CREDIT UNIONS:
A THEORETICAL AND EMPIRICAL OVERVIEW

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Abstract

In 2009 there were over 49,330 credit unions across 98 countries with more than 184 million members and approximately $1,354 billion in assets. There is a great diversity within the credit union movement across these countries. This reflects the various economic, historic and cultural contexts within which credit unions operate. This paper traces the evolution of the credit union movement. It examines credit union objectives, and considers issues relating to efficiency, technology adoption, product diversification, merger, failure and demutualisation. The regulatory environment within which credit unions operate is also explored under the themes of interest rate regulation, common bond requirements, taxation, deposit insurance and capital regulation. The overview also considers demutualisation and the costs and benefits to credit unions of altering their organisational form.

Keywords: Credit unions, common bond, efficiency, technology, diversification, merger and failure, regulation

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I Introduction

This paper provides an overview of the theoretical and empirical research on credit unions. Drawing on previous literature we examine the structural changes affecting credit unions around the world and assess the impact of such changes on the strategies adopted by credit unions. We also highlight the implications for how they perform and are regulated by government agencies.

Credit unions are self-help cooperative financial organizations geared to attaining the economic and social goals of members and wider local communities. Each credit union is governed by its members. The membership elects (from within that membership) unpaid volunteer officers and directors who establish the policies under which the credit union operates. Voting within the credit union is on a one-member, one-vote basis which means that every member has an equal voice regardless of the amount of savings or loans they have with the credit union. Credit unions cannot do business with the general public due to charter limitations based on serving a membership that is characterised by a common bond. The common bond is based on a pre-existing social connection (such as belonging to a particular community, industrial or geographic group). This helps circumvent problems of imperfect information, which are inherent in many financial transactions.
In contrast to most other forms of financial services organizations, credit unions are not required to simultaneously satisfy shareholders’ profit expectations and disparate customer needs. Furthermore, credit union managers are not awarded bonuses, which are linked to equity shareholder value measures.¹ Instead credit unions exist to attain the economic and social goals of the people who comprise their membership and surplus monies generated from business activities belong to the members. The distribution of any surplus may take a number of forms, including: allocation among members in proportion to their transactions; the development of common services to benefit all members; or the development of the business of the credit union. A key element is that any surplus should be distributed in a way that avoids one member gaining at another’s expense. The distribution mechanism employed remains under the democratic control of the membership.

For all their distinctive features, credit unions are (first and foremost) financial institutions, which primarily accept deposits (or shares) and make loans. In this regard they are similar to commercial banks. However, with commercial banks there is an inherent source of conflict between depositors and borrowers (the customers) and stockholders (the owners). The former want competitively priced financial products, while the latter require as high a return as possible on their capital investment. The implicit assumption is that commercial banks aim to maximise profits and prioritise the welfare of owners over the customers. In that credit unions conduct business solely with their members, and their members are in turn the owners of the credit

¹ It could be argued that it has been the drive to maximise shareholder value and director bonuses which has encouraged other financial organisations to engage in risky investment and unsafe lending practices resulting in the present financial turmoil. Brunnermeier (2009) provides an excellent overview of the crisis. Knell and Stix (2009) and Guiso (2010) examine the impact of the financial crisis on the trust which consumers have in mainstream financial services organizations such as banks. Hoepner and Wilson (2010) provide a general overview of ethical and trust issues in banking.
union, there is a coincidence of ownership and consumption. This can often give rise to a potential conflict within credit unions between borrowing members (who want access to low-cost credit) and saving members (who want a high rate of return on funds invested).

In 2009 there were over 49,330 credit unions across 98 countries with more than 184 million members and approximately $1,354 billion in assets. There is a great diversity within the credit union movement across these countries. This reflects the various economic, historic and cultural contexts within which credit unions operate. In the developing world, a small membership base is concentrated on the financially excluded. These credit unions provide basic savings and loans products, and are run and organised exclusively by volunteers. At the other end of the spectrum are credit unions in North America and Australia which comprise members spanning the entire income distribution. These credit unions are full service financial providers staffed by paid employees with balance sheets accounting for billions of dollars in assets. This can be highlighted with reference to the most sophisticated credit union movement in the world, that of the US. A 1997 survey of consumers’ primary financial service providers in the US determined that from a sample of ‘bank users’ the average household income was $50,438, while for credit union members it was marginally higher at $50,869. Furthermore, a 2001 Federal Reserve survey of consumer finance in the US suggested that credit unions do not serve a higher proportion of low-income individuals than mainstream financial institutions.

The fact that credit unions are at different stages of development complicates any overview because issues pertinent for a mature credit union movement may currently
have little or no bearing on a credit union movement in its formative stages. In this paper, we assume that credit union movements follow a developmental typology with maturity as an implicit goal. Consequently, issues facing mature movements today may face less well developed movements in future.

The rest of this paper is organised as follows. In section II we profile the historical development of credit unions from the cooperative pioneers in Germany during the 19th century and the establishment of the Schulze-Delitzsch and Raiffeisen credit societies to the credit union movement of today. Section III presents a classification scheme for credit unions which is supplemented by a statistical overview of the movement worldwide. Section IV considers theoretical and empirical studies focusing on models of credit union behaviour with respect to organizational objectives. Section V considers research on issues relating to credit union structure and conduct. We explore efficiency and returns to scale, technology adoption, product diversification, mergers, acquisitions and failures. In Section VI we explore the regulatory environment within which credit unions operate. Research under the themes of interest rate regulation, common bond, taxation, deposit insurance and capital regulation is examined. Section VII reviews research on demutualisation with the implicit recognition that there may a further stage beyond credit union maturity, which entails the transformation of credit unions beyond their cooperative form to an entirely new form of organization. The paper concludes by debating whether credit unions, as presently constituted, are fit for purpose in the sophisticated financial environment of modern times.
II Historical Development

The origins of the modern credit union movement can be traced to cooperative pioneers in Germany. During the 19th century two types of institution emerged, namely, the Schulze-Delitzsch and Raiffeisen credit societies. These societies are recognised as being the antecedent of modern-day credit unions, Hermann Schulze-Delitzsch, a politician and judge, founded the first urban credit cooperative in 1850. Friedrich Wilhelm Raiffeisen, a mayor in the western Rhineland area, formed the first rural credit cooperative in 1864. Raiffeisen’s first cooperative venture was strikingly similar to that of Schulze-Delitzsch, but where Schulze-Delitzsch worked to aid urban craftsmen and proprietors, Raiffeisen concentrated his efforts on helping the farmers. In essence the Schulze-Delitzsch and the Raiffeisen credit cooperatives were concentrated on those individuals suffering hardship resulting from economic changes in 19th century Germany. Isbister (1994) argues that a principal purpose of these early institutions was to draw outside funds into communities that needed them; not as charitable donations, but as loans to be repaid.

German cooperatives were formed in response to perceived failures in formal financial institutions. Proponents argued that these cooperatives could function where banks could not.² This was primarily because the credit cooperative had distinct information advantages over banks for a certain class of borrower. These advantages related to a detailed knowledge of local economic conditions which allowed these

² Similar arguments have been out forward to explain the recent growth and development of microfinance institutions in many poorer parts of the world. Microfinance institutions aim to alleviate poverty by providing access to finance to poor people in developing countries, which enables these to become entrepreneurs. For many of these poor people, the credit from Microfinance institutions represent a once in a lifetime opportunity, as they lacked any previous access to credit and do not possess sufficient collateral. To overcome the possibility of default Microfinance institutions often establish group lending arrangements with joint liability (Morduch, 1999; Cull et al, 2009).
credit cooperatives to more efficiently screen potential members, and thus more easily and quickly identify borrowers who might default. Such low-cost information enabled cooperatives to dispense with practices that raised the cost of credit to banks (Guinnane, 1994).

Cooperative financial institutions flourished in other European countries due to the diffusion of cooperative ideals from Germany. In Italy, for instance, there was a direct transference of the ideals of Schulze-Delitzsch via Luigi Luzzatti, an Italian scholar who promoted and formed people’s banks on the basis of the developments he had observed in Germany. One fundamental departure from the German models of cooperative institutions was the adoption, by Luzzatti’s people’s banks of limited liability. Austrians also organised their first Schulze-Delitzsch society in 1858.

Much of the inspiration for cooperative ideals in the 19th century can also be traced to important developments in Great Britain such as the experiments of Robert Owen at New Lanark, and the Rochdale Pioneers formation of a cooperative store in 1844. Motivated by humanitarian concern for the poor working conditions created by the Industrial Revolution, Robert Owen established model factories at New Lanark where he set up self-contained and virtually self-sufficient communities. By agreeing to limit their returns on invested capital and to use whatever profits that might accrue for the benefit of the entire community, the owners at New Lanark engaged in a social experiment that helped to propagate cooperative ideology. New Lanark eventually failed, but the influence of this experiment proved to be widespread and enduring.
Of even more practical and lasting effect in propagating cooperative ideals was the establishment of the Rochdale Cooperative store in Great Britain in 1844. The group of workers who organised the Rochdale Society of Equitable Pioneers subscribed to shares (payable in small amounts weekly) to raise capital to buy goods at less than retail cost and sell them to their members at a saving. Members were paid five percent interest on their shares and were entitled to a proportionate division of the society’s savings or surplus at the end of the year. The Rochdale principles of cooperation include: open, voluntary membership to all; democratic control of the society; a governance structure where each member was entitled to one vote regardless of the number of shares owned; a limited return, (if any) on equity capital; and the return to members of the cooperative’s surplus in proportion to their patronage. The success of the Rochdale Pioneers subsequently influenced the cooperative movement in other parts of the world.

The concept of a credit cooperative crossed from Europe to Canada at the start of the 20th century. Alphonse Desjardins, a parliamentary reporter, moved by the victimisation of the poor by loan sharks, spent a period learning about credit cooperatives in Europe through corresponding with the movements’ leaders. Desjardins established the first caisse populaire (people’s bank) in his home town of Levi, Quebec in 1900. Desjardins’ motivation was a unique blend of Catholic revulsion of usury and the Quebec political and religious philosophy of ‘la survivance’. The caisse populaire philosophy rested upon the three pillars of the Church, the Soil, and the Hearth (Thompson, 1978). The movement progressed somewhat slowly until the passage of enabling legislation by the Province of Quebec in 1906. The movement has member caisses in the provinces of Quebec, Ontario and
New Brunswick. The credit union movement in Canada today is characterised by some institutions designated as caisse populaire and others referred to as credit unions.

It was from Canada that the credit cooperative ideal entered the US, with Desjardins helping organise a caisse populaire in Manchester, New Hampshire for a Franco-American parish (Moody and Fite, 1984; Kaushik and Lopez, 1994). 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 created. 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. But perhaps the most overlooked individual in the development of the US credit union movement is Bergengren, a Massachusetts lawyer and friend of Desjardins. In 1921, Bergengren, 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. As such, US legislation encapsulated much of his interpretation of what credit unions are, how they should be structured, and how they should operate into law. In 1932, Bergengren wrote the Nova Scotia (Canada) Credit Union Societies Act. This 1932 Act in conjunction with the 1934 US Federal Credit Union Act became the template for the majority of subsequent credit union legislation throughout the credit union
world and consolidated and established the credit union structural framework into law.

The process of diffusion, well tested in the transfer of the credit union ideal from Europe to North America, has operated in reverse since the 1950s. For example, during the 1960s, the credit union movement in Ireland was encouraged by the Credit Union National Association (CUNA), a US-based trade association for US credit unions. Advice was offered on remedying the then lack of any specific legal recognition of credit unions in Ireland, and practical assistance in providing training was also given by CUNA. More recently, transfer of the credit union ideal and cooperative principles (and indeed technical advice and financial aid) has extended from Canada and the US to recently formed movements in many of the Balkan states, most notably Latvia, Lithuania and Estonia.

Box 1: Pioneers of the Modern Day Credit Union Movement

**Hermann Schulze (1808-1883)** was born into a wealthy family in the village of Delitzsch. He attended preparatory school in Leipzig, spent two years at the University of Leipzig, and then attended law school at Halle. In 1848, Schulze stood for parliament and won a seat in his district. When he attended parliamentary sessions, he found so many other members named Schulze that he adopted the name Schulze-Delitzsch. He was quickly identified with the liberal members of the national assembly who were pressing for a constitution and political and economic reforms. This led, in 1850, to his being tried in court on a charge of high treason. He was later acquitted, although he lost his government position.

**Friedrich Wilhelm Raiffeisen (1818-1888)** was born at Hamm in the Rhine Province. When he was 17 he joined the army but after two years, eye disease forced him to retire from military service. He took the civil service examination and rose from a clerkship to become mayor of Weyerbusch in 1846. Two years later, Flammersfeld and its 33 villages were added to his jurisdiction.
Alphonse Desjardins (1854-1921) was born in Levis in Quebec to impoverished parents (the eighth child of fifteen children). Desjardins was forced to leave school at an early age, possibly to help feed his family. After serving as a volunteer in the Red River uprising, he returned to Quebec, and took up journalism. Between 1879 and 1889, he was recorder of debates for the Quebec Legislative Assembly. In 1891, he founded a short-lived, pro-Conservative political journal. After this enterprise failed, the Conservative government, in gratitude for his loyal political support, appointed him a French stenographer in the House of Commons.

Edward Filene (1860–1937) was an American businessman and philanthropist. He formed a savings and loan association for his employees which later became the Filene Employee’s Credit Union. In 1908, Filene and Massachusetts banking commissioner Pierre Jay, helped organize public hearings on creating credit union legislation in Massachusetts. The Massachusetts Credit Union Enabling Act in 1909 was the first credit union law in the US. Inspired by the experience in many European countries, Filene organized the National Association of Peoples Banks to advance the credit union cause in the US. Together with Bergengren he founded the Credit Union National Extension Bureau.

Roy Bergengren (1879–1955) is credited with the propagation of credit unions across the US. He began this work in 1921 in association with Filene and continued beyond his retirement in 1946. He is looked upon as the moving spirit of the CUNA and CUNA Insurance. He believed that credit unions, and all cooperatives, contributed importantly to the dignity and integrity of people.

III Classification and Statistical Overview

Credit unions have become a significant global phenomenon. Table 1 presents descriptive statistics on credit unions, by geographic area. In 2009, there were 49,330 credit unions operating in 98 countries. These credit unions had a membership of 184 million which equates to a population penetration of 7.6% and had total assets under
their control of approximately $1,354 billion. In Table 1 the average reserve to asset ratio (a measure of capital strength) is 8.85% across all countries. However, there is considerable variation by region, ranging from 4.89% for Africa to 13.84% for Latin America. This suggests under- and over-capitalisation in Africa and Latin America respectively.

Insert Table 1 here

Some insights into patterns of credit union development can be uncovered with the aid of organizational life-cycle theory. This assumes credit unions follow an evolutionary development path partitioned into distinct growth phases. These phases comprise Nascent (formative), Transition and Mature. This classification typology was developed by Ferguson and McKillop (1997, 2000). Credit unions positioned within each of these stages can be characterised by various financial and organizational attributes. This is shown on a country-specific basis in Table 2.

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

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3 The penetration rate measures credit union prevalence within a particular region. Arguably, it underestimates the effectiveness of credit unions as well-functioning financial intermediaries and this might be especially the case where penetration rates are very low – the upside is that the scope for improvement would seem quite high within many regions. It should also be emphasised that the penetration rate of less than 3.6% for Europe is a little misleading since this includes Eastern Europe where credit union development has only recently begun. A related point is that it does not include Continental Europe because credit unions have not emerged as a distinct group within this region as their activities have been subsumed by credit cooperatives.

4 MacPherson (1998, 1999) also partitions the dynamics of credit unions into three stages of development: (1) the formative stage, (2) the national stage and (3) the international stage as does Richardson (2000a, 200b). The latter views the three distinct phases to be characterised by dependence and poor image in the first phase, independence and good image in the second, and interdependence and excellent image in the final phase.
movements are characterised by large asset size, evolving regulatory and supervisory frameworks, less common bond restrictions, higher levels of product diversification, development of professional trade associations, less reliance on volunteers, development of central services and a greater emphasis on growth and efficiency. Finally, mature movements have large asset size, have undergone structural and conduct deregulation accompanied by increased prudential regulation, a loose common bond, diversified product portfolios, professionalisation of senior management, centralised services, adoption of electronic technologies and a deposit insurance scheme.

At the present time, nascent industries can be found primarily in the developing countries of Africa, Asia, Latin America 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 perhaps also Latvia and Lithuania) where credit union development has been rapid over the last decade with credit unions in these countries extending financial services to the general population. Historically, US credit unions, currently classified as mature, fitted into the nascent categorisation during the 1930s, 1940s and early 1950s. From Table 2 we note that in terms of assets, membership and population penetration the movements in Australia, Canada and Ireland could also arguably be viewed as mature. The interim stage between nascent and maturity is that of transition. Movements in such as Poland, Lithuania, and Latvia are in the transition stage as is the movement in Great Britain (GB).

Insert Table 2 here
The 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, it must also be recognised that there is nothing, in theory, to prevent a further stage beyond maturity which entails the transformation of credit unions beyond their current cooperative form to an entirely new form of organization through, for example, demutualisation. We consider demutualisation in Section VII.

**IV Modelling the Objective Function**

Neoclassical theories of the firm (which assume firms maximize profits) are inadequate for understanding the economic behaviour of cooperative organizations. Those researching cooperatives contend that these organizations embody multiple values and objectives. If the objective of the credit union is not to generate profit, this begs the question what is the primary objective? This question has exercised researchers since the early 1970s because as Gambs (1981, p552-553) explains:

“[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 maximiser.”
The models of credit union behaviour presented in this section place a strong emphasis on how equilibrium in the distribution of benefits between their borrowing and saving members is achieved, and how exogenous factors disrupt this equilibrium.

Early efforts at modelling credit unions’ objective function were ad-hoc in nature. Smith (1971) suggests that size maximisation is an appropriate objective. This model treats the credit union as a simple financial intermediary which charges a standardised loan rate and pays a uniform dividend rate. Long run competitive pressures, and the equal treatment of borrowing and saving groups ensure that credit unions maximise size via price adjustments. This position is synonymous with the intersection of average cost and average revenue. Smith (p.78) argues that this “…accommodate[s] the largest number of borrowers at the lowest rate and …provide[s] outlets for the largest number of savers at the highest rate.”

Taylor (1971a) formulates a more integrated theoretical approach to assess credit union behaviour. This approach focuses on the extent to which credit unions balance the interests of saving and borrowing members. This creates a problem because saving members want as high a return (dividend) on savings as possible and borrowing members want as low cost (priced) credit as possible. These objectives cannot be simultaneously satisfied because lower loan rates can only be achieved by offering lower dividend rates (while higher dividend rates can only be achieved by charging higher loan rates). Consequently, conflict between current saving members and current borrowing members seems inevitable.

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5 See also Smith et al (1981) and Overstreet and Rubin (1990, 1991) for an assessment of the extent to which credit unions maximise size.
To explore the implications of this potential conflict between credit union members, Taylor (1971a) analyses three credit union scenarios: (i) the neutral credit union (where neither savers nor borrowers interests dominate); (ii) the saver-dominated credit union (where the interests of savers dominate); and (iii) the borrower-dominated credit union (where the interests of borrowers dominate).

Taylor demonstrates for a neutral credit union that the equilibrium level of output (measured in terms of assets) should be at the point where interest charged on loans minus dividend paid on shares equals the cost of the credit union’s operation. At this equilibrium, the total benefit to members of participating in the credit union is maximised. In the case of a saver-dominated credit union the credit union objective will be the maximisation of average net return. For such a credit union entry by new borrowing members is regarded by the dominant saver group as being complementary to their own interests, since additional borrowers give an increased capacity to pay dividends. In contrast, current savers will not always welcome new members as dividends must then be shared. Taylor (1971a) identifies a level of assets at which the entry of new savers conflicts with the interests of current saving members. A borrower-dominated credit union will always behave in the best interests of the borrowers. Consistent with this objective, the credit union will always welcome new savers because they represent the cheapest source of funds. However, this type of credit union will not always welcome new borrowers.

An implication of this theoretical analysis is that neutral credit unions are more efficient. This is because neutrality is less likely to create incentives for credit unions to discourage new members joining and therefore helps to maintain the vitality of the
institution. Overall, the neutral credit union seeks to maximise the total net gains to the borrowing and saving members without discriminating between them in terms of optimal borrowing and savings rates. Taylor (1971a) proves that relative to a neutral credit union, the borrower-dominated credit union charges a lower rate to borrowers and issues more debt (or invests less), while the saver-dominated credit union pays a higher savings rate and issues less debt (or invests more). Keating and Keating (1975) have criticised Taylor’s model for its failure to generate testable propositions. Nevertheless, a number of authors have attempted to test empirically whether credit unions are borrower-, saver- or neutral-orientated toward their members. Table 3 summarises selected contributions.

**Insert Table 3 near here**

The Taylor (1971a) model has no role for reserves or reserve accumulation which would impact upon dividend and loan rates. In a later contribution, Taylor (1979a) corrects for this by introducing reserves into the analysis. He demonstrates that initial reserves benefit current borrowers (and possibly current savers) in the form of higher dividend rates and lower loan rates. There is, however, an offsetting cost associated with these reserves, which is borne by past members who must pay higher loan rates and receive lower dividend rates in order to generate surplus earnings that can be retained as reserves. However, past members also benefit from the accumulation of reserves because this decreases the probability that they will suffer losses while they are members. Accordingly, Taylor (1979a, p.977) reasons that “optimal reserve levels will involve a trade-off between current and future income at least with regard to reserve levels far in excess of those required for bad loans”
While, Taylor’s (1979a) model allows for the effect of accumulated reserves in the balance sheet, it does not allow for asset growth and the current accumulation of reserves in the analysis of current period behaviour. Spencer (1996) demonstrates that in an asset growth situation, Taylor’s model under predicts the equilibrium volume of loans, over predicts the equilibrium loan rate and under predicts the level of reserves at the end of the period.

Davis (1994) presents a model very similar in form to that of Spencer. In this contribution, however, the author emphasises the credit union’s dependence on surplus earnings for generating reserves. The primary result of Davis’s model is that whenever the growth in reserves is less (more) than the growth in total assets, the reserve ratio will be below (above) the regulatory requirement. Davis concludes that fixed reserve-asset requirements artificially constrain growth because an increase in reserves requires an increase in the loan rate dividend rate spread. Such an increase inevitably exerts downward pressure on total asset growth. In a related paper, Davis (1997) argues that the nature of credit union fixed reserve-asset requirements not only inhibits expansion (through natural growth), but also impedes the development of new credit unions. Acting like a ‘catch 22’ barrier, Davis argues, new credit unions cannot possibly (at least immediately) fulfil fixed reserve-asset requirements because eligible capital is essentially restricted to accumulated surpluses.

More recent research, particularly for the more advanced credit union movements in the US, Canada and Australia emphasise a more overt commercial based objective function for credit unions. It is argued that as deregulation has occurred credit unions have adopted more commercial objectives in order to compete with mainstream
financial institutions. For example, Worthington (2004) in an analysis of Australian credit unions and citing the work of Garden and Ralston, (1999) suggests that the process of deregulation, and the increased competition from the entry of new market participants (e.g. mortgage specialists, insurance companies, etc.), has meant that management and regulators have increasingly shaped the objectives of credit unions towards a more commercial orientation. Worthington states that any pre-existing ideological imperatives found in credit unions have been constrained by the need to function in a highly competitive financial market.

In line with this perception of enhanced competitive pressure between credit unions and other financial institutions, a number of studies have sought to gauge the competitive discipline provided by credit unions in local markets for financial services. Tokle and Tokle (2000) find that credit union interest rate behaviour impacted upon certificate of deposit rates on offer from banks in a number of US states. Feinberg (2001) presents a theoretical framework to explain the competitive discipline that credit unions provide on consumer credit rates offered by banks and suggests a significant role for credit unions in disciplining the exercise of market power by banks. Feinberg and Rahman (2001) use Granger-causality tests to conclude that for two types of consumer loans in 33 local markets in the US, both credit union and bank loan rates are found to cause the other. Hannan (2003) assesses the competitive impact of credit unions by examining the deposit pricing behaviour of banks and thrift institutions in markets in which credit unions operate. He finds that banks and thrifts offer higher rates on deposits in markets where there is a significant credit union presence. Finally, Jackson (2006) compares credit union and bank pricing

6 Adams et al (2007) provide evidence which suggests that thrifts play an important role in affecting the behaviour of commercial banks in the US.
strategies on a variety of deposit (regular savings, interest checking, money market deposit accounts, certificates of deposits) and loan (new car loans, used car loans and home equity loans) products. Jackson finds that credit unions and banks adjust rates paid on deposits and charged on loans as market conditions change. For deposit based products, both banks and credit unions tend to lower rates in response to a decrease in market interest rates quicker than they raise rates in response to an increase. For loan based products, commercial banks respond symmetrically to increases or decreases in market rates of interest. In contrast, credit unions tend to lower rates much quicker when market rates are falling than they raise rates on loans when market rates are increasing. Taken together, Jackson argues that these findings imply that banks change rates on deposit and loan products in such a way as to maximise profits, while credit unions change rates in such a way as to maintain a constant margin between average loan rates and average deposit rates.

Clearly theory and operating principles suggest that credit unions aim to balance the interests of their members. When credit unions are not in significant direct competition with other financial institutions balancing member interests can be a priority. This was true of the US in the 1970s and of those movements today which are in a nascent stage of development. However, in a deregulated market where credit unions compete with other financial services organizations, commercial objectives are likely to compete for priority with that of balancing members’ interests.
V Structure and Conduct

The role of the structural attributes of credit union industries in explaining the conduct of incumbent credit unions is discussed in this section. Issues pertaining to efficiency, technology adoption, product diversification, mergers and failures are examined.

Efficiency and scale

Financial market deregulation and the resultant intensification of competition, technological advances and product innovation in financial products and services have focused attention on the efficiency and productivity of financial institutions.

There is a large empirical literature on the measurement of cost structure and efficiency in the financial services industry.\(^7\) In contrasting the volume of work on banks with that on mutual financial services organizations, Worthington (2010, p.39-40) states:

“In the main, the substantive part of this research has focused on medium-to-large deposit-taking institutions ..... [however], the need to understand issues of efficiency and productivity is no less pronounced in financial mutuals with the important role this information can provide in assessing the impact of regulation and yielding insights into the process of organisational and structural change characteristic of recent decades.”

\(^7\) In banking, the early literature, reviewed by Berger et al (1993) and Berger and Humphrey (1997), was concerned with identifying the potential for achieving cost savings in two ways: first, by selecting the optimal firm size and product mix (or in other words by exploiting economies of scale and scope); and second, by maximising operational or productive efficiency. Evidence of opportunities for smaller banks to achieve average cost savings through the exploitation of economies of scale, but no such opportunities for larger banks. More recent literature reviewed by Hughes and Mester (2010), tends to find that the potential for achieving average cost savings by reducing or eliminating operational inefficiencies is greater than the potential for doing so by realising economies of scale.
Early studies in this area use either ratio analysis or simple production and cost functions to assess performance. One of the first studies to assess the performance of credit unions is that by Croteau (1956). This study utilises financial ratio analysis to suggest that US credit unions are characterised by increasing returns to scale. Similar findings (based upon the Cobb-Douglas production function) are obtained for US credit unions by Dran (1971), Taylor (1972a, 1977 and 1979b), Wolken and Navratil (1980) and Fry et al. (1982). An alternative finding of decreasing returns to scale is found by Koot (1978). Wolken and Navratil (1980) and Fry et al. (1982) argue that this finding may have been due to errors in the specification of the regression models estimated. Later studies on US credit unions by Kohers and Mullis (1987b and 1988) and Cox and Whigham (1984) (using index-based financial ratios) find (with the exception of Cox and Whigham who find constant returns to scale) that the sector is characterised by increasing returns to scale.

Studies for other countries yield much less unanimity with respect to scale returns. For Australia, Crapp (1983) use a Cobb-Douglas function and find decreasing returns to scale as do Brown and O’Connor (1985). More recently Esho (2000), using a multi-product translog function, finds increasing returns to scale. It is interesting to note that Esho (2000) allows for subsidies in kind, while the prior studies do not. This may well explain the finding of decreasing returns to scale in earlier studies. For Canada, Murray and White (1983) and Kim (1986) each use a multi-product translog function and both find slight increasing returns to scale. For the UK, McKillop et al. (1995) use a paired difference ratio based study and find increasing returns to scale. Sibbald and

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8 This work builds on an earlier study by Murray and White (1980) on economies of scale for deposit taking institutions in Canada.
McAlevey (2003) use a similar methodology and find that credit unions in New Zealand experience returns that are increasing up to a certain size threshold and thereafter decreasing.

The general picture that emerges from these early studies is that credit union movements in most countries are characterised by increasing returns to scale. This provides a justification for growth strategies pursued by credit unions (either internally generated or via merger and acquisition) and for regulation permitting expansion of the common bond.9 Furthermore (and with reference to Taylor’s model) members, managers, policy makers and sponsors should be less concerned about membership bias within credit unions. As McKillop and Ferguson (1998) explain this is because increasing returns to scale can translate into higher returns for saver members and lower loan costs for borrowing members. More generally, this suggests asset growth should not be constrained by regulation.

More recently credit union performance (efficiency) has been assessed employing frontier efficiency measurement based upon parametric and non-parametric techniques. The empirical measurement of economic efficiency centres on determining the extent of either allocative efficiency (the ability of an organization to use its inputs in optimal proportions, given their prices and the production technology) or technical efficiency (the ability to use resources in the most technologically

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9 Although, not using an efficiency framework, a small number of empirical studies have assessed the extent to which credit union growth is related to size. Barron et al. (1994) examine credit unions in New York from the 1920s to the 1980s. They find smaller and younger credit unions grew faster than their larger counterparts. Goddard et al (2002, 2005) and Goddard and Wilson (2005) analyse patterns of credit union (asset and membership) growth in the US during the 1990s. They find that large credit unions grew faster than small credit unions during the 1990s. Ward and McKillop (2005) examine the size-growth relationship for UK credit unions. They find that small credit unions on average grew faster than their larger counterparts.
efficient manner) or both in a given organization or industry. Having determined the level and type of efficiency the empirical studies then seek to determine the extent to which: firm-specific (asset size, capital strength, liquidity, product profile, common bond type); sectoral (regulatory body, trade association affiliation); and geographic (rural/urban location, socio-economic membership mix) factors impact upon estimated efficiencies.

For Australia, Worthington (1998)\textsuperscript{10} and Esho (2001) utilise the parametric stochastic frontier approach while Brown et al. (1999) uses non-parametric data envelopment analysis (DEA). Worthington (1998) analyses 150 credit unions for the year 1995. He notes that large well capitalised credit unions with small branch networks are more efficient. Esho (2001) analysing 80 credit unions located in New South Wales notes that there is little improvement in average efficiency over the period 1985 to 1993. Furthermore cost efficiency is positively correlated with average loan size and capital strength. No significant relationship emerges between asset size and efficiency. Brown et al. (1999) analyse Australian credit unions located in the state of Victoria for the period 1992 to 1995. They find no evidence that the average credit union moved closer to the efficient frontier.

For the US, Fried et al. (1993) evaluate performance using a Free Disposal Hull (FDH) analysis, which is a generalisation of DEA. The analysis highlights that there are a large number of best-practice credit unions with influences on efficiency traced to locational and institutional characteristics. Fried et al. (1996) use FDH to evaluate the performance of university-affiliated credit unions and compare their performance

\textsuperscript{10} Worthington (2000) also considers cost efficiency for Australian credit unions using a non-parametric approach.
with that of other credit unions. They find support for the hypothesis that university-affiliated credit unions, by virtue of the higher educational attainment of their membership, some of whom sit on the board of directors that oversees management, operate more efficiently than other credit unions. Frame and Coelli (2001) employ a stochastic cost frontier to investigate US corporate credit unions for the period 1992-1997. They find that 91% are cost efficient, with those credit unions investing a greater proportion of their assets in a centralised fund (US Central Credit Union) being most efficient. Furthermore, cost efficiency declines after the imposition of safety and soundness measures introduced by the regulator in 1995.

In a descriptive analysis, Wilcox (2005a) finds that larger US credit unions have lower non-interest expenses, offer higher interest rates to savers, charge lower interest rates to borrowers over the period 1980-2004. In a later study, Wilcox (2006a) finds that large credit unions increasingly account for a large share of industry assets. He attributes this growth to the fact that large credit unions are more efficient, earn more, and pay higher interest rates to their members than small credit unions. Glass and McKillop (2006), utilise a stochastic frontier approach to examine cost inefficiency under different environmental situations. The results suggest that: federal credit unions are more cost efficient than state credit unions; larger credit unions and multiple group credit unions are more cost efficient than their smaller, and single bond, counterparts; and older credit unions have economic and financial advantages over their younger counterparts.

Wheelock and Wilson (2009a) use a new distance function to define to measure cost productivity, and to define components of the cost productivity index. The authors
find that US credit unions experience decreasing cost productivity between 1989 and 2006 with smaller credit unions experiencing greater declines than their larger counterparts. The authors contend that the results are consistent with the view that recent changes in regulation and technology have tended to favour larger credit unions. Wheelock and Wilson (2009b) use a non-parametric local-linear estimator to estimate a cost relationship for credit unions and find evidence of increasing returns to scale over the period 1989-2006. They conclude that further deregulation which allows credit unions to expand their scale or scope of activities will lead to further increases in size and improvements in efficiency.

For the UK, McKillop et al. (2002) use DEA to obtain radial and non-radial efficiency measures while McKillop et al. (2005) use a stochastic frontier analysis to evaluate the relative performance for the period 1991 to 2001. The results of both studies suggest that UK credit unions have considerable scope for efficiency gains. These studies also suggest that credit unions suffer from a considerable degree of scale inefficiency with in excess of 50 percent of scale inefficient credit unions subject to decreasing returns to scale.

Glass et al. (2010) assess the efficiency of Irish credit unions using a two-stage approach. The analysis reveals that 93 percent of Irish credit unions operate at various levels of inefficiency. The remaining seven percent of credit unions are identified as best-practice. Analysis of how firm specific variables influence the inefficiency scores of credit unions revealed the importance of bad debt levels and common bond type (industrial/associational or community). The study fails to identify any correlation between credit union size and efficiency.
Overall, there is less consistency in the observed findings for frontier based studies relative to the earlier production function and ratio based studies. Efficiency is influenced by an extensive range of factors, and the observed findings depend upon both the methodological approach utilised and the geographical area investigated. This is unsurprising given that the regulatory environment and maturity of credit unions differs between countries. Finally, while a small number of studies find a positive impact of size on efficiency, the remaining (majority) find little evidence of an empirical relation.

**Technology Adoption**

Technological change has impacted dramatically on the economics of financial services provision, design and delivery (Frame and White, 2010). Developments in information collection, storage, processing and distribution technologies impact on financial services in three ways. First, these contribute to cost savings associated with the management of information (collection, storage, processing and transmission), mainly by substituting paper-based and labour-intensive procedures with automated processes. Second, they alter the ways in which customers access services and products, mainly through automated distribution channels (by phone or via the internet). Third, these increase profitability either through increased revenues from service charges or lower processing costs.

Changes in technology have impacted on credit unions. However, in what form technology is used ultimately depends on the sophistication and development of the credit union movement in question. In many countries credit unions now offer
financial services via electronic distribution channels. These distribution channels include internet banking, home banking (direct dial in) services, wireless services, phone and audio based banking service, kiosk and on-line e-commerce transaction processing services. Credit union members can also carry out many of the following activities electronically: account enquiries; check order requests; make loan applications; pay bills; transfer funds; stop payment requests; make on-line wire transfers; make ACH originations and transactions; conduct account aggregation queries, and use ATM service facilities.\footnote{11}

The US credit union movement is more technologically advanced than elsewhere. Consequently most academic literature on the usage and adoption of technology is US based. Ono and Stango (2005) examine the factors that influence the decision to outsource information technology services. The decision to outsource is associated with asset size, and the diversity of the credit union’s product offerings. Using a game-theoretic model, Borzekowski and Cohen (2005) find that the propensity to outsource is increasing in the number of other credit unions in the same geographic location that also elect to outsource. Dow (2007) examines the adoption of web and computer based banking for US credit unions over the period 2000-2003, and finds that larger credit unions are more likely to adopt new technologies early than their smaller counterparts. Dandapani et al. (2008) consider how the internet affects the performance of federally chartered credit unions for the period 1999-2006. They find that offering web access increases operating expenses, but adopters still maintained the same average profitability to that of non-adopters. There is also some evidence of

\footnote{11 A recent US credit union survey by Callahan and Associates (2007) suggests that technology plays a key role in credit unions’ attempts to retain and increase membership, enhance competitiveness, improve efficiency and improve member services. The ratio of IT expenditure to total operating expenditure exceeded 10\% for more than 40\% of the credit unions sampled.}
increased asset growth in credit unions that offered web accounts. Damar and Hunnicutt (2010) examine the determinants of internet banking usage among credit union members in the Western United States. They find that: members in credit unions that were early internet technology adopters have higher usage rates; the rates of use varies among types of online services offered; and credit unions that serve educational institutions, the military or government employees tend to have higher usage rates.

In a general survey of technology adoption and diffusion, Frame and White (2010, p.501) conclude that: ‘…. much has been learned about the characteristics of users and adopters of financial innovations and the attendant welfare implications, we still know little about how and why financial innovations are initially developed. This remains an important area for further research.’

**Diversification**

Deregulation and technological innovation has permitted almost all financial institutions to diversify and capture an increasing share of their income stream from non-interest sources. US commercial banks, for example, now generate approximately 40 percent of operating income from non-interest sources compared to 30 percent in the early 1990s and 20 percent in the 1980s. For banks, both in Europe and the US, research has explored relationships between non-interest income and business strategies, market conditions, technological change and risk-adjusted financial performance. Overall, it appears that diversification does not increase the risk-adjusted performance of banks, and evidence (even prior to the financial crisis) suggests that banks are re-focusing their business back towards retail (Clark et al,
Indeed, Stiroh (2010) notes that risk-adjusted returns actually decline with the expansion of activities.

Similar attention has not been given to credit unions. This is because credit unions have not for the most part had the same diversification opportunities as banks (with this particularly true for nascent and transition movements). It is therefore unsurprising that there are only two studies available on product diversification on credit unions. Esho et al. (2005) for a sample of large Australian credit unions find that over the period 1993 to 2001 that increased reliance on fee-income generating activities is associated with increased risk. Credit unions with highly concentrated income streams also have higher levels of risk and return. Moreover, credit unions with a higher proportion of total income in the form of interest on residential loans and a lower proportion of income in interest on personal loans have significantly lower risk and returns. However, credit unions that diversify by increasing the income share of transaction fees on loans and deposits, matched by a reduction in the income share of interest on personal loans, increase risk while reducing returns.

Goddard et al. (2008a) calculate that for US credit unions revenue from non-interest sources increased from 9.5 percent in 1993 to 18 percent in 2004. There is a dichotomy between large and small credit unions with the share of non-interest income now three times more important to credit unions with assets over $100 million compared to those with assets less than $2 million. Increasing non-interest income has caused returns volatility to increase for credit unions. In terms of risk-adjusted performance, it transpires that when credit unions attain non-interest income levels above 22 to 24 percent, diversification becomes performance enhancing. This may
imply that similar diversification strategies are not appropriate for large and small credit unions. Small credit unions should eschew diversification and continue to operate as simple savings and loan institutions, while larger credit unions should be encouraged to incrementally exploit new product opportunities around their core retail competencies.

Taken together the results of these two studies suggest that diversifying into product ranges significantly different from traditional core business lines may have neither risk reduction or return improvement advantages for credit unions. The studies emphasise that any diversification should be incremental and tied closely to current core product offerings.

**Mergers and Acquisitions**

Consolidation via acquisition and merger has contributed significantly to a reduction in the number of financial institutions in many countries (Berger et al., 1995b, 1999; Goddard et al., 2007). Overall, the empirical evidence on bank mergers suggests there is often little improvement in the efficiency or performance of the merged entity. This suggests that the hubris and agency motives for merger may be relevant; or that synergy derives more from enhanced market power than from cost savings (DeYoung et al., 2009). Mergers have been, historically, prevalent in the more mature credit union movements in the US, Australia and Canada. Evidence on the motives for credit union mergers is limited but a small number of country-specific studies offer a degree of insight.
Fried et al. (1999) using DEA, analyse 48,000 US credit unions over the 1988 to 1995 period. Of these credit unions, over 1,600 were involved in one or more merger during the 1989 to 1994 sub period. The authors find that members of acquiring credit unions experience no deterioration in service provision following a merger. Furthermore, members of acquired credit unions experience an immediate improvement in service provision following a merger, and this improvement lasts for at least three years. They also note that acquired credit unions are likely to benefit from mergers if they have room to improve, in the form of weak loan portfolios and high returns on assets. Acquiring credit unions are also likely to benefit from mergers if they have previous experience with mergers. Learning by doing also spreads the overhead cost of successive mergers, and minimizes the loss of focus on managements’ primary objective of serving members.

Goddard et al. (2009) employ hazard functions to examine the determinants of disappearance for US credit unions through acquisition for the period 2001 to 2006. They find that the hazard of disappearance is inversely related to both asset size and profitability, and positively related to liquidity. Growth-constrained credit unions are less attractive acquisition targets, but credit unions with low capitalization and those with relatively small loans portfolios are attractive as acquisition targets. They also report evidence of a link between technological capability and the hazard of disappearance with the absence of an internet banking capability rendering a credit union more vulnerable to acquisition.
Bauer et al. (2009) examine the effect on ex-post merger performance of US credit unions for three groups of stakeholders.12 These are members of the target institution, members of the acquiring institution and the regulator, NCUA. They find that members of the target credit union experience improved performance as the financial stability of the merged credit union improves, but the performance of the acquiring credit union is unaffected. Bauer (2010) assesses the extent to which members/owners of target and acquiring institutions benefited from state farm credit union consolidation in the United States. He finds that members of both types of institutions benefited (relative to a control sample of non-farm credit unions). The success was attributed to the fact that merger participants were healthy, of comparable size, and offered a similar set of products and services.

Ralston et al. (2001) use DEA to evaluate the post-merger gains in technical and scale efficiency achieved by 31 Australian credit union mergers in 1993-1994 and 1994-1995, relative to non-merging credit unions. The authors find mixed evidence of post-merger gains and losses in technical and scale efficiency. The highest gains were found where pre-merger efficiency scores were low for both partners. This is inconsistent with the notion that efficiency gains are realized by transferring assets from inefficient managers to efficient managers. Mergers do not appear to generate efficiency gains greater than those that non-merging credit unions are able to achieve through internal growth. Worthington (2004), building upon an earlier study in 2001, uses a multinomial limited dependent model to investigate the influence of financial, managerial and regulatory factors on the probability of an Australian credit unions acquiring or being acquired during the period 1992/1993 to 1994/1995. Influences on

12 The authors construct a measure utility gains from mergers using the event study method of Bauer (2008) which employs quadrant tests based on a multivariate test of equality of centroids.
merger and acquisition activity in Australian credit unions include asset size, asset management and liquidity and regulatory factors.

Mcalevey et al. (2010) consider merger activity amongst credit unions in New Zealand. The study employs DEA to investigate changes in efficiency in merged credit unions between 1996 and 2001. The major driver for these mergers is not the usual reason of attempting to increase efficiency for competitive purposes but rather enforced government action. Overall, New Zealand credit unions are observed to have become more efficient over the period, notably those that undertook mergers, with a Malmquist productivity index indicating significant technological progress albeit with a slight regression in terms of efficiency.

Goth et al. (2006) argue that mergers have been a feature of the credit union movement in the UK resulting in a pronounced decline in credit union numbers post 2004. They believe that no simple explanation can be offered regarding the motivation and consequences of these mergers. It was, however, noted that mergers, particularly when due to a transfer of engagements from weak or failing credit unions, has tended to have negative consequences for the healthier party, such as diluting its focus on its own members, increasing the level of arrears and reducing dividend payments.

**Failure**

Academic research on failure in financial institutions dates back to the 1970s. In the case of banks several studies have examined the determinants of bank failure. Notable examples include (Demirgüç-Kunt, 1989; Gajewski, 1989; Thomson, 1991; Wheelock and Wilson, 1995, 2000; Kolari et al., 2002; Nuxoll 2003; Nuxoll et al., 2003; and
Bank-specific, regulatory and regional economic conditions have all been found to be important determinants of failure.

With respect to credit unions, research on failure is limited. Part of the reason for this is that in many countries only a small number of credit unions fail. Rather than permit a credit union to fail there is tendency for the poorly performing credit union to transfer its engagements to another credit union. This tendency can be viewed almost as an extension of cooperative principles. Smith and Woodbury (2010) in a comparative study of banks and credit unions suggest that credit unions are far less exposed to fluctuations in the business cycle and as such are much more able to withstand macroeconomic shocks to their balance sheets.

A number of studies consider credit union failure in the US (Kharadia and Collins, 1981; Collins and Green, 1982; Gordon, 1987; US Government Accountability Office, 1991; Barron et al, 1994; and Wilcox, 2005b). These studies argue that both macroeconomic and microeconomic factors contribute to failure. Wilcox (2005b) additionally considers the implication of credit union failure for the deposit insurance mechanism which covers US credit unions (the National Credit Union Share Insurance Fund, NCUSIF). He notes that high NCUSIF loss rates from 1980-1994 coincide mostly with either high real interest rates or high unemployment rates, and the highest loss rates, which occurred in the early 1980s, coincide with both. Furthermore he argues that just two macroeconomic factors, the unemployment rate and the prior year's real interest rate, may account for over half of the variation of annual NCUSIF loss rates from 1971-2004.
Microeconomic factors also explain credit union failure. Gordon (1987) and The US Government Accountability Office (1991) suggest that small less well capitalised credit unions are more likely to fail. Other important determinants of failure include: a lack of trained managers; weak lending and collection operations; poor record keeping; and closures of sponsoring companies.

Pille and Paradi (2002) develop DEA based models to detect weaknesses in credit unions in Ontario, Canada, so that potential failures can be predicted. The authors then compare these models with the equity to asset ratio, and with a modified Z-score model. They conclude that a simple equity/asset ratio is a good predictor of failure and is not improved upon by the more complex Z-score and DEA based models. Goth et al. (2006) provide a ratio based and DEA based analysis of the relative strength of UK credit unions. The authors suggest that there is a degree of weakness in the UK credit union movement with a question mark over the long term survival of at least 50 percent of credit unions.

VI Regulatory Environment

In this section, we explore the regulatory environment within which credit unions operate. In particular, we examine the common bond, interest rate regulations, taxation, deposit insurance and capital regulation.
**Common bond**

The common bond is one of the defining characteristics of credit unions. Membership of a credit union is restricted to those within the accepted common bond of association. The common bond is based on a pre-existing social connection such as belonging to a particular associational, community, industrial or geographic group. Amburgey and Dacin (1993, p.37) summarise the centrality of common bonds to credit unions as follows:

‘It is a multifaceted concept, interpreted tightly or loosely depending on the nature of the social, political, and economic environment. Common bond has been a strength of credit unions and also their Achilles heel. It has aided the founding of thousands of credit unions, but over emphasis on common bond and disagreements over interpretation have also made it a weakness.’

Walter (2006, p.353) notes:

‘When consumers could band together into groups based upon a common bond—i.e., a shared characteristic such as working for the same company—they could substitute their knowledge of one another’s creditworthiness for collateral. Credit unions offered creditworthy borrowers the opportunity to differentiate themselves from less creditworthy individuals in an era before the advent of nationwide credit bureaus.’

There is much debate about the scope of the common bond within mature credit union movements. Narrowly defined common bonds limit credit union growth by restricting the pool of (potential) members to a relatively finite group. This growth constraint can be especially pronounced for occupational, (and to a lesser extent associational) credit unions because development is restricted to the growth of the sponsoring organization.
Well-defined common bonds can however play a useful role in ensuring the development of nascent credit union movements where there is a reliance on volunteers to meet the day to day operational needs of the credit union. For such credit unions the benefit of the common bond is that it reduces the cost of gathering credit information on members. Loan officers in a credit union with a tightly defined common bond are more likely to know those members who may default on loan repayments and either decide not to lend to these members or monitor loans made more closely.

The majority of the literature on the common bond explores its impact upon credit union operating behaviour and performance. Kohers (1986) and Kohers and Mullis (1986) find that occupational credit unions in the US operating in a pro-cyclical economic environment experience lower profitability, exhibit higher delinquency rates and have a larger need for loan loss provisions than their counterparts operating in a stable economic environment. Keating and Keating (1992) find that there is evidence to support the argument that credit union behaviour varies depending on common bond type. They find that the external influence of the common bond can act to constrain managerial-led expansion. In particular religious and fraternal credit unions did not unduly expand loans to members nor significantly expand deposits in competitive deposit markets.

Leggett and Strand (2002) examine whether expansion of the common bond creates agency problems for US credit unions. They conclude that agency problems do exist, and that loosening of the common bond constraints appears to have contributed to these
problems. Specifically, the authors note that as credit unions added employee groups to their fields of membership, the control of members over management is diluted. Agency problems, in the form of greater inefficiency and the retention of earnings solely to support growth may have materialised as a result of common bond expansion.

Frame et al. (2002) examine differences in institutional risk profiles of US credit unions delineated by membership type and membership expansion via select employee groups (SEGs). A cross-sectional statistical model is specified that examines risk variation relative to the type of common bond and the breadth of the credit union’s membership. They find that occupational credit unions have a unique risk profile relative to other common bonds. This includes a greater exposure to concentration risk, which is hedged by holding greater proportions of capital. They also find that as more SEGs are added, credit unions tend to increase their loan-to-share ratios and decrease their capital ratios. The number of SEGs and the proportion of loan delinquencies are positively related which suggests that the informational advantages associated with the common bond become diluted as new groups are added. Most recently, Goddard et al. (2008b) utilise nested analysis of variance and find that the common bond explains only a small proportion of performance heterogeneities across US credit unions for the period 1991 to 2001.

There has been a significant relaxation of the common bond in mature and transition movements. The appropriateness of this depends upon whether it results in economies of scale and hence lower loan rates and higher dividends or whether it clouds

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13 US credit unions can be chartered to serve a specific employee or associational group or groups often called a Select Employee Group (SEG) charter.
information flows and results in increased bad debts for those credit unions which have widened their common bond.

**Interest Rate Regulation**

When credit union movements are in their formative stages an argument can be made for interest rate restrictions. In the formative stage credit unions rely heavily on volunteers to meet operational needs. Volunteers may have limited expertise in the assessment of borrower risk and consequently it may be beneficial to permit volunteers to only make decisions within highly restrictive parameters (not just loan rate restrictions, but also loan amount restrictions). Why is this case? If there is no interest rate ceiling or the interest rate ceiling is set at a high level, those who will borrow from a credit union charging high rates are those who are unable to attain loans elsewhere. This is the classic problem of adverse selection (Akerlof, 1970; Stiglitz and Weiss, 1981).

Almost all empirical work on the impact of interest rate ceilings on credit unions is confined to the US and dates back to the 1980s. Wolken and Navratil (1981) compare the availability of consumer credit and loan rates for state versus federally chartered credit unions. In the first instance, they determine that during 1978, interest rate ceilings were not binding for either federal or state chartered credit unions, as evidenced by almost identical average loan rates. However, the following year market rates rose dramatically, leading the state chartered group to raise interest rates by twice as much as their federal counterparts, suggesting that the more stringent federal ceiling became binding during 1979.
Wolken and Navratil (1985) extend their earlier investigation to include a broader menu of repressive regulatory constraints. An examination of conversion statistics revealed that credit unions favour less restrictive regulations. For example, very few credit unions converted to a federal charter during 1979 and 1980, which coincided with the period when the federal interest rate ceiling became particularly binding relative to many state ceilings. From this, the authors argue that the less binding regulatory restrictions positively influence the choice of charter type.

**Deposit Insurance**

Deposit insurance is now effectively a reality in every country that has a financial system (Demirgüç-Kunt et al., 2008). A deposit insurance scheme primarily serves to ensure financial stability through the prevention of depositor runs. In fulfilling this objective, it invariably assures depositors (albeit with a number of recent exceptions) of the safety of their funds. However deposit insurance may induce moral hazard because of the potential asymmetry of gains and losses to depositors, bank managers and owners (O’Hara and Shaw, 1990; Hellman et al., 2000; Barth et al., 2006). During good times financial institutions offer high rates of interest to encourage deposits to drive loan growth. Both high and low risk borrowers can repay loans with little difficulty so depositors earn high rates of interest, bank managers receive bonus payments and owners receive high dividends. When economic conditions deteriorate, depositors are protected by deposit insurance, bank managers are exempt from financial liability and owners have limited liabilities. Under such circumstances there are substantial incentives to adopt risk-seeking behaviour. Eisenbeis and Kaufman (2010) maintain that deposit insurance can result in poor agency behavior by
regulators by reducing incentives to monitor and police the behaviour of insured institutions.

Given that credit unions are organised as financial cooperatives (where the owners are the members), conflicts of interest between depositors and owners are contractually internalised. Nevertheless even with deposit insurance, peculiar features of cooperatives imply less risk-taking behaviour than the stock ownership form. Firstly, financial cooperatives depend on internally generated capital to fuel expansion and this naturally (through capital constraint) impedes risky investment strategies. At the same time, the depletion of cooperative capital is relatively more painful in terms of future growth plans and this could also encourage conservative behaviour (Llewellyn and Holmes, 1991). Secondly, managers of financial cooperatives may act in a risk-averse manner because they cannot be rewarded with stock-based compensation packages enabling them to participate in the profitable performance of the organization (Rasmusen, 1988).

On first inspection one might therefore conclude that credit unions are contractually structured so that they do not engage in moral hazard. In addition, the introduction of deposit insurance may increase the probability of them engaging in risk-shifting behaviour (at the expense of the insurance fund) although the special characteristics of credit unions reduce the probability of this happening. Credit unions are therefore less inclined to engage in risk-shifting behaviour unless deposit insurance is introduced and then they may do so at the expense of the insurance fund.
To date, all empirical evidence comes from the US. Studies by Black and Duggar (1981) and Clair (1984) find evidence of increased risk taking by credit unions post deposit insurance. Karels and McClatchey (1999) provide little support for moral hazard. Controlling for the introduction of more lenient capital adequacy requirements in 1970 and 1977, the authors find a reduction in risk-taking behaviour during the post insurance period. Also providing little support for moral hazard in credit unions is Kane and Hendershott (1996). They estimate the solvency of the NCUSIF and find that it considerably outperformed the bank and savings and loan insurance funds throughout the 1980s.

**Capital Regulation**

Regulators and supervisors see maintenance of a healthy capital base across individual financial institutions as an important pre-requisite for the general safety and soundness of the financial system (Berger et al, 1995a). Financial institutions that fail to keep a sufficient level of capital are likely to be subject to a number of regulatory and supervisory sanctions. Early regulations across banking systems require banks to hold a fixed percentage of capital as a proportion of their total assets (capital-assets ratios). These regulations did not take into account the relative riskiness of the various bank assets and the increased diversification of banks across lending and non-lending activities. Later regulations, introduced in many countries, established a number of risk based capital-assets categories. Overall, the system designed a supervisory structure to reduce many of the perverse incentives that were introduced by deposit insurance and other types of government safety nets.
Capital regulation is now applied to credit unions in most countries. The US regulator, the NCUA (2005, p.2) summed up the importance of capital regulation as follows:

“Meaningful capital standards are important in protecting the federal insurance funds, taxpayers and the stability of the financial system. NCUA also recognizes the importance of institutions in managing capital levels to ensure the efficient use of capital in the economy, to optimise the performance of an institution with appropriate leveraging, and to achieve strategic objectives in providing low-cost services and meeting the service needs of members.”

For credit unions, any capital raised is via retained earnings and is tax exempt. This gives credit unions a competitive advantage over banks and other mutual financial services providers. Tax exempt status has allowed some credit unions to earn higher returns than would otherwise have been possible, and to maintain capital buffers, in the form of capital-assets ratios well above the minimum regulatory levels. Credit unions do not have an option to raise new capital in the form of equity, and so are more likely to manage their capital cautiously over the course of the business cycle.

Only a small number of papers attempt to assess the extent to which capital regulation affects the behaviour of credit unions. Jackson (2007) assesses the evolution of capital ratios for US credit unions over the period 1990 to 2006. Jackson reports that the capital level of US credit unions stood at 11.6% at the end of 2006, more than four percentage points higher than the legislatively mandated level of Well Capitalized and exactly four percentage points higher than US credit union capital in 1990. He concluded that the industry capitalization rate in 1990 was perhaps a bit too high, and
that the credit union industry in 2006 was less risky than it was in 1990. In addition, Jackson compares credit union and bank capital requirements and argues that US credit unions are “overcapitalized by an amount in the 30% – 40% range.” This translates into overcapitalization of between $8.8 billion and $11.7 billion.

Goddard et al (2010) examine the determinants of US credit union capital-assets ratios between 1994 and 2009 (a period before and after the implementation of the capital adequacy regulatory framework in 2000). In the first instance they find that the average capital-assets ratio increased by about three percentage points between 1994 and 2007, but has subsequently fallen by about two percentage points between 2007 and 2009 since the onset of the financial crisis. The 2000 regulatory framework also appears to have been effective in increasing the speed at which undercapitalized credit unions take action to increase their capitalization in order to surpass the regulatory minimum threshold. They also find that credit union capital buffers tend to vary procyclically with capital accumulated during economic upturns and depleted through write-offs during downturns. This confirms the view that in the absence of an option to raise new capital in the form of equity, credit unions manage their capital cautiously over the course of the business cycle.

Pana and Mukherjee (2010) examine the level and determinants of liquidity created by US credit unions. The authors show that the level of liquidity increased by 50% over the 2000 to 2008 period, reaching a level of $318 billion in 2008 and that the contribution of large credit unions to aggregate liquidity has increased over time.

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14 In the US, a Prompt Corrective Action Framework applies to credit unions deemed to be experiencing capitalization difficulties. It defines five categories of capitalization in terms of the ratio of net worth to assets: well capitalized, 7% or more; adequately capitalized, 6-6.99%; undercapitalized, 4-5.99%; significantly undercapitalized, 2-3.99%; and critically undercapitalized, below 2%.
while the role played by medium and small credit unions has diminished. The authors also consider the role of capital in influencing liquidity creation. The results suggest that higher levels of capital reduce the ability for US credit unions to create liquidity. Furthermore, capital levels exceeding minimum regulatory requirements undermine credit unions’ incentives to monitor borrowers and extend loans. Consequently, the choice of increasing the relative weight of liquid assets at the expense of investments in loans results in a lower level of liquidity created.

Smith and Woodbury (2010) compare the financial stability of US banks and credit unions from 1986 to 2009. They observe that credit unions are less sensitive to the business cycle than banks. Both suffer when unemployment rises, but the trajectory and magnitude of delinquencies and charge-offs at banks are much more pronounced. Consequently, they suggest that regulators should consider imposing lower capital requirements to account for the lower risk.

Greinke (2005), Hillier et al (2008) and Brown and Davis (2009) consider the capital requirements of Australian credit unions. Greinke (2005) asks whether the response of credit unions to capital controls can be explained by a credit union’s common bond. The imposition of capital controls by the Australian Financial Institutions Commission on a sample of 150 credit unions over the period 1987 to 1997 is considered. The results demonstrate that capital controls had a significant impact on credit union behaviour. In particular, larger credit unions (with less effective common bonds) are more likely to increase profitability or to emphasize housing loans in response to capital requirements. Hillier et al (2008) examine the response of Australian credit unions located in New South Wales to the imposition new capital
adequacy regulations. Using a sample of 137 credit unions over the period 1987 to 1994, they show that management increased capital adequacy ratios through the application of accounting window dressing techniques. Brown and Davis (2009) examine the capital management of 47 Australian credit unions over the period 1993-2006. Over this period the capital of credit unions was found to increase. They further find that credit unions manage their capital position by setting a short term target profit rate (return on assets) which is positively related to asset growth, and which is aimed at gradually removing discrepancies between the actual and desired capital ratio.

**Taxation**

In most countries, including the US, credit unions are tax exempt. Proponents of tax exemption argue that credit unions provide subsidised services to members, many of whom are of modest means, and a tax levy would create pressure to eliminate some of these subsidised services. Emmons and Schmid (1999) argue that a further justification for tax exemption is that credit unions are under more onerous capital constraints than competing financial institutions, such as commercial banks. Given that banks have the option of raising capital in the equity markets, while credit unions rely on retained earnings to meet their capital obligations; the preferential tax treatment can be viewed as easing the problem of capital accumulation for credit unions.

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15 In the United States, most cooperative organisations have benefited from tax-exempt privileges since at least 1931. Tatom (2005) provides an excellent account of the history, scope and nature of credit union tax breaks.

16 Tatom (2005) quantifies the tax loss of the non-taxation of US credit unions. He calculates an annual tax loss of approximately $2 billion and projects a tax loss of $12.6 billion for the period 2004 to 2008.
Taylor (1971b) proposes a theory that illustrates how credit unions can increase non-taxable benefits to members by raising consumer surplus and reducing producer surplus. Consequently, credit unions can largely avoid the tax burden. Taylor also demonstrates that to raise consumer surplus credit unions must increase output beyond the efficient scale, and for this reason the government’s revenue gain is more than offset by the members’ loss. He concludes that because taxation unambiguously reduces member welfare without a commensurate increase in tax revenue, credit unions should retain their tax-exempt privileges.

Cook and D’Antonio (1984) use a theoretical framework to model the implications of taxing credit unions. They find that credit unions are likely to respond to (income) tax by raising the dividend rate and reducing the loan rate, thereby reducing accounting profits and contributions to reserves. Therefore, because of their cooperative nature, credit unions can largely avoid the tax burden by altering their rates to eliminate taxable income. A key insight from this analysis is that the net impact of taxation is minimal, and consequently will have little bearing in ensuring competitive equality between credit unions and other financial institutions.\(^{17}\)

An alternative perspective, offered by Smith (1986b), is that taxation could lead to regressive outcomes if the burden falls disproportionately upon newly-formed or fast-growing credit unions (that typically have a greater need for reserves than their well-established or slow-growth counterparts). Smith predicts that US credit unions will eventually lose their tax-exempt status, possibly as part of a broader regulatory reform package. He suggests that credit unions should strengthen their capital adequacy.

\(^{17}\) Flannery (1974; 1981) contends that credit unions should be taxed in the same manner as other financial organizations for reasons of competitive equality.
positions now, before being penalised for doing so through the taxation of retained earnings.

It is difficult to resolve the taxation debate purely on theoretical grounds. Undoubtedly, the greatest challenge for credit unions comes from those who call for a ‘level playing field’. It is also perhaps understandable that the tax concession on offer to credit unions comes under most sustained criticism in movements where credit unions have reached maturity and are in direct competition with other financial institutions.

VII DEMUTUALISATION

Demutualisation elicits much discussion in countries with a mature credit union movement. It is also, however, relevant for countries where credit unions are less advanced because regulatory and strategic decisions made in the formative years of development ultimately influence the evolution of credit unions and long run prospects for their survival as mutual organizations. If mutuality is seen as a necessary characteristic of credit unions, demutualisation is equivalent to the demise of the credit union not least because demutualisation enables new owners to impose a profit objective at the expense of the social goals articulated by credit unions.\(^{18}\)

\(^{18}\) Demutualisation involves conversion of a mutual organisation into a joint stock company with the resulting owner/shareholders having tradable shares carrying an entitlement to a share of profits and one vote per share. It involves several concurrent changes. First, the net worth (capital accumulated from retained earnings) of the mutual, previously owned communally by the members is converted into private wealth (tradable shares). Second there is a change in governance (voting) arrangements (and thus in the nature of agency problems to be resolved). Third, demutualisation introduces a new form of external performance measure and capital market discipline in the form of a market price for the tradable shares. Fourth, the constraint on external equity capital raisings imposed by mutuality is removed.
Demutualisation is not necessarily a bad outcome if the economic and social functions which credit unions originally evolved to provide are now provided efficiently and effectively by other suppliers (or if the evolution of credit unions has taken their focus away from their original social objectives). Even if this is the case, demutualisation involves significant wealth redistribution, and thus warrants attention by both academic researchers and policy makers. Davis (2001, 2005, 2007) summarises many of the theoretical arguments for and against credit union demutualisation using as a backdrop Australian credit unions.

Davis (2007) argues that demutualisation can be socially beneficial when it involves an efficiency enhancing change in governance and organizational structure. A change of governance structure may be warranted where: mutual organizations change significantly the range and nature of activities in which they engage; membership interests become divergent; competition intensifies; and capital generation problems become severe. For example, the mutual governance structure may aggravate agency problems between owners and managers. Inefficient or self serving management can become entrenched, and poorly defined property rights reduce incentives to monitor and discipline management.

If a governance change occurs (unaccompanied by a change in activities or governance structures) there is little evidence that efficiencies result, suggesting the possibility of other motives (Davis, 2005). One such example is where demutualisation occurs to enable wealth expropriation. Demutualisation necessarily involves distributional consequences through the conversion of communal wealth into
private wealth for participants in the process. Hence, it may be prompted by a motive of expropriation even if the efficiency consequences are adverse (Davis, 2001).

There is a substantial literature comparing the merits of a mutual form of organization to a joint-stock form. Homogeneity of membership and low levels of competition are important determinants of advantages of a mutual form of organization in the analysis of Hart and Moore (1996). They view decision making in a mutual as reflecting the preferences of the median voter (implicitly assuming that management decisions reflect these preferences). Compared to an externally owned supplier, with the same degree of market power, a mutual with a relatively symmetric size distribution of members will set prices which generate a more efficient output level. With more skewed size distribution of membership the mutual advantage is reduced. With increased competition, inefficient pricing by joint stock organizations will be attenuated, but the mutual’s decision making, reflecting median voter preferences, will (if the membership is unchanged) be unaffected, and the mutual advantage diminished.

Financial liberalisation which removes restrictions on the range of activities provided by financial services firms may also be an important consideration. To the extent that there are economies of scope on the demand side (such that customers prefer to purchase a range of services from one institution rather than separately from a range of institutions) specialist suppliers of certain services may be at a competitive disadvantage, giving managers incentives to broaden the service range into new areas. However, Emmons and Schmid (2004) note that employer subsidies to occupational credit unions in the US may enable such specialised institutions to coexist with banks offering broader ranges of retail banking services.
Davis (2005) debates a number of measures to curtail incentives towards demutualisation. In situations where capital generation is an issue he suggests that one way to partially counteract the demutualisation bias is to provide mechanisms for credit unions to access some form of external capital, consistent with the mutual form (issuance of non-voting preference shares or subordinated debt to count as Tier 2 capital). Whether such capital innovations overcome the demutualisation bias depends on whether the cost of capital raised in such a way is attractive relative to the alternatives available from demutualisation.

Davis (2005) also considers the situation where demutualisation is proposed primarily for purposes of wealth expropriation and in such circumstances a valuable social asset may be destroyed for private gain. If it is believed inappropriate for non-members to receive windfall gains from subscribing to a stock issue, free shares (subject to strict limitations) could be allocated to members with a total implied value (based on the issue price for subscription shares) equal to the credit union’s net worth. This would mean that windfall gains to subscribers are limited to the growth opportunities of the organization as reflected in the difference between book and market value of shares. He also suggests that there is an argument that government should receive some allocation of free shares in a demutualisation if it has provided underpriced (explicit or implicit) deposit insurance or preferential tax treatment to credit unions.

Wilcox (2006b, 2007) explores the concept of demutualisation from the perspective of US credit unions. He states that one concern expressed in the credit union industry is that converting to a mutual thrift charter is often a step en route to abandoning mutuality and becoming stock-owned. Of the 20 credit union conversions between
1995 and 2003 a total of 17 have already issued some stock or have merged with another stock-issuing institution. Wilcox predicts that reduced restrictions and the increasing incentives of rising capital ratios will spur more credit unions to convert in the future. Wilcox (2007) also debates possible reforms that could protect members of mutuals in the demutualisation process, regardless of their level of financial sophistication.

**VIII Concluding Comments**

In this survey article, we have reviewed the recent academic literature on various aspects of credit unions. Regulatory and technological changes over the past 30 years has presented researchers with many new challenges and opportunities for investigating economic hypotheses concerning the structure, conduct and performance of credit union movements around the world.

Given their multiple values and objectives, traditional theories of the firm are inadequate for understanding the economic behaviour of credit unions. Consequently, in Section II and III of this review, we utilise an organizational life-cycle typology to uncover patterns in credit union development around the globe. Credit union evolutionary development is partitioned into distinct growth phases comprising nascent, transition and mature. Emphasising maturity as an implicit goal, the typology contains an implied convergence thesis for the highest stage of credit union development. Consequently, we observe the re-emergence of a number of research issues over time. These issues which were relevant for the US movement in the 1970s and 1980s have a resonance for the nascent and transition movements of today and include: member orientation; the scope of the common bond; and interest rate
ceilings. Capital regulation, technology adoption and product diversification are important issues for all credit union movements irrespective of their stage of development (albeit in different ways at different stages of development). Demutualization and mergers are only applicable to credit unions in maturity.

In Section IV we examined the objective function of credit unions. The theoretical and empirical literature explored places a strong emphasis on how equilibrium in the distribution of benefits between their borrowing and saving members is achieved, and how exogenous factors disrupt this equilibrium. This research not only presents us with insights to modelling credit union objectives within a complex governance structure, but also highlights the need for research which produces an integrated theory of the credit union within the modern day financial services industry.

Section V assessed the role of the structural attributes of credit union industries in explaining the conduct of incumbents. Key issues relating to efficiency, technology adoption, product diversification, mergers and failures are explored. We find that credit union efficiency (is relatively well researched and is) influenced by an extensive range of factors, with the observed findings dependent upon both the methodological approach utilised, and the development stage of the credit union movement under consideration. However, the effects on risk and performance of credit unions of more recent phases of deregulation (which has allowed credit unions to diversify and alter the scale and scope of their activities) and multi-faced and rapid technological change (which has transformed the range or services and delivery channels to members) are less understood with only a handful of papers presenting insights.
In Section VI, the regulatory environment within which credit unions operate is explored. Some of these research themes, namely the common bond, interest rate regulation and taxation are unlikely to offer new insights from further research. Indeed as issues they resolve naturally as credit union industries develop. Common bond and interest rate restrictions tend to be removed when credit unions are in transitional development, while taxation only becomes important when credit unions reach maturity. Even at maturity, debates related to the taxation of credit unions are often based on the vague grounds of competitive neutrality (without an appreciation of the complexities of the regulation and organizational complexities of credit unions). In contrast, deposit insurance and capital regulation offer rich research opportunities. Specifically, future research should illustrate ways in which regulation can be designed to make capital and provisioning less pro-cyclical. Research should also look into the inter-connections between deposit insurance design, capital, liquidity, performance and risk.

The final part of this research review considered demutualisation. We acknowledge that for credit unions there is a developmental path which has maturity as an implicit goal. 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 to an entirely new form of organization through, for example, demutualisation. Research to date has concentrated on Australia and the US and has tended to consider countries in isolation. Extending the work to other countries and integrating this analysis may be beneficial in identifying factors of commonality, the importance of the economic cycle in the process and whether demutualisation destroys social capital.
The volume of literature on credit unions that has been cited in this article is small relative to the vast literature and knowledge of commercial banks. However, the ongoing research can be interpreted as one key indicator of the dynamism and vibrancy of this topic as a subject area for contemporary academic inquiry. The apparent breakdown of trust between financial institutions and their customer following the financial crisis in 2007 may well lead both consumer, academics and policy makers to reconsider the important role of credit unions in the modern world.
References


Bauer, K. 2010. Can credit union performance improve through mergers? The case of state farm credit union consolidation, Mimeo.


National Credit Union Administration. 2005. Prompt Corrective Action: A proposal for reform. NCUA.


Table 1: Worldwide distribution of credit unions in 2009

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of countries</th>
<th>Number of Credit Unions</th>
<th>Membership (Millions)</th>
<th>Savings (US$ millions)</th>
<th>Loans (US$ millions)</th>
<th>Total Assets (US$ millions)</th>
<th>Reserves (US$ millions)</th>
<th>Reserves/Total Assets (%)</th>
<th>Penetration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL for Africa (22)</td>
<td>14,404</td>
<td>4,437</td>
<td>3,877</td>
<td>4,944</td>
<td>242</td>
<td>4.89</td>
<td>6.8</td>
<td></td>
<td></td>
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<tr>
<td>TOTAL for Asia (21)</td>
<td>21,233</td>
<td>91,481</td>
<td>64,354</td>
<td>110,327</td>
<td>5,514</td>
<td>5.00</td>
<td>2.6</td>
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<td></td>
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<tr>
<td>TOTAL for Caribbean (19)</td>
<td>556</td>
<td>3,552</td>
<td>3,189</td>
<td>4,466</td>
<td>404</td>
<td>9.05</td>
<td>18.9</td>
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<tr>
<td>TOTAL for Europe (12)</td>
<td>2,418</td>
<td>22,925</td>
<td>13,864</td>
<td>26,348</td>
<td>3,446</td>
<td>13.08</td>
<td>3.6</td>
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<tr>
<td>TOTAL for Latin America (16)</td>
<td>1,784</td>
<td>25,116</td>
<td>22,277</td>
<td>38,102</td>
<td>5,272</td>
<td>13.84</td>
<td>4.8</td>
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<td></td>
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<tr>
<td>TOTAL for North America (2)</td>
<td>8,653</td>
<td>961,168</td>
<td>769,507</td>
<td>1,126,518</td>
<td>101,075</td>
<td>8.97</td>
<td>44.6</td>
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<tr>
<td>TOTAL for Oceania (6)</td>
<td>282</td>
<td>37,170</td>
<td>34,685</td>
<td>42,897</td>
<td>3,781</td>
<td>8.81</td>
<td>17.9</td>
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<tr>
<td>Worldwide Credit Unions (98)</td>
<td>49,330</td>
<td>1,145,851</td>
<td>911,752</td>
<td>1,353,602</td>
<td>119,738</td>
<td>8.85</td>
<td>7.6</td>
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</tr>
</tbody>
</table>

Source: World Council of Credit Unions (Raw Statistical Data, 2009)
<table>
<thead>
<tr>
<th>Country/Region</th>
<th>No. of Credit Unions</th>
<th>Membership</th>
<th>Assets ($million)</th>
<th>Penetration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mature Credit Unions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>7,808</td>
<td>91,156,643</td>
<td>896,824</td>
<td>44.3</td>
</tr>
<tr>
<td>Canada</td>
<td>954</td>
<td>10,818,031</td>
<td>229,693</td>
<td>47.0</td>
</tr>
<tr>
<td>Australia</td>
<td>111</td>
<td>3,470,000</td>
<td>42,172</td>
<td>24.0</td>
</tr>
<tr>
<td>France</td>
<td>2</td>
<td>16,700,000</td>
<td>2,393,000</td>
<td>52.71</td>
</tr>
<tr>
<td>Korea</td>
<td>982</td>
<td>5,192,540</td>
<td>34,118</td>
<td>14.8</td>
</tr>
<tr>
<td><strong>Transitional Credit Unions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>3,966</td>
<td>3835250</td>
<td>3289</td>
<td>17.8</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>44</td>
<td>72286</td>
<td>805</td>
<td>1.4</td>
</tr>
<tr>
<td>ROC Taiwan</td>
<td>336</td>
<td>2,01486</td>
<td>729</td>
<td>1.2</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>8440</td>
<td>884136</td>
<td>53</td>
<td>6.1</td>
</tr>
<tr>
<td>Singapore</td>
<td>34</td>
<td>200,000</td>
<td>660</td>
<td>5.6</td>
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<tr>
<td>Thailand</td>
<td>2216</td>
<td>3132875</td>
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<td>Ireland</td>
<td>503</td>
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<tr>
<td>Fiji</td>
<td>29</td>
<td>15243</td>
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<tr>
<td>New Zealand</td>
<td>22</td>
<td>170496</td>
<td>445</td>
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<tr>
<td>Caribbean</td>
<td>556</td>
<td>3023380</td>
<td>4466</td>
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<td>Latin America</td>
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<td>14981999</td>
<td>38102382</td>
<td>3.6</td>
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<tr>
<td><strong>Nascent Credit Unions</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>10408</td>
<td>11759568</td>
<td>1655</td>
<td>6.3</td>
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<tr>
<td>Asia</td>
<td>10163</td>
<td>31,428,214</td>
<td>79,653</td>
<td>2.6</td>
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<tr>
<td>Suriname</td>
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<td></td>
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<tr>
<td>Guyana</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Poland</td>
<td>62</td>
<td>2026120</td>
<td>4042</td>
<td>7.4</td>
</tr>
<tr>
<td>Venezuela</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td>130</td>
<td>207710</td>
<td>162</td>
<td>0.2</td>
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<tr>
<td>Ukraine</td>
<td>729</td>
<td>2190000</td>
<td>532</td>
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<tr>
<td>Great Britain</td>
<td>453</td>
<td>788257</td>
<td>1072</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Source: World Council of Credit Unions (Raw Statistical Data, 2009)

1 The penetration rate is calculated by dividing the total number of reported credit union members by the economically active population.
2 These figures are for 2008 and are aggregated figures for Credit Agricole, Credit Mutuel and BPCE. Source: European Association of Co-operative Banks.
3 The regional total for Caribbean countries does not include data for Suriname and Guyana which are classed as nascent credit union countries.
4 The regional total for Latin American countries does not include Venezuela, which is classed as a nascent credit union country.
5 The regional total for Africa does not include Kenya, which is classed as a transitional credit union industry.
6 The regional total for Asia does not include Korea, which is classed as a mature credit union country or Hong Kong, Singapore, Sri Lanka, ROC Taiwan and Thailand which are classed as transitional credit union countries.
## Table 3 Empirical Studies of Credit Union Member Orientation

<table>
<thead>
<tr>
<th>Author</th>
<th>Country</th>
<th>Key Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flannery (1974)</td>
<td>US</td>
<td>Of the 589 US credit unions sampled, 25% (borrower oriented), 35% (neutral) and 40% (saver oriented).</td>
</tr>
<tr>
<td>Smith (1986a)</td>
<td>US</td>
<td>Of the 951 credit unions sampled, 10% (borrower orientated) 22% (saver orientated) and 68% were neutral.</td>
</tr>
<tr>
<td>Kohers and Mullis (1987a)</td>
<td>US</td>
<td>Stable occupational credit unions charge lower loan rates and pay higher deposit rates than their unstable counterparts.</td>
</tr>
<tr>
<td>Patin and McNeil (1991a)</td>
<td>US</td>
<td>Of the 1985 credit unions sampled 80% of credit unions are neutral, with the remaining 20% evenly distributed between borrower and saver orientation.</td>
</tr>
<tr>
<td>Patin and McNeil (1991b)</td>
<td>US</td>
<td>Use an index to compare benefits accrued to members across borrower-saver-orientated and neutral credit unions. Saver oriented credit unions outperform their borrower oriented or neutral counterparts.</td>
</tr>
<tr>
<td>Leggett and Stewart (1999)</td>
<td>US</td>
<td>They find that credit unions, on average, are saver-oriented regardless of membership type which indicates that there is a net wealth transfer of benefits from borrowers to savers.</td>
</tr>
<tr>
<td>McKillop and Ferguson (1998)</td>
<td>UK</td>
<td>Borrower oriented behaviour predominantly characterises their sample (with only 14 percent classifiable as neutral and no evidence of saver oriented behaviour).</td>
</tr>
</tbody>
</table>
Acknowledgements
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Author Biographies
John O.S. Wilson is Professor of Banking and Finance at the University of St Andrews, Scotland. His research interests focus on the areas of European banking, UK and US credit unions and financial exclusion. He has been involved in work which examines the profitability and growth of European banks; competition, risk and performance in European banking; growth, development, diversification, technology adoption, mergers, and performance of credit unions, and their roles in tackling financial exclusion. His books include European Banking: Efficiency, Technology and Growth; Industrial Organisation: An Analysis of Competitive Markets; The Economics of Business Strategy; and Industrial Organization: Competition Strategy and Policy. John also edited the Oxford Handbook of Banking (with Allen Berger and Phil Molyneux).

Donal McKillop is Professor of Financial Services in the School of Management at Queen’s University Belfast. His subject specialisms are Financial Theory, Derivative Instruments and Financial Institutions and Markets. His research interests are in the area of financial cooperatives and defined benefit pension schemes and he has published an extensive array of articles in both of these areas. In the last two years Donal has also completed commissioned research on financial co-operatives for the Royal Irish Academy, the Joseph Rowntree Foundation and the Scottish Executive. Also during the last two years he has undertaken commissioned research focusing on the impact of pension deficits on market and credit risk for the Accountancy Educational Trust, the Association of Chartered Certified Accountants and OFCOM (Independent Regulator and Competition Authority for the UK Communications Industries). Outside of his academic role at Queen’s Donal is currently (i) a member of the finance committee of the Community Foundation for Northern Ireland, (ii) a board member of the Economic Research Institute of Northern Ireland (iii) a member of the Financial Services Sector: Future Skills Action Group, established by the Department for Employment and Learning to explore the specific skills and training needs of the financial services sector (iv) a member of the research committee of the European Association of Cooperative Banks (Brussels) (v) advisor to the Minister of Finance (Dublin) on credit union policy.