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By *Donal G. McKillop* *and John O.S. Wilson*

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Credit Unions as Cooperative Institutions:

Distinctiveness, Performance and Prospects[1]

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Abstract

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Keywords: Credit unions, Banks, Social responsibility, Economic empowerment

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1. Introduction

At the beginning of the 21st century, the widely held belief was that highly developed financial systems dominated by large commercial and investment banks and liquid capital markets supported by state-of-the-art risk management systems would continue to finance investment and stimulate economic growth.[2] However, since the onset of the financial crisis in 2008, turmoil in the financial system has impacted severely on the financial services industry. Many banks have suffered large losses and have had to raise additional capital, either privately or through their respective national governments, via a variety of bailout schemes. These developments have led academics, practitioners and policy-makers to re-examine the scale, scope, governance, performance and risk of financial institutions. It is against this background that we write this article on credit unions. Credit unions are financial co-operatives which place strong emphasis on building social capital and empowering their customers (who are also members) and the local community in which they are based.[3]

Credit unions are distinct from banks in a number of ways. First, credit unions cannot do business with the general public due to limitations based on serving a membership that is characterised by a common bond. Common bonds are effectively the social glue which binds credit union members together. Second, credit unions are often viewed as well positioned to provide financial services to those who are excluded by mainstream financial institutions. The common bond mitigates information deficiencies inherent in financial transactions and enables credit unions to provide banking facilities and credit to financially excluded members where it would be deemed too risky by mainstream financial institutions. Third, credit unions in many countries are tax exempt with this status justified by their role in providing financial services to those of modest means. Fourth, credit unions, as not-for-profit organisations, are not required to simultaneously satisfy shareholders' profit expectations and disparate customer needs. The managers of credit unions are not awarded bonuses that are linked to shareholder value. As a consequence

[2] The importance of banks in mobilizing savings and allocating resources to investment projects is highlighted in a seminal contribution by Gurley and Shaw (1955). They argue that financial intermediation increases available investment funds by providing credit through banks and other financial intermediaries. Empirical research suggests that financial development stimulates economic growth. However, disentangling the effects of the extent to which financial intermediation determines the volume of available investment funds from how efficiently these investment funds are used is difficult. Levine (2005) provides an analysis of the links between financial development and growth. Recent evidence suggests that there is a threshold beyond which financial development has a negative effect on output growth (Arcand et al, 2012; Cecchetti and Kharroubi, 2012).

[3] The neoclassical theory of the firm, based on an assumption of profit maximization, is inadequate for understanding the economic behaviour of cooperative organizations, which embody multiple values and objectives. Defining a credit union's objective function is an issue that has exercised researchers since the early 1970s (Smith et al, 1981, Smith, 1984).

credit unions are unlikely to engage in risky investment and unsafe lending practices in order to maximise short term returns.

For all their distinctiveness, credit unions are also subject to the realities of the economic environment. These realities may conflict with the cooperative ethos and philosophy. As a credit union grows, the struggle to maintain a balance between the social and philosophical objectives on the one hand, and the economic realities of a financial intermediary on the other must increasingly be grappled with. In 2013, there were 56,904 credit unions in 103 countries with 207.9 million members and $1,732.9 billion in assets. In some countries credit unions are small volunteer based organisations offering a basic savings account and unsecured personal loans. In other countries they are managed by professionals and provide a full range of financial services.

In this paper, we trace the historical development of credit unions in different parts of the world. We investigate what sets credit unions apart from other financial services organisations, placing a particular focus on the role they play in building social capital and community relations and empowering members. In addition, we use the United States (where the credit union movement is most developed) as a case study to compare the performance and service provision of credit unions and commercial banks. This comparative analysis reveals that US credit unions have weathered the recent financial crisis and its aftermath better than their banking counterparts. We also examine a number of challenges which may hamper the future development of credit unions. These include increased regulatory burdens, capital formation constraints, declining membership involvement, and tensions between social and economic objectives.

2. The Development and Evolution of Credit Unions

Historical Development

The credit union is a unique institution deriving its exclusivity from the amalgamation of a number of otherwise common ideas. These include: a consumer co-operative; a micro financial intermediary; a legal corporation; a social movement; and a social philosophy. The Rochdale Society of Equitable Pioneers was formed in Rochdale, England in 1844 and its rules provide the essential principles of consumer co-operation, including credit unions. These principles include: open, voluntary membership; democratic control; limited return, if any, on equity capital; net surplus belongs to user-owners; education; and cooperation among co-operatives

Hermann Schulze-Delitzsch, a politician and judge, founded the first urban credit co-operative in 1850 in Germany. Friedrich Wilhelm Raiffeisen, a mayor in Germany's western Rhineland, formed the first rural credit co-operative in 1864. From this point on, co-operative financial institutions flourished in several other European countries. In Italy, for instance, there was a direct transference of the ideals of Schulze-Delitzsch by Luigi Luzzatti, an Italian scholar who promoted and formed people's banks on the basis of the developments he had observed in Germany.

Alphonse Desjardins in Quebec, Canada, organized the first Canadian credit union (Caisse Populaire) in his hometown of Levis, Quebec in 1901, thus bringing the credit union experience to North America. Desjardins' motivation was a unique blend of Catholic revulsion of usury and the Quebec political and religious philosophy of ´la survivance´. This philosophy was founded upon three fundamentals; the Church, the Soil, and the Hearth. The caisse populaire both buttressed and rested upon these same three pillars (Thompson, 1978). Thompson suggests that Desjardins was in contact with Luzzatti, Henry Wolff of Britain, and Charles Gide of France.[4] Furthermore that he read of Raiffeisen, Schulze-Delitszch and the Rochdale Pioneers. Thompson suggests that Desjardins united all of these elements into an institution that was not only unique to Quebec, but also became the basis for the modern credit union structure and operation.[5]

It was from Canada that the credit co-operative ideal entered the United States, with Desjardins helping to organize a credit union in Manchester, New Hampshire for a Franco-American parish. During this time Desjardins met with Pierre Jay, the commissioner of banks in Massachusetts, and Edward Filene, a Boston merchant, and the American credit union movement was born. Overstreet and Rubin (1991) state that Jay is credited with drafting the first general credit union statute in the US, the Massachusetts Credit Union Act of 1909, while Filene was largely responsible for promoting credit unions in Massachusetts and more generally in the US. In 1921, Bergengren, a Massachusetts lawyer and friend of Desjardins, along with Filene, formed the Credit Union National Extension Bureau, which they charged with spearheading credit union legislation in every US state as well as at the federal level. Bergengren was the guiding spirit who was responsible for the drafting of, and lobbying for, credit union legislation in thirty-nine states before writing the 1934 US Federal Credit Union Act. This Act encapsulated much of his interpretation of what credit unions are, how they

[4] Henry Wolff was the Founder of the International Cooperative Alliance. Charles Gide was a French economist and held professorships at the universities of Bordeaux, Montpellier, and Paris. Gide was an expert on international monetary problems.

[5] Today in Canada there are 450 Desjardins affiliated caisse populiares, and a further 427 credit unions outside the Desjardins system. The total Canadian movement has $256 billion in assets and serves 11.1 million members.

would be structured, and how they would operate, into law. Bergengren also drafted the Canadian 1932 Nova Scotia Credit Union Act.

Credit Unions in Modern Times

There has been a rapid growth in the credit union movement over the past decade (see Table 1). The World Council of Credit Unions (WOCCU) estimates that in 2013, there were 56,904 credit unions operating in 103 countries. They had total assets of $1,732.9 billion and a membership of 207.9 million (population penetration of 8.06%). Within this international system of credit unions, there are credit unions which have just a handful of members, provide basic savings and loans products and are run and organised exclusively by volunteers. At the other end of the spectrum there are credit unions which are full-service financial providers, are staffed by paid employees, have hundreds of thousands of members and manage billions of dollars in assets.

Insert Table 1 near here

Table 2 presents descriptive statistics on credit unions, by geographic area for 2013. Africa dominates in terms of credit unions numbers (22,385; 39%), but only accounts for 8.2% of worldwide membership and 0.4% of worldwide assets. The population penetration rate for Africa is 6.25%. In contrast North America has 13% of credit union numbers, 51.7% of worldwide members and 79% of total assets. The population penetration rate in North America is 45.92%. The credit union movement owes its origin to Europe, but today has a population penetration rate of less than 4%. This however masks significant heterogeneity across countries. For example, in Ireland the population penetration rate is 63% compared to less than 2% for the UK (Commission on Credit Unions, 2012; Bank of England, 2014). It should however be emphasised that in many Continental European countries credit unions have not emerged as a distinct group as their activities have been subsumed by credit cooperatives. In Eastern Europe credit union development is still in its infancy.

The average reserve to asset ratio (a measure of capital strength) is 9.90% across all countries. However, there is considerable variation by region, ranging from 5.97% for Asia to 13.48% for both Latin America and the Caribbean. WOCCU (2013) suggests that for a credit union to have an effective financial structure, institutional capital as a percentage of reserves should be greater than or equal to 10%. This suggests under capitalisation in Asia and over capitalisation in Latin America and the Caribbean. There is also considerable variation in the loan to asset ratio which ranges from 41.4% in Europe to 82.4% in Africa. WOCCU (2013) suggests that for a credit union to have an effective financial structure it should have a loan-to-asset ratio between 70 and 80%.

Insert Table 2 near here

Classification of Credit Unions

Ferguson and McKillop (1997, 2000) use an organizational life-cycle methodology to partition credit unions into distinct growth phases. These phases comprise Nascent (formative), Transition and Mature. Credit unions positioned within each of these stages can be characterised by various financial and organizational attributes. The authors suggest that credit union movements at a nascent stage of development tend to have a small assets size, high levels of structural and conduct regulation, a tight common bond, a heavy reliance on volunteers, and provide basic savings and loans products. Transition movements are characterised by large asset size, evolving regulatory and supervisory frameworks, less common bond restrictions, higher levels of product diversification, developed professional trade associations, less reliance on volunteers, developed central services and a greater emphasis on growth and efficiency. Mature movements have large asset size, have undergone structural and conduct deregulation accompanied by increased prudential regulation, a loose common bond, diversified product portfolios, professionalization of senior management, centralised services, adoption of electronic technologies and a deposit insurance scheme.

The Commission on Credit Unions (2012) use the organisational life-cycle typology to locate country specific movements into one of the three growth phases. In Table 3 this country specific profile is reproduced with the data updated to 2013. At the present time, nascent industries can be found primarily in the developing countries of Africa, Asia and the former Soviet bloc. In these regions, they are often seen as vehicles for reducing poverty within more general microfinance programs. There are of course notable exceptions such as Poland and Lithuania where the development of credit unions has been rapid over the last decade with credit unions in these countries extending financial services to the general population.

At the opposite end of the spectrum are mature credit union movements. From Table 3 we note that in terms of assets, membership and population penetration the movements in the US, Australia, Canada and South Korea are viewed as mature. In a mature movement the legislative environment under which credit unions operate has been relaxed considerably to encourage competition with other financial organisations. In many cases the product mix of credit unions is very similar to that of retail banks. For example, in Canada the Federal Government enacted legislation in 2010 aimed at providing a national framework for credit unions. The legislative change presents the movement with extensive new opportunities for growth by permitting credit unions to become national rather than provincial in scope and dimension. The legislation also allows credit unions to amalgamate. It also presents them with the flexibility to issue non-membership shares, providing opportunities for strategic investments. In Canada credit unions have 6.4% of the mortgage market, provide 15% of small and medium enterprise loans, 10.6% of agricultural loans and 2.5% of personal loans (Credit Union Central of Canada, 2013).

The transition stage of development is located somewhere between nascent and maturity. Poland, Lithuania and Great Britain (GB) are examples of credit union movements in transition. In 2013, the British credit union movement comprised of 375 credit unions spread across England, Scotland and Wales. These credit unions employ approximately 1,500 people, extend loans of £676 million and receive deposits of £949 million. Some 22 credit unions now offer current accounts to more than 35,000 people. A limited number of credit unions offer mortgages, cash ISAs and insurance products. As of April 2014, the maximum interest rate credit unions in GB can charge for loans is 3% per month. In GB the government has historically supported credit unions through various funding initiatives and this has necessitated a top down approach to credit union development.[6] In GB the most recent evidence of support is the £38 million DWP Credit Union Expansion Project (CUEP), awarded in April 2013 to the Association of British Credit Unions. The objective of CUEP is to help credit unions become sustainable and meet the demand for modern banking products for people on low incomes. This contrasts with credit union movements in most other countries which receive limited or no government support.

Ireland is also classified in the transition stage of development even though it has an extremely high population penetration rate (63%). That Ireland is not identified as a mature movement is primarily due to limited product development exacerbated by a failure to adopt an integrated IT system for the delivery of member services. Irish credit unions currently have an average loans to asset ratio of 30% (150 credit unions have a ratio of less than 25%). Given that WOCCU states that this ratio for well-functioning credit unions should

[6] The UK government has invested £137 million in GB credit unions through the Financial Inclusion Growth Fund. This scheme aids individual credit unions invest in infrastructure as well as subsidising lending to those on low incomes.

be 70-80% this highlights the weakened state of Irish credit unions. Concern over Irish credit unions resulted in the Irish Government establishing a Commission to review the structural and regulatory landscape within which credit unions operate. The Commission's Report was published in March 2012 and identifies a number of areas where reform is required including amalgamations and the development of networks and shared services. These reforms should allow credit unions to achieve the scale necessary to pursue more efficient and sophisticated business models.

Insert Table 3 here

The organisational life-cycle typology contains an assumption about a development path for credit unions albeit that within any one credit union movement, at a given moment in time, individual credit unions may not be, nor want to be, at the same stage of development. With its emphasis on maturity as an implicit goal, the typology contains an implied convergence thesis for the highest stage of credit union development. However, there is nothing in theory to prevent a further stage beyond maturity which entails the transformation of credit unions beyond their current cooperative form via demutualisation. To date only a very small percentage of credit unions have demutualized.[7]

3. The Distinctiveness of Credit Unions

In this section we examine features of credit unions that distinguish them from other financial organisations. We explore the common bond, economic democracy, the credit union mantra of 'not-for-profit but for service' and the credit unions vision of social responsibility.

As credit unions mature some of these distinguishing features become diluted. Table 4 summarises key differences between banks and credit unions.

Insert Table 4 near here

[7] Davies (2013) examines three recent cases of Australian credit union demutualization. He notes that in Australia there have been relatively few cases of credit union demutualization which contrasts with other parts of the financial sector such as insurance and building societies where mutuality was common but where widespread demutualization has taken place in recent times.

Common Bond

A credit union functions as a purchasing cooperative for its borrowing members, and a marketing cooperative for its saving members (Taylor, 1971). Since it deals exclusively with its members, based upon a common bond, a credit union can claim to be the purest form of cooperative (Croteau, 1963). The common bond restriction on membership is assumed to reduce the cost of gathering credit information, thereby minimising the exposure of individual credit unions to bad debt losses (Black and Duggar, 1981). The main types of common bond are community, occupational and associational. As credit unions grow and expand their product offerings the common bond can be a constraint on operational efficiency gains. Consequently in mature movements, such as the US, Canada and Australia, the common bond has undergone a loosening in its definition, which allows a more permissive interpretation of the activities and membership scope of credit unions.

Economic Democracy[8]

Democracy is at the heart of the credit union movement and is in itself a core cooperative principle. Credit union members enjoy equal rights to vote ('one member, one vote') and participate in decisions affecting the credit union, without regard to the value of savings or deposits or the volume of business. The credit union is autonomous, within the framework of law and regulation and is a cooperative enterprise serving and controlled by its members. The board of directors are voluntary in nature and are drawn from the membership. The board of directors are responsible for governance and ensuring that the credit union functions in a manner that is in the best interests of the members (owners). This democratic structure enables members to have a direct say in the running of the credit union and how it serves the community. Well-functioning credit unions foster economic democracy in that they offer economic empowerment to the local community and prevent the concentration of economic power that subverts mass economic empowerment.

Effective credit union governance, however, depends heavily on the willingness of members to exercise their rights of ownership to express their views to the board of directors and to hold them accountable for the progress of the credit union. There is some evidence that this is now proving problematic for some credit union movements and in particular those where credit unions have developed into professionally managed multi-product financial organizations. Goth et al, (2012), in a study of US and Canadian credit

[8] Johanisova and Wolf (2012) provide a detailed and thoughtful overview and discussion of economic democracy.

unions find low attendance (around 2%) at the Annual General Meeting (AGM). They also note that many credit unions had difficulty in finding appropriately qualified directors.

Not-for-Profit but for Service

Credit unions are not constituted to make profits. Instead, net income is distributed to their members in the form of lower loan rates, higher savings rates (through dividends members), improved service quality (such as convenience or lower fees) or contributions to reserves. The latter is of particular importance as credit unions do not issue capital stock. Instead capital is the outcome of cumulative retained earnings.

Given that credit unions do not seek maximise profit, several researchers have tried to establish what the credit unions' true objective is (or should be). This has turned out to be very difficult because as Gambs (1981, 552-553) has explained, the '*very existence of credit unions presents problems for the economist's standard way of thinking. Individuals are supposed to maximise utility and firms are supposed to maximise profits, but in credit unions we have an entity that looks like a firm, but which does not appear to be a profit maximize.'*

Taylor (1971) argues that the key objective for credit unions is the maximisation of member benefits. He demonstrates that in a situation where neither savers nor borrowers dominate a credit union, member benefits are maximised when the difference between the lending and dividend rate is minimised subject to the constraint of meeting costs. Although credit unions are constituted as not-for-profit entities Flannery (1981) suggests that credit unions may be forced to behave as constrained profit maximizers when exposed to intense competition from other financial institutions. Worthington (2004) points out that prudential regulation designed to ensure a level playing field for financial institutions in Australia has forced credit unions toward profit maximisation.

Social Responsibility

Credit unions seek to bring about human and social development. A vision of social justice extends both to individual members and to the larger community in which they work and reside. The credit union ideal is to extend services to all who need and can use them. Every person is either a member or a potential member and appropriately part of the credit union sphere of interest and concern. Decisions should be taken with full regard for the interests of the broader community within which the credit union and its members reside. In terms of social responsibility an objective of credit unions is to encourage financial inclusion through the provision of small loans, low balance share accounts and financial advice and counselling to low-income individuals that are excluded by mainstream financial institutions. Without a broad income mix of borrowing and saving members credit unions cannot prosper and consequently cannot be in a position to provide services to the financial excluded.[9]

The deregulation of the financial services industry in developed countries widened consumer access to credit in many countries. While this undoubtedly has provided opportunities and flexibility for consumers to manage their finances and consumptions over their life times more efficiently, it also increases the burden and responsibility on consumers to manage their own financial affairs. As the events of the recent financial crisis illustrate it is apparent that consumers often make poor choices when faced with making financial decisions. This in part is due to low levels of financial literacy where consumers often fail to understand basic financial concepts. This lack of literacy or knowledge leaves consumers vulnerable to falling prey to financial scams perpetrated by unscrupulous financial services firms (such as subprime and payday lenders).

Activities and initiatives in financial education and literacy are essential to the dual social and economic character of credit unions in serving member needs.[10] In the UK, credit unions are being promoted actively as an alternative to payday lenders in socially disadvantaged areas. The European Network of Credit Unions is represented in the European Commission Expert Group on Financial Education. In the US, the Credit Union National Association is a core member of the Treasury Department's Financial Literacy and Education Commission and financial education is being encouraged through the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act.[11]

4. Credit Unions in the United States

Statistical Profile

The credit union movement is most developed in the United States. As of December 2013, there were 6,681 credit unions in the US (12% of worldwide numbers) down from a peak of almost 23,866 in 1969. These credit unions had $1,075.3 billion in assets under

[9] Credit unions in GB have failed to achieve a broad income and wealth mix of borrowing and saving members. As a consequence, they have acquired the label of a poor persons' bank, which has in turn hindered the development of the movement (McKillop et al, 2011).

[10] Although most British and Irish credit unions are engaged in some form of financial education in the community, the majority are restricted to low-commitment activities with marginal impact (Byrne et al, 2010).

[11] French and McKillop (2014) state that credit unions are in a position to structure effective intervention programmes targeted at their members in financial difficulties by promoting awareness of their financial situation, by encouraging them to manage bills more effectively and by improving budgeting skills. They argue that such a programme could potentially utilise behaviourally-informed personal financial management software to provide a simple and cost-effective intervention.

management (62% of worldwide credit union assets) and a membership of 97,450,697 (47% of worldwide credit union membership). At the end of 2013 credit unions accounted for 9.3% of US consumer savings and deposits and 9.7% of instalment credit (commercial banks accounted for 74.0% and 37.1% respectively).

Table 5 provides a statistical profile of US credit unions between 2003 and 2013. Over this period, the number of credit unions declined by 28.6%, membership size increased by 18.6% and total assets increased by 75.1%. The average capital ratio was 10.40% in 2013 and has oscillated around this level between 2003 and 2013 (commercial banks core capital was 9.29% in 2013 having risen steadily from a low of 7.40% at the end of 2008)[12]. Net charge-offs as a percentage of average loans have declined to their pre-financial crisis level and stood at 0.54% in 2013 (the rate for commercial banks was 0.70% in 2013). Both gross and net spreads declined since 2010. The decline in spreads for credit unions in recent times has been due to a fall on the yield on assets coupled with a decline in fee and other income. In 2013, net income (net spread minus loan loss provision) was 0.98% (the rate for commercial banks was 0.49% in 2013). For credit unions net income has held up well and has risen steadily since 2007.

Insert Table 5 near here

Figures 1 through 4 present comparative performance data for commercial banks and credit unions. Figure 1 shows that over the period credit unions were better capitalised (by approximately 3%) prior to the financial crisis (2003-2007), but this gap has narrowed since (approximately 1%) as banks have increased capital in response to tougher regulatory rules. Figure 2 details net charge-offs to average loans. Prior to the crisis charge-offs were broadly similar for banks and credit unions. However, between 2008 and 2012 charge offs were much higher for commercial banks before reverting back to a similar level to that observed for credit unions. Figure 3 documents net spread (gross spread plus non-interest income minus non-interest expense). Banks (primarily because of their capacity to generate non-interest income) have consistently had a higher net spread than credit unions, albeit this has varied considerably especially during the financial crisis. Figure 4 presents comparative data for net income (net spread minus loan loss provision). In this instance

[12] Unlike other retail financial institutions, credit unions are not permitted to raise capital by issuing new equity. Over time, capital accumulates through the retention of (tax exempt) earnings that are not distributed to members, in the form of dividends on share accounts, or favourable rates paid on deposit accounts, or subsidized rates charged on loans.

credit unions perform consistently better than commercial banks. Indeed in 2008 and 2009 net income was negative for commercial banks.

Insert Figure 1 near here

Insert Figure 2 near here

Insert Figure 3 near here

Insert Figure 4 near here

Based on the summary data presented above, it is clear that US credit unions have withstood the financial crisis better than many banks. Smith and Woodbury (2010) argue that credit unions weathered the financial crisis better than banks owing partly to restrictions on their activities and their high capitalization. However, the authors do acknowledge that the crisis in the US real-estate market has impacted on the credit union sector, primarily through the investment policies of a number of corporate credit unions (which used cash deposits received from retail credit unions to purchase risky asset-backed securities, and realized large losses in several cases).[13]

Deregulation

In 2003, the National Credit Union Administration (NCUA) released new field of membership rules for federal credit unions. The new rules expanded what constitutes occupational and community common bonds. Under the new regulations, for single common bond credit unions, an occupational common bond can include designations based on employment in a trade, industry, or profession. Therefore, a single common bond credit union can have a field of membership beyond a single employer if the members share the same profession or trade, or participate in the same industry. This extension of the common bond to a field of membership helped facilitate credit union mergers and is a key factor for the decline in credit union numbers (Table 5).

US credit unions were distinguished initially by their emphasis on small value unsecured short term loans to individuals. However, credit unions have since diversified to provide a wide range of services. Federal credit unions began to offer long-term mortgages to their members following legislative amendment allowing them to do so in 1977. A further legislative change in 1998 allowed credit unions to offer business loans, for commercial, corporate, business investment or property purposes, up to a maximum of 12.25% of assets.

[13] Corporate credit unions provide services for (retail) credit unions, including deposit of excess funds, payment services and access to liquid funds if required.

There has been a continued rapid increase in the amount of noninterest income being generated by credit unions since 2000 arising from diversification into areas such as stock and bond brokerage, mutual funds, financial planning and business checking.

The overall consequence of deregulation was changes in the patterns of growth across different types of credit unions. Larger credit unions tended to grow faster than their smaller counterparts (Goddard et al., 2002, 2014). Much of this growth was via diversification into non-interest earning activities, albeit that this did not lead to enhanced returns for members (Goddard et al., 2008). Externally generated growth also took place via acquisition and merger, whereby larger, well capitalised and technologically advanced credit unions acquired smaller, less capitalised counterparts that failed to adopt interactive and transactional internet banking technologies (Goddard et al., 2009). A small number of new credit unions entered the industry, while many of those not grasping the new challenges have exited through failure or merged with other credit unions.

Between 2003 and 2013, the number of credit unions reduced by approximately 3% per year. Consequently there has been a rapid growth in credit union asset size. The average credit union had assets of $160.9 million in 2013 compared to $65.6 million in 2003, see Table 5. At the end of 2013, 209 credit unions had assets in excess of $1 billion with their loan portfolios extending to first and second mortgages, construction and development loans and business loans: a loan portfolio structure similar to that of a commercial bank.[14]

In most countries, including the US, credit unions are tax exempt. This is an issue of concern for the commercial banks who perceive that it places them at a competitive disadvantage. The Joint Committee on Taxation (2013) estimates that the credit union tax exemption resulted in a corporate revenue loss of $500 million in 2012 rising to $1 billion in 2017 (the exemption value is calculated at $3.9 billion over 2012 -2017).

Proponents of the tax exemption argue that credit unions provide subsidized financial services to their members, many of whom are of modest means.[15] A tax levy would create pressure to reduce or eliminate subsidized services. A further justification for tax exemption is that credit unions are subject to more onerous capital regulation than

[14] There are also a significant number of small credit unions in the US. There are 739 (10.9%) credit unions with less than $2 million in assets. They primarily offer their members shares and loans. The average membership for these credit unions is 469; the average savings per member is $2,595 and the average size of a loan outstanding is $4,172. There are a further 697 (10.3%) with assets between $2m and $5m and 815 (12.0%) with assets between $5m and $10m.

[15] Reschovsky (2010) contends that the core issue concerning continued tax exemption for credit unions relate to whether credit unions fulfil a public purpose, such as providing access to credit markets for families, individuals and businesses that commercial banks do not lend to.

competing financial service providers including commercial banks. Banks have the option of raising capital in the equity markets, while credit unions must rely on retained earnings (Goddard et al, 2015). Preferential tax treatment for credit union goes some way towards easing the difficulties that arise in accumulating capital.[16]

It is difficult to resolve the taxation debate on purely theoretical grounds. Credit unions are undoubtedly challenged by calls for the creation of a level playing field. It is perhaps understandable that tax concessions on offer to credit unions have come under the most intense scrutiny in the US where the credit union movement has reached maturity, and credit unions compete directly with other financial-service providers.

5. To Remain Current Requires On-going Change

Credit unions are constantly evolving, influenced by the ever-changing environment within which they operate. Credit unions have survived and grown over many years and in many countries, demonstrating what can be achieved by a volunteer-led not-for-profit movement. This has been possible because the credit union sector enjoys intrinsic strengths. The credit union ethos has allowed credit unions to carve a niche in the market and differentiate themselves from mainstream financial services providers by meeting the common needs of their members rather than maximise profit for shareholders. The corporate governance based around the one-member/one vote system also ensures credit unions serve common needs rather than the needs of a handful of individuals. Furthermore, credit unions invest a significant portion of their profits in improving service to members and promoting the well-being of their communities.

To ensure that credit unions continue to make decisions in the best interest of members it is important that the membership itself exercise their democratic rights. Effective credit union governance, for example, depends heavily on the willingness of members to exercise their rights of ownership to express their views to the board of directors and to hold them accountable for the progress of the credit union. The original credit union model accomplished this by positioning the member as the key control element of the actions and performance of the credit union. This has been somewhat diluted as credit unions have developed into professionally managed multi-product financial organizations. Indeed, Davis (2001) describes a myth of democratic governance suggesting the reality of participation by credit union members is in sharp contrast with the formal

[16] In 2013, legislative amendments were proposed to allow US credit unions to manage their balance sheets more effectively. H.R. 2572, the 'Regulatory Relief for Credit Unions Act of 2013' calls for the introduction of a risk-based regulatory system, which effectively reduces the level of required capital.

statements of democratic ownership. If the credit union model is to survive and prosper it is imperative that new mechanisms are found to enable directors, members and management to actively contribute to the building of an effective governance regime which places at its centre credit union members (owners). Goth el al. (2012) suggests that greater membership participation could be encouraged through the use of alternate voting methods such as web-based and proxy methods. They also argue for the establishment of a Governance Committee, elected directly by the membership and solely answerable to the membership, to complement the traditional mechanisms of membership oversight. In essence the Governance Committee would act as an independent proxy for the governance functions of the members.

Credit unions are agitators for human and social development. Their vision of social justice extends both to individual members and to the wider communities in which they are located. Credit unions, as socially responsible financial organisations, seek to extend services to all who need and can use them. Every person is either a member or a potential member and appropriately part of the credit union sphere of interest and concern. Social responsibility requires decisions to be taken with full regard for the interests of the broader community within which the credit union and its members reside. One aspect of social responsibility is that of financial education, a core cooperative principle in its own right. Individual credit unions and their representative bodies promote financial education, but these initiatives tend to be rather modest in scale and disjointed, and as a consequence only result in marginal impact. The impact of the recent financial crisis on socially disadvantaged communities has highlighted the need for financial literacy strategies. Credit unions are well placed and have the credibility to deliver such strategies. Putting in place such a strategy requires effort and resources. A successful financial literacy strategy would however deliver significant social benefit and would of course have the secondary benefit of placing credit unions centre stage.

Credit unions in many countries have weathered the financial crisis better than their commercial banking counterparts. Nevertheless, the recent financial crisis has placed a degree of downward pressure on capitalization. Unlike other retail financial institutions, credit unions in most jurisdictions are not permitted to raise capital by issuing new equity. This places them at a significant disadvantage. Greater flexibility is required in capital formation. The ongoing legislative agenda in US Congress is likely to lead to regulatory change which will provide a new risk-based capital regime alongside existing leverage arrangements. This is likely to provide credit unions with more flexibility in the forms of capital held, and increase their ability to meet regulatory minima when changes in economic conditions (and resultant shocks to balance sheets) occur.

In many countries credit unions are operating at a loan to asset ratio which is much lower than WOCCU guidance. This is due to intensified competition in the financial market, the failure of credit unions in some countries to significantly embrace information technology to deliver financial services, and reluctance by regulators to be more permissive in the provision of additional product freedoms. Certain product areas are outside the credit union remit and others may only be appropriate for larger credit unions which have the necessary resources to appoint specialised personnel. A solution, as adopted in more mature movements, is for the establishment of centralised bodies such as Credit Union Service Organisations (CUSOs) funded by member credit unions, to provide for example mortgages and other high-risk and high-value loan products. Indeed, rather than government funding being used to support individual credit unions (as in GB) which has the potential to create a dependency culture, a more effective developmental tool would be to use such funding to help finance CUSOs for those services most dependent on scale and specialist expertise.

Sustainable credit union development requires an appropriate and adaptive regulatory and supervisory framework. The correct framework ensures members' funds are safeguarded and promotes confidence in individual credit unions and the movement in general. In contrast, too strict a framework may stifle credit union development while too lax an environment is also detrimental as it may lead to credit union failures and, through systemic risk, place the movement as a whole in jeopardy. There is a risk that a fallout from the financial (banking) crisis will be that regulators impose an inappropriate overly onerous regulatory and supervisory framework on credit unions. The probability of such an outcome increases when one considers that in the post financial crises era regulators are very conscious of reputational risk. Failure by institutions clearly damages reputations, in contrast stifling growth and development does not have a reputational impact, at least in the short term.

References

Arcard, J-L., Berkes, E. and Panizzi, U. (2012) Too much finance? *IMF Working Paper* Number 12/161.

Bank of England (2014) Credit Union Annual Statistics, http://www.bankofengland.co.uk/pra/Pages/regulatorydata/creditunionsstatistics.aspx

Black, H.A. and R.H. Dugger (1981) Credit Union Structure, Growth and Regulatory Problems, *Journal of Finance*, 36, 529-538.

Byrne, N., Power, C., McCarthy, O. and M. Ward (2010), The Potential for Impact of Credit Unions on Members' Financial Capability: An Exploratory Study, *Combat Poverty Agency, Working Paper* Number 10/08.

Cecchetti, S.G. and Kharroubi, E. (2012) Reassessing the impact of finance on growth, *Bank of International Settlements Working Paper* Number 381.

Commission on Credit Unions (2012) *Report of the Commission on Credit Unions*. Dublin: Department of Finance.

Credit Union Central of Canada System Brief (2013) Canada's Credit Unions and the State of the System. http://www.the-exchange.ca/upload/docs/Canada's%20Credit%20Unions%20-%20System%20Brief.pdf

Croteau, J.T. (1963) *The Economics of the Credit Union.* Detroit: Wayne State University Press.

Davis, K. (2001) Credit Union Governance and Survival of the Cooperative Form. *Journal of Financial Services Research*, 19, 197–210.

Davis, K. (2013) Privatizing Communal Wealth: Alternative Demutualization Strategies of Australian Credit Unions, http://kevindavis.com.au/secondpages/workinprogress/text-creditunionsdemutualisationcases.pdf

Ferguson, C. and McKillop, D.G. (1997) *The Strategic Development of Credit Unions.* Chichester: John Wiley & Sons.

Ferguson, C. and McKillop, D.G. (2000) Classifying Credit Union Development in Terms of Mature, Transition and Nascent Industry Types, *Service Industries Journal*, 20, 103-20.

Flannery, M.J. (1974) An Economic Evaluation of Credit Unions in the United States, *Federal Reserve Bank of Boston, Research Report* Number 54.

Flannery, M.J. (1981) Discussion [on Smith et al (1981); Black and Dugger (1981); and Navratil (1981)], Journal of Finance, 36, 554-556

French, D. and McKillop, D.G. (2014) Financial Literacy and Over-Indebtedness in Low-Income Households, *Centre for Responsible Banking & Finance Working Paper* Number 14-12. Available at: http://www.st-andrews.ac.uk/business/rbf/workingpapers/RBF14_012.pdf.

Gambs, C.M. (1981) *Discussion* [on Smith et al (1981); Black and Dugger (1981); and Navratil (1981)], *Journal of Finance*, 36, 552-554.

Goddard, J., McKillop, D.G., and Wilson, J.O.S. (2002) The growth of US Credit Unions', *Journal of Banking & Finance*, 22, 2327-2356

Goddard, J., McKillop, D.G. and Wilson, J.O.S. (2008) The Diversification and Financial Performance of US Credit Unions, *Journal of Banking & Finance*, 32, 1836-1849.

Goddard, J., McKillop, D.G., and Wilson, J.O.S. (2009) Consolidation in the US Credit Union Sector: Determinants of the Hazard of Acquisition, *Journal of Financial Services Research*, 36, 231-252.

Goddard, J., McKillop, D.G., and Wilson, J.O.S. (2014) US Credit Unions: Survival, Consolidation and Growth, *Economic Inquiry*, 52, 1, 304–319.

Goddard, J., McKillop, D.G., and Wilson, J.O.S. (2015) Regulatory Change and Capital Adjustment of US Credit Unions, *Journal of Financial Services Research*, forthcoming.

Goth, P., McKillop, D.G. and Wilson, J.O.S. (2012) *Corporate Governance in Canadian and US Credit Unions*. Filene Research Institute, Madison Wisconsin.

Gurley, G. and Shaw, E. S. (1955) Financial Aspects of Economic Development. *American Economic Review*, 45, 515-38.

Johanisova, N. and Wolf, S. (2012) Economic democracy: A path for the future? *Futures*, 44, 562-570.

Levine, R. (2005) Finance and Growth: Theory and Evidence, in Aghion, P. and Durlauf, S. (eds.) *Handbook of Economic Growth.* Amsterdam: Elsevier.

McKillop, D.G., Ward, A.M. and Wilson, J.O.S. (2011) Credit unions in Great Britain: Recent trends and current prospects', *Public Money and Management*, 31, 35-42.

Overstreet, G.A., and G.M. Rubin (1991) *Blurred Vision: Challenges in Credit Union Research and Modelling*. Madison, Wis.: Filene Research Institute and the Center for Credit Union Research.

Reschovsky, A. (2010) Banks take aim at credit unions' tax exempt status, cited in the CAP Times, 5th September 2010.

Smith D.J., Cargill, T.F. and Meyer, R. (1981) Credit Unions: An Economic Theory of a Credit Union, *Journal of Finance*, 34, 519-57.

Smith, D.J. (1984) A Theoretic Framework for the Analysis of Credit Union Decision Making, *Journal of Finance*, 39, 1155-1168.

Taylor, R.A. (1971) The Credit Union as a Cooperative Institution, Review of Social Economy, 29, 206-217.

Thompson, R (1978) *No Ordinary Concern. The law and Practice of Credit Unions*. Nanaimo: Creduco Services Limited.

World Council of Credit Unions (WOCCU) (2013) *PEARLS Operating System*, http://www.woccu.org/financialinclusion/bestpractices/pearls/aboutpearls

Worthington, A.C. (2004) Determinants of Merger and Acquisition Activity in Australian Cooperative Deposit-Taking Institutions, *Journal of Business Research*, 57, 47-57.

Table 1: Credit Unions Worldwide 2003-2013								
Year	**Countries**	**Credit Unions**	**Members**	**Savings ($000S)**	**Loans ($000S)**	**Reserves ($000S)**	**Assets ($000S)**	**Population Penetration (%)**
2003	84	40,457	123,497,445	656,370.2	482,574.2	74,674.2	758,478.7	8.1
2004	82	41,042	131,798,155	707,438.2	531,418.5	82,926.7	824,653.4	7.9
2005	92	42,705	157,103,072	763,819.9	612,201.6	91,557.5	894,454.8	6.7
2006	96	46,367	172,010,203	904,120.9	758,208.7	106,825.7	1,092,135.9	7.4
2007	96	49,134	177,383,728	987,861.2	847,896.1	115,358.5	1,181,465.9	7.5
2008	97	53,689	185,800,237	995,741.2	847,058.7	115,316.5	1,193,811.9	7.7
2009	97	49,330	183,916,050	1,145,851.2	911,752.6	119,738.2	1,352,608.9	7.6
2010	100	52,945	187,986,967	1,229,389.4	960,089.3	131,659.5	1,459,605.6	7.5
2011	100	51,013	196,498,738	1,221,635.1	1,016,243.7	141,314.9	1,563,529.2	7.8
2012	101	55,952	200,243,841	1,293,256.2	1,083,819.0	161,810.3	1,693,949.4	7.72
2013	103	56,904	207,935,920	1,433,287	1,135,171	171,625.0	1,732,944.0	8.06

Source: World Council of Credit Unions (Statistical Data, 2013)

Table 2: Regional Distribution of Credit Unions, 2013									
Region (number of countries)	Number Of Credit Unions	Members	Savings (US$ millions)	Loans (US$ millions)	Assets (US$ millions)	Reserves (US$ millions)	Loans / Assets (%)	Reserves /Assets (%)	Penetration (%)
TOTAL for Africa (25)	22,385	17,032,310	4,879	5,912	7,175	592	82.4	8.25	6.25
TOTAL for Asia (21)	21,570	42,017,122	131,488	114,816	178,815	10,678	64.2	5.97	2.86
TOTAL for Caribbean (19)	398	3,181,717	4,978	4,111	6,044	815	68.01	13.48	17.92
TOTAL for Europe (12)	2,390	9,194,969	24,370	11,889	28,739	3,697	41.4	12.86	3.93
TOTAL for Latin America (15)	2540	23,967,259	39,568	40,470	68,584	9,246	59.0	13.48	7.23
TOTAL for North America (2)	7,405	107,607,520	1,161,350	896,963	1,365,856	139,932	65.7	10.2	45.92
TOTAL for Oceania (9)	216	4,935,023	66,654	61,010	77,731	6,665	78.5	8.57	20.72
Worldwide Credit Unions (103)	56,904	207,935,920	1,433,287	1,135,171	1,732,944	171,625	65.5	9.90	8.06

Source: World Council of Credit Unions (Statistical Data, 2013)

Table 3: Geographic Location and Classification, 2013				
Country	**No. of Credit Unions**	**Membership**	**Assets ($ million)**	**Penetration (%)**
Mature Credit Unions				
United States of America	6,681	97,450,697	1,075,313	43
Canada	724	10,763,934	290,543	46
Australia	101	4,504,000	76,641	30
South Korea	942	5,824,750	54,228	16
Transitional Credit Unions				
Kenya	5,000	4,722,127	4,466	19
Hong Kong	44	80,572	1,303	2
ROC Taiwan	342	214,136	814	1
Sri Lanka	8,424	945,903	74	7
Singapore	26	137,423	730	3
Thailand	2,232	3,943,707	52,754	8
Ireland	385	2,955,000	14,200	63
Great Britain	375	891,283	1,130	2
Poland	55	2,660,075	6,350	10
Fiji	27	4,849	10	1
New Zealand	19	189,478	697	7
Trinidad and Tobago	130	572,285	1,692	66
Brazil	668	5,456,226	37,569	4
Colombia	192	2,174901	4,513	7
Ecuador	946	4,882,497	7,019	48
Mexico	135	4,850,358	5,827	6
Nascent Credit Unions				
Peru	167	1,268,986	2,410	6
Nicaragua	6	34,435	-	1
Russia	359	478,768	336	0.5
Ukraine	624	1,262,924	310	4
Guyana	27	32,119	27	7
Dominican Republic	15	494,199	680	7
Ethiopia	7,154	706,200	38	1
Uganda	2,414	1,280,679	-	8
Tanzania	5,559	1,153,248	599	4

Source: World Council of Credit Unions (Statistical Data, 2013)

Table 4: Differences Between Credit Unions and Banks
1. Credit unions are member-owned cooperatives, with each member (saver and borrower alike) having just one vote in control of the institution. This contrasts with banks which are normally owned and governed by outside shareholders in proportion to their equity position with little interest in the institution as users of its products or services.
2. Credit unions rely on a voluntary board of directors elected from (and by) the membership. In contrast bank directors are appointed to represent shareholders and are compensated for their time. Credit unions also recruit volunteer workers. This contrasts with banks which exclusively hire paid employees.
3. Credit unions do not issue capital stocks. They normally start with zero capital and then build up capital over time by retaining a portion of their net earnings. Frequently, sponsoring organisations or individuals (usually founding members) provide start-up facilities in the form of office space and equipment. Banks, on the other hand, start with shareholder's capital raised on the stock market.
4. Credit union members are connected with a common bond. More specifically, belonging to a particular community, industrial or geographic group to some extent unites the membership of a credit union. Bank customers are not subject to membership criteria.
5. Credit unions are not constituted to make profits. Instead, net income is distributed to their members in the form of lower loan rates, higher savings rates (through dividends), improved service quality (such as convenience or lower fees) or contributions to reserves. Banks, on the other hand, pay (or charge) fixed or variable interest rates to their customers irrespective of net income. The residual, after retaining a portion for institutional growth, is then distributed to shareholders as dividends.
6. Credit unions typically have a social purpose, recognised in legislation, of serving people otherwise excluded from mainstream financial services. This philanthropic type of behaviour, which cannot be expected from profit maximising banks, perhaps justifies the tax exempt privileges that credit unions often receive.

Table 5: US Credit Unions 2003 to 2013[1]

Year	Number of Credit Unions	Members (000s)	Total Assets $m	Average Credit Union Size $m	Capital Ratio (%)	Net charge-offs to average loans (%)	Gross Spread[2] (%)	Net Spread[3] (%)	Net Income[4] (%)
2003	9,360	82,145	614,016	65.6	10.66	0.56	3.38	1.32	0.77
2004	9,014	83,564	646,970	72.4	10.96	0.51	3.31	1.26	0.84
2005	8,695	84,507	678,665	78.7	11.24	0.54	3.24	1.25	0.68
2006	8,362	85754	709,949	85.6	11.54	0.45	3.17	1.13	0.61
2007	8,101	86,824	754,990	93.8	11.41	0.51	3.10	1.07	0.15
2008	7,806	88587	811,117	104.5	10.61	0.84	3.14	1.16	0.31
2009	7,554	88,931	884,757	117.3	9.91	1.21	3.18	1.25	0.64
2010	7,339	90,486	914,341	124.8	10.06	1.13	3.25	1.39	0.82
2011	7,094	91,828	961,697	135.7	10.21	0.91	3.12	1.17	0.85
2012	6,819	93,839	1,021,731	149.9	10.44	0.73	2.90	1.20	0.92
2013	6,681	97,450	1,075,313	160.9	10.40	0.54	2.78	1.03	0.98

[1]Data based on the National Credit Union Association data and the authors' own calculations.
[2]Gross Spread = Yield on Assets - Cost of Assets
[3]Net Spread = Gross Spread + Non-Interest Income + Gain/Loss on Securities + Extraordinary Income - Non-Interest Expense
[4]Net Income = Net Spread – Loan loss Provision

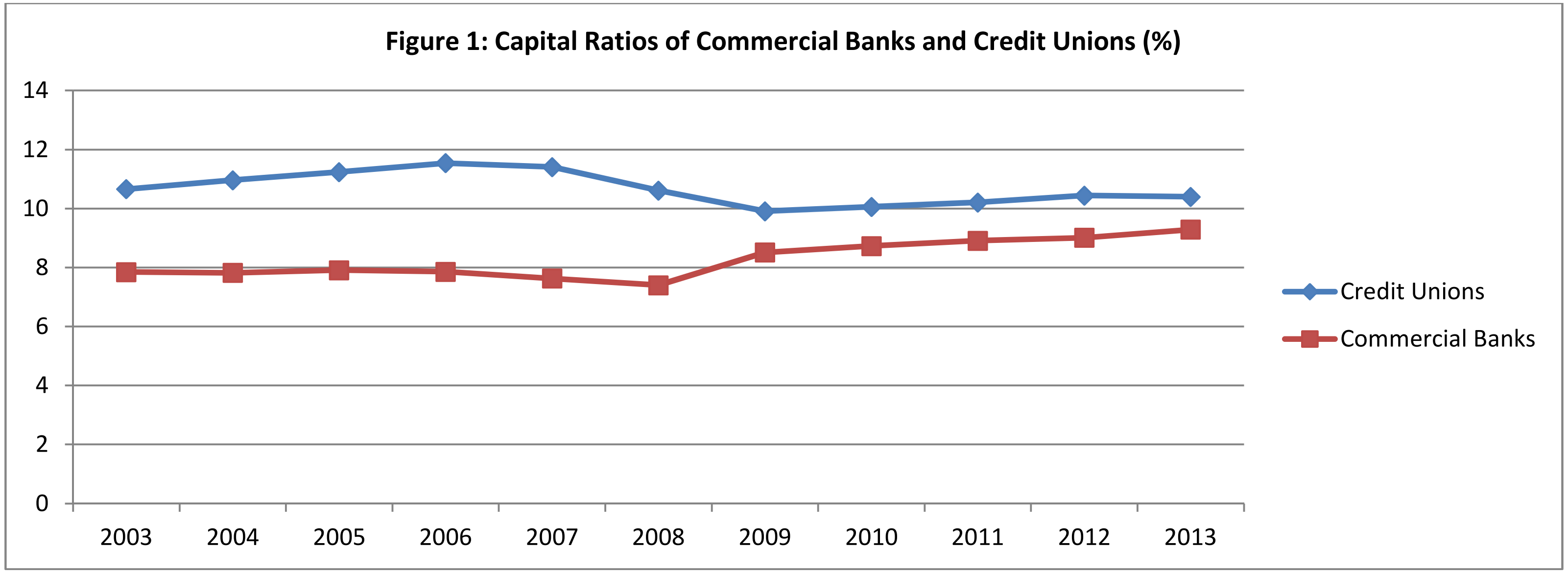
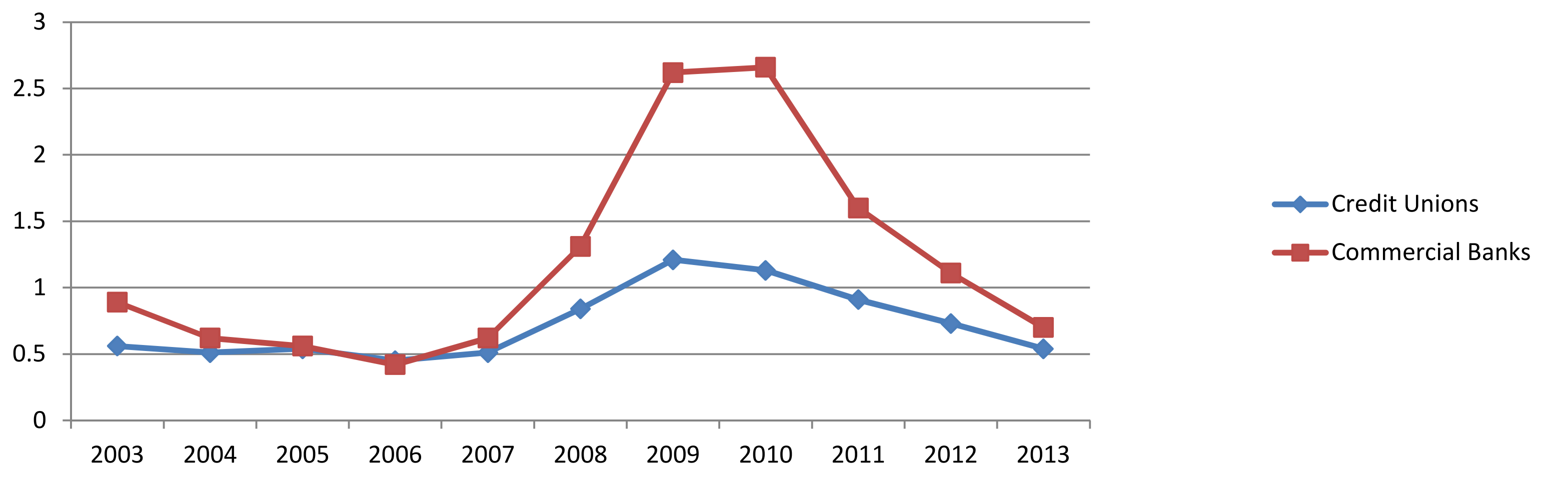


Figure 1: Capital Ratios of Commercial Banks and Credit Unions (%)
14
12
10
8
6
4
2
0
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Credit Unions
Commercial Banks

Figure 2: Net charge-offs to Average Loans of Commercial Banks and Credit Unions (%)



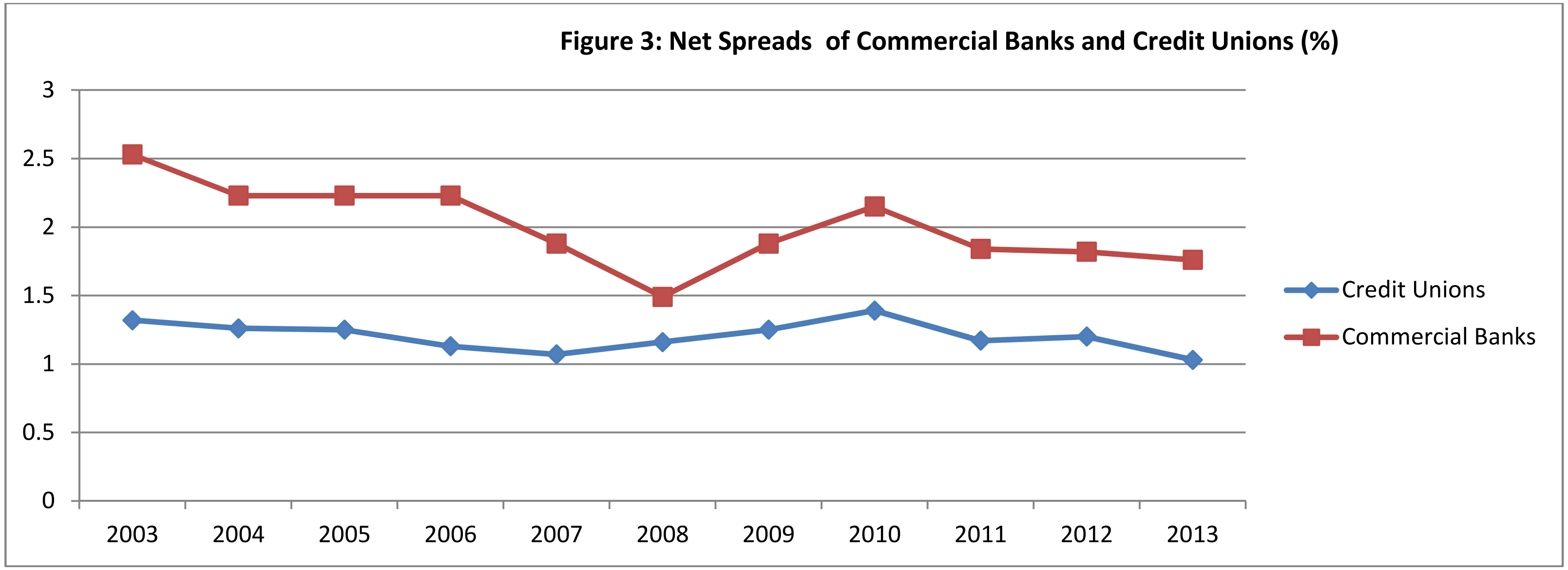


Figure 3: Net Spreads of Commercial Banks and Credit Unions (%)
3
2.5
2
1.5
1
0.5
0
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Credit Unions
Commercial Banks

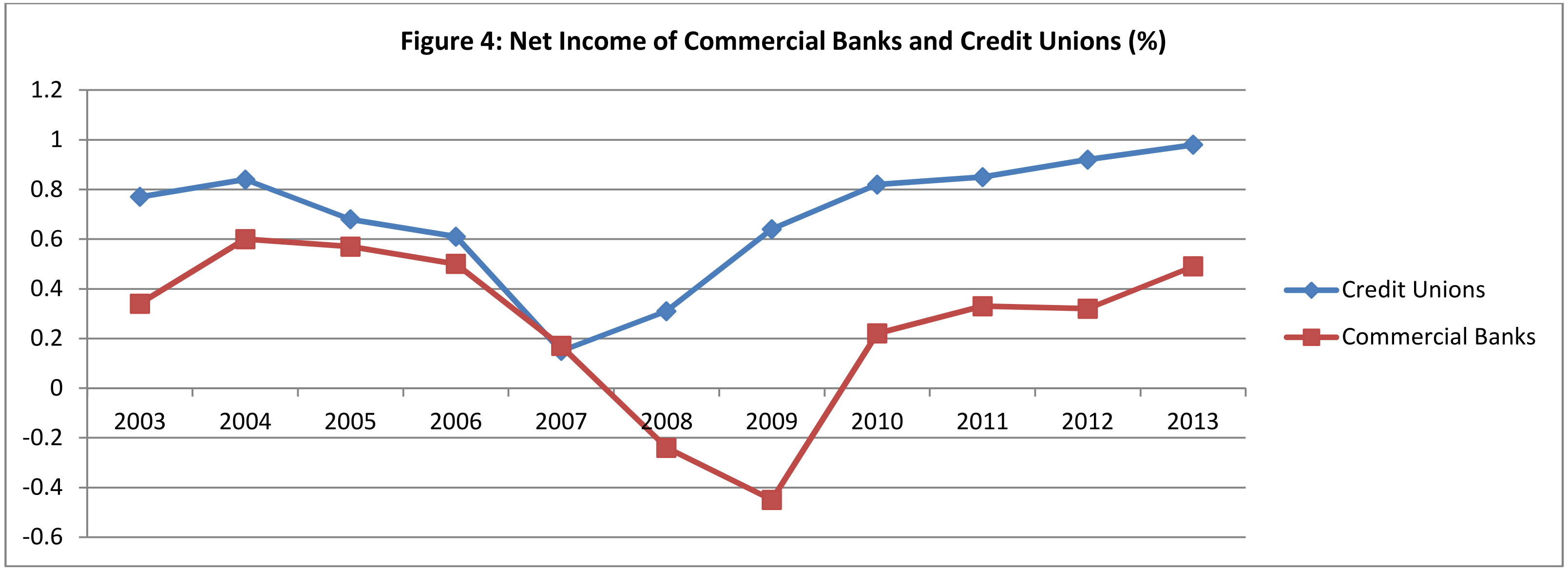


Figure 4: Net Income of Commercial Banks and Credit Unions (%)
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Credit Unions
Commercial Banks

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