i>					
Average House Price Index	HPI	204.5	39.45	197.3	30.51
HPI growth	%	3.863	5.044	2.454	4.420
Unemployment	%	6.746	2.057	6.964	1.850
Number of Obs.		4,349		1,678	

Note: (1) Tenure variable is defined as a running count for years of experience starting at one in 2010 (when our sample period begins) and restarting with the appointment of a new CEO; (2) Credit union data is from credit unions that file Schedule J forms.

Table 3: Regression Analysis of CEO Compensation with Institutional, CEO-level and Regional Control Variables

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.031 (0.033)	-1.236*** (0.167)	-0.199*** (0.044)	-0.343*** (0.113)	-0.096** (0.047)	-0.168*** (0.044)
Total Assets	0.332*** (0.012)	0.890*** (0.049)	0.407*** (0.014)	0.410*** (0.039)	0.422*** (0.016)	0.402*** (0.015)
Female CEO	0.002 (0.020)	-0.009 (0.093)	-0.010 (0.024)	-0.050 (0.086)	0.057* (0.032)	0.019 (0.027)
CEO Gender Undefined	0.056 (0.048)	-0.162 (0.160)	0.021 (0.053)	-0.005 (0.117)	0.001 (0.053)	0.029 (0.055)
Tenure	0.040*** (0.007)	0.095*** (0.034)	0.042*** (0.008)	0.082*** (0.027)	0.065*** (0.010)	0.053*** (0.009)
Last Year as CEO	-0.086*** (0.025)	-0.178** (0.076)	-0.072*** (0.022)	0.227*** (0.074)	0.040 (0.025)	0.052** (0.026)
Cash holdings	0.031*** (0.010)	-0.035 (0.050)	0.024** (0.011)	0.008 (0.041)	0.018 (0.015)	0.021 (0.013)
Loan growth	-0.000 (0.014)	-0.271*** (0.080)	-0.056*** (0.020)	0.025 (0.060)	-0.048** (0.024)	-0.062*** (0.022)
Loan-to-deposits ratio	0.045*** (0.014)	0.185*** (0.066)	0.066*** (0.015)	0.044 (0.047)	0.047** (0.020)	0.068*** (0.019)
Delinquency ratio	0.002 (0.006)	-0.246*** (0.044)	-0.026*** (0.009)	-0.049** (0.021)	-0.020** (0.008)	-0.024*** (0.009)
Mortgage concentration	-0.002 (0.014)	-0.156** (0.061)	-0.030** (0.015)	-0.014 (0.049)	-0.019 (0.018)	-0.029* (0.016)
Asset growth	0.001 (0.013)	0.301*** (0.082)	0.060*** (0.020)	-0.034 (0.062)	0.049** (0.024)	0.065*** (0.023)

Table 3 Continued: Regression Analysis of CEO Compensation with Institutional, CEO-level and Regional Control Variables

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
Net worth ratio	0.017** (0.008)	0.211*** (0.038)	0.046*** (0.010)	0.051* (0.031)	0.056*** (0.011)	0.050*** (0.010)
Branches	-0.018 (0.014)	0.063* (0.032)	-0.010 (0.014)	-0.008 (0.033)	-0.003 (0.016)	-0.012 (0.016)
Number of states	-0.005 (0.009)	0.023 (0.063)	0.008 (0.012)	-0.028 (0.030)	0.017 (0.012)	0.009 (0.011)
Commercial loan concentration	-0.001 (0.013)	0.064 (0.062)	0.013 (0.018)	-0.011 (0.038)	0.015 (0.019)	0.016 (0.018)
Average House Price Index	-0.005 (0.010)	0.007 (0.049)	-0.006 (0.012)	-0.007 (0.038)	-0.006 (0.014)	0.002 (0.012)
HPI growth	0.009 (0.007)	0.000 (0.038)	0.005 (0.007)	0.001 (0.031)	0.000 (0.010)	-0.002 (0.009)
Unemployment	0.008 (0.013)	-0.072 (0.068)	-0.005 (0.016)	-0.033 (0.054)	-0.026 (0.019)	-0.012 (0.017)
Region FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Number of Obs.	5,975	5,975	5,975	5,975	5,975	5,975
No. of Institutions	1,381	1,381	1,381	1,381	1,381	1,381
R-squared	0.562	0.410	0.651	0.174	0.589	0.610

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Institutional control variables are lagged value; (7) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans. All control variables are normalized.

Table 4: Regression Analysis of CEO Compensation with Institutional and Regional Control Variables

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.027 (0.033)	-1.244*** (0.167)	-0.204*** (0.044)	-0.343*** (0.114)	-0.093** (0.047)	-0.168*** (0.044)
Total Assets	0.326*** (0.012)	0.886*** (0.049)	0.402*** (0.014)	0.408*** (0.039)	0.413*** (0.016)	0.396*** (0.014)
Cash holdings	0.196*** (0.061)	-0.210 (0.307)	0.155** (0.065)	0.057 (0.254)	0.113 (0.091)	0.129 (0.082)
Loan growth	-0.173 (0.823)	-16.343*** (4.744)	-3.463*** (1.199)	1.072 (3.547)	-3.103** (1.410)	-3.856*** (1.283)
Loan-to-deposits ratio	0.498*** (0.156)	2.087*** (0.728)	0.732*** (0.162)	0.519 (0.522)	0.530** (0.229)	0.757*** (0.216)
Delinquency ratio	0.026 (0.108)	-4.221*** (0.780)	-0.445*** (0.152)	-0.811** (0.342)	-0.317** (0.149)	-0.391*** (0.150)
Mortgage concentration	0.005 (0.071)	-0.780** (0.316)	-0.138* (0.076)	-0.062 (0.254)	-0.086 (0.092)	-0.140 (0.085)
Asset growth	0.217 (0.790)	18.403*** (4.890)	3.783*** (1.210)	-1.765 (3.740)	3.125** (1.430)	4.083*** (1.334)
Net worth ratio	0.250** (0.119)	3.216*** (0.576)	0.694*** (0.151)	0.769 (0.468)	0.849*** (0.166)	0.759*** (0.158)
Branches	-0.464 (0.323)	1.450* (0.765)	-0.258 (0.339)	-0.102 (0.767)	-0.041 (0.397)	-0.244 (0.380)
Number of states	-0.049 (0.131)	0.300 (0.881)	0.122 (0.163)	-0.400 (0.412)	0.241 (0.168)	0.140 (0.161)
Commercial loan concentration	0.007 (0.055)	0.275 (0.255)	0.062 (0.075)	-0.042 (0.158)	0.066 (0.080)	0.069 (0.075)

Table 4 Continued: Regression Analysis of CEO Compensation with Institutional and Regional Control Variables

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
Average House Price Index	-0.041 (0.069)	0.030 (0.351)	-0.043 (0.085)	-0.066 (0.277)	-0.050 (0.097)	0.012 (0.089)
HPI growth	0.060 (0.046)	-0.008 (0.267)	0.030 (0.048)	-0.012 (0.219)	-0.006 (0.068)	-0.020 (0.064)
Unemployment	0.051 (0.071)	-0.395 (0.371)	-0.022 (0.086)	-0.188 (0.293)	-0.128 (0.103)	-0.053 (0.092)
Region FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Number of Obs.	5,975	5,975	5,975	5,975	5,975	5,975
No. of Institutions	1,381	1,381	1,381	1,381	1,381	1,381
R-squared	0.556	0.409	0.647	0.169	0.584	0.606

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Institutional control variables are lagged value; (7) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.

Table 5: Regression Analysis of CEO Compensation with CEO-level and Regional Control Variables

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.043 (0.030)	-1.021*** (0.116)	-0.154*** (0.034)	-0.255*** (0.083)	-0.070** (0.034)	-0.135*** (0.032)
Total Assets	0.351*** (0.009)	0.806*** (0.037)	0.415*** (0.011)	0.403*** (0.029)	0.423*** (0.012)	0.409*** (0.011)
Female CEO	0.006 (0.022)	0.026 (0.092)	-0.003 (0.026)	-0.138 (0.084)	0.029 (0.029)	-0.002 (0.028)
CEO Gender Undefined	0.047 (0.042)	-0.203 (0.169)	0.015 (0.049)	-0.002 (0.115)	0.002 (0.048)	0.024 (0.050)
Tenure	0.197*** (0.030)	0.425*** (0.154)	0.211*** (0.034)	0.409*** (0.116)	0.309*** (0.040)	0.266*** (0.036)
Last Year as CEO	-0.092*** (0.025)	-0.195** (0.076)	-0.082*** (0.023)	0.221*** (0.074)	0.033 (0.025)	0.040 (0.026)
Average House Price Index	-0.017 (0.066)	0.067 (0.353)	0.005 (0.084)	0.136 (0.263)	0.016 (0.097)	0.070 (0.087)
HPI growth	0.010 (0.048)	0.425 (0.268)	-0.005 (0.053)	0.079 (0.227)	-0.057 (0.070)	-0.069 (0.068)
Unemployment	0.026 (0.062)	-1.049*** (0.353)	-0.055 (0.079)	0.034 (0.258)	-0.090 (0.091)	-0.047 (0.083)
Region FE	X	X	X	X	X	X
Year FE	X	X	X	X	X	X
Number of Obs.	7,026	7,026	7,026	7,026	7,026	7,026
No. of Institutions	1,458	1,458	1,458	1,458	1,458	1,458
R-squared	0.551	0.351	0.623	0.166	0.565	0.583

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Regression Analysis of CEO Compensation with Asset Size Interaction Term

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	-0.564*** (0.189)	0.508 (0.707)	0.301 (0.240)	-2.147*** (0.594)	0.308 (0.252)	0.138 (0.245)
Total Assets	0.257*** (0.027)	1.101*** (0.095)	0.465*** (0.035)	0.192** (0.079)	0.468*** (0.036)	0.437*** (0.035)
CU Indicator X Total Assets	0.089*** (0.027)	-0.260*** (0.101)	-0.075** (0.035)	0.270*** (0.087)	-0.061* (0.036)	-0.046 (0.035)
Marginal Effect of CU Indicator	-0.025 (0.041)	-1.062*** (0.184)	-0.153** (0.051)	-0.515*** (0.126)	-0.058 (0.054)	-0.140** (0.051)
CEO Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	5,975	5,975	5,975	5,975	5,975	5,975
No. of Institutions	1,381	1,381	1,381	1,381	1,381	1,381
R-squared	0.565	0.413	0.654	0.182	0.590	0.611

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Institutional control variables are lagged value; (7) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.

Table 7: Regression Analysis of CEO Compensation with Polynomial Term on Asset Size

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.033 (0.033)	-1.157*** (0.167)	-0.198*** (0.044)	-0.288** (0.116)	-0.075 (0.046)	-0.157*** (0.044)
Total Assets	0.248 (0.263)	-1.791* (1.063)	0.381 (0.322)	-1.546** (0.754)	-0.233 (0.363)	0.036 (0.370)
Total Assets ²	0.026 (0.044)	0.411** (0.198)	-0.012 (0.057)	0.339*** (0.126)	0.089 (0.065)	0.045 (0.065)
Total Assets ³	-0.002 (0.002)	-0.020* (0.012)	0.001 (0.003)	-0.019*** (0.007)	-0.004 (0.004)	-0.002 (0.004)
CEO Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	5,975	5,975	5,975	5,975	5,975	5,975
No. of Institutions	1,381	1,381	1,381	1,381	1,381	1,381
R-squared	0.564	0.415	0.653	0.176	0.594	0.613

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Institutional control variables are lagged value; (7) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.

Table 8: Regression Analysis of CEO Compensation with Regression Splines of Asset Size

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.045 (0.033)	-1.153*** (0.169)	-0.185*** (0.044)	-0.283** (0.115)	-0.070 (0.046)	-0.148*** (0.044)
Total Assets_1	0.309*** (0.023)	0.514*** (0.083)	0.323*** (0.025)	0.214** (0.085)	0.285*** (0.028)	0.293*** (0.026)
Total Assets_2	0.415*** (0.022)	1.176*** (0.108)	0.442*** (0.026)	0.701*** (0.095)	0.498*** (0.031)	0.463*** (0.029)
Total Assets_3	0.252*** (0.025)	0.962*** (0.128)	0.450*** (0.036)	0.286*** (0.080)	0.476*** (0.039)	0.444*** (0.036)
CEO Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	5,975	5,975	5,975	5,975	5,975	5,975
No. of Institutions	1,381	1,381	1,381	1,381	1,381	1,381
R-squared	0.566	0.415	0.655	0.178	0.596	0.615

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Knots of total asset size is split at percentiles of the data: Total Assets_1 covers asset size less than 234 million, Total Assets_2 covers asset size between 263 million and 787 million, and Total Assets_3 covers asset size of over 787 million. The results are robust to choosing 2-5 knots; (7) Institutional control variables are lagged value; (8) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.

Table 9: Regression Analysis of CEO Compensation of State vs. Federal Chartered Credit Unions

	(1)	(2)	(3)
VARIABLES	Base Salary	Performance-Based Compensation	Base + Performance Compensation
Federal Chartered CU Indicator	0.010 (0.056)	-0.054 (0.068)	0.022 (0.055)
Total Assets	0.433*** (0.030)	0.437*** (0.026)	0.429*** (0.028)
CEO Characteristics	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes
Region FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Number of Obs.	4,944	4,944	4,944
No. of Institutions	2,004	2,004	2,004
R-squared	0.500	0.319	0.540

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions include samples of state-chartered and federal-chartered credit unions; (3) *** p<0.01, ** p<0.05, * p<0.1; (4) Institutional control variables are lagged value; (5) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.

Table 10. Regression Analysis of CEO Total Compensation for
Different Asset Sizes

Dependent Variable: Total Compensation			
	(1) All Sample	(2) Total Assets more than \$50 million	(3) Total Assets more than \$100 million
CU Indicator	-0.117*** (0.042)	-0.086* (0.045)	-0.090* (0.049)
Total Assets	0.473*** (0.008)	0.498*** (0.013)	0.500*** (0.019)
CEO Characteristics	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes
Region FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Number of Obs.	10,895	7,353	5,696
No. of Institutions	2,244	1,486	1,161
R-squared	0.802	0.694	0.602

Notes. (1) All outcome variables are log transformed; (2) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (3) Standard errors clustered at the institution level in parentheses; (4) *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Regression Analysis of CEO Compensation in 2010 - 2012

VARIABLES	(1) Base Salary	(2) Performance- Based Compensation	(3) Base + Performance Compensation	(4) Other Income	(5) Total Compensation	(6) Total Compensation minus Retirement & Deferred
CU Indicator	0.065 (0.042)	-1.114*** (0.206)	-0.177*** (0.049)	-0.295** (0.137)	-0.070 (0.054)	-0.131*** (0.051)
Total Assets	0.332*** (0.015)	0.897*** (0.074)	0.408*** (0.018)	0.457*** (0.054)	0.445*** (0.020)	0.415*** (0.019)
CEO Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Institutional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Location Controls	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	2,036	2,036	2,036	2,036	2,036	2,036
No. of Institutions	1,038	1,038	1,038	1,038	1,038	1,038
R-squared	0.518	0.320	0.594	0.178	0.555	0.559

Notes. (1) All outcome variables and the variable total assets are log transformed; (2) Regressions only include credit unions that filled out "Schedule J" on their 990 forms; (3) Regressions include samples of state-chartered credit unions & publicly traded banks in 2010 – 2016; (4) Robust standard errors in parentheses; (5) *** p<0.01, ** p<0.05, * p<0.1; (6) Institutional control variables are lagged value; (7) Variable capital adequacy is measured as net worth ratio; variable commercial pct is measuring a type of commercial real estate as a percentage of all loans.