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A DISCRETE TIME MARKOV CHAIN MODEL FOR PREDICTING THE DURATION OF A RETAIL MORTGAGE IN THE NON-DEFAULT STATES

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Chang Liu, SouthernWest University of Finance and Economics, China
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ABSTRACT

In this study, a discrete time Markov chain model is developed for modeling the duration of retail loans with prepayment, past due, and default states. Prepayment and past due states describe the payment status of a loan. The default state is defined as charge-off on the loan due to bankruptcy, death, or other causes. .A bank could use this model to predict its contingent assets status based on the probability and duration of being in the non-default states. This is vital for effective management of a Bank's assets.

BANK FAILURE MODELS: A PRELIMINARY EXAMINATION OF THE "TEXAS" RATIO

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ABSTRACT

This paper examines the use of the "Texas" ratio, a measure of potential bank failure that has become almost a cause célèbre among many trying to assess the financial health of individual financial institutions in the current volatile banking environment. Its simplicity is contrasted with more sophisticated models. It appears that such a measure offers important insights but may not be sufficient as a general, all-purpose tool. Given the rapidly increasing level of bank failures, one can presume that there will be a renewed amount of interest placed in this area, both in academia and among the general population.

INTRODUCTION AND BACKGROUND

So long as there have been banking institutions, there have been banking failures. Whether by fraud and deceit or more commonly by poor decision-making and risk management strategies, the banking industry has periodically experienced severe downturns and suffered through the failure and/or suspension of multiple institutions within very short periods of time.

Significant upheavals in the financial markets towards the end of 2007 and into 2008 and beyond have once again introduced a higher level of bank failures. This has created e situation in which many bank customers and other interested parties are becoming increasing concerned about the health of their own financial institutions. Forty-four institutions have failed from early 2008 into early 2009. With such failures appearing to come with increasing frequency, one now finds regular headlines such as "If it's Friday, there must be a bank failing somewhere across the country" (CNN Money). Thus, there has been a renewed interest in looking for ways to discover which financial institutions are on the verge of financial distress or failure.

REVIEW OF BANK FAILURE MODELS

As far back as the 1930s we begin to find examinations of the causes of bank failures given the chaotic situation and widespread failures among financial institutions during the late 1920s and early 1930s (Spahr, 1932). Similar studies all but disappeared until similar studies of financial problems of industrial firms began to appear in the late 1960s (Beaver, 1966; Altman, 1968). These studies turned the focus towards examining financial and accounting ratios as indicators of financial distress through either univariate (Beaver) or multivariate (Altman) models. Meyer and Pifer (1970) and Sinkey (1975) developed models to examine problem banks through the use of standard accounting and financial ratios used in the banking industry.

Subsequent studies tended to focus on the development and testing of computer-based early warning systems (EWSs) that could be used to prevent bank failure or reduce the costs of failure.

Studies by Kolari, Glennon, Shin & Caputo (2002) and Wheelock & Wilson (2000) extended the modeling into more quantitatively-based approaches and Curry, Elmer & Fissel (2007) incorporated efficient-market variables to examine stock market reactions to and reflections of changes in the banking environment.

Remarkably, a distinct and extremely simplistic tool appears to have caught the fancy of many as they attempt to make sense of the turmoil that exists in the latter part of the first decade of the 21st century. This tool, generally referred to as the "Texas ratio", focuses solely on the credit troubles being experienced by banks. It was first developed by Gerard Cassidy and others at RBC Capital Markets while they were analyzing Texas banks during the troublesome times of the 1980s. The ratio is calculated by dividing the value of the bank's non-performing assets (non-performing loans plus foreclosed property, or other real estate owned) by the sum of its tangible common equity capital and loan loss reserves. Cassidy noted that the ratio was a good indicator of banks likely to fail when the ratio reached 1:1, or 100% (MarketWatch, 2008). It has gained quite a bit of notoriety in both the public media and in various areas of the "blogosphere", in part due to its simplicity and in part due to its apparent success rate.

For example, near the end of 2008, one set of researchers, using FDIC call report data for the end of the third quarter of 2008, published through its website bankimplode.com its so-called "watch list" or listing of banks based on Texas ratio scores of greater than forty percent (along with a separate measure, the "effective Tier 1 leverage ratio" that will be discussed later). The FDIC itself maintains a "watch list" of troubled institutions. However, its listing is not publicly available so speculation on which institutions are on the list has led many to look towards measures such as the Texas ratio to derive their own lists.

We find that of the forty-six banks with the highest Texas ratios, nineteen had already failed within the subsequent five months. Twenty-three of the twenty-eight institutions failing since the end of the third quarter of 2008 were found on the bankimplode.com "watch list." Of the five remaining banks that were not incorporated into this "watch list", one failed without having submitted a third quarter call report to the FDIC, two had Texas ratios just short of the forty percent cut-off, one was a savings association which submits its financial report to the Office of Thrift Supervision instead of the FDIC (note it had a Texas ratio of 119%!), and the remaining bank failed despite having a Texas ratio of "only" twelve percent.

Thus, one could argue that there appears to be something behind this simple measure for quickly assessing those financial institutions in serious danger of failing. We examine the apparent usefulness of the ratio and assess the results relative to various "sophisticated" measures.

DATA AND METHODOLOGY

All data for the study were gathered from quarterly FDIC call reports that are combined for each quarter into data files available through the Federal Reserve Bank of Chicago's website www.chicagofed.org. Our analysis focused on banks with total assets between $20 million and $5 billion as the entire population of banks failing since 2001 fall into this range. In addition, we focus almost exclusively on the past twelve months as there were very few failures in the preceding years.

RESULTS

As described earlier, the published "watch list" based on Texas ratios greater than forty percent correctly identified eighty-two percent (twenty-three of twenty-eight) of the failing banks. And none of the non-identified institutions had a Texas ratio less than twelve percent. Based on this anecdotal evidence, the Texas ratio appears to provide some much important insights. However, we need to examine the results more closely.

For example, for the four quarterly periods leading up to the third quarter of 2008, the average Texas ratio increased for failed and nonfailed banks alike. For the banks that have recently failed, their average ratio was 49 percent, 86 percent, 118 percent, and 221 percent, respectively, during this time period. For the larger group of some 7,500 banks that did not fail, the scores were 9 percent, 11 percent, 13 percent, and 15 percent, respectively.

Because all credits are not necessarily created equal, a review of the types of loans made by commercial banks may indicate specific problem areas rather than simply combining them all into one general category. For example, based on current reporting requirements, banks must report results for a variety of different types of credit including real estate construction and land development, farmland, residential mortgages (first and junior liens), home equity lines of credit (HELOC), multifamily residential properties, commercial real estate, loans to depository institutions, loans to finance agricultural production, commercial and industrial (business) loans, consumer loans, loans to foreign governments and official institutions, loans to municipalities, and lease financing. Few banks have activity in all of the various sectors and most only concentrate on a subset.

As documented in Table 1, we find that there is a marked difference in the lending portfolios of banks that have failed and those that have not. For example, failed banks have a significantly higher percentage of assets invested in real estate financing. However, this does not carry over to all types of real estate financing. Failed banks have much higher concentrations in various types of construction and development loans, as well as commercial loans. On the other hand they have much lower amounts in secured lending such as for first and second mortgages as well as farmland and direct consumer lending. Thus, to better understand some of the dynamics behind the Texas ratio, it may be prudent to examine the portfolio composition of a bank's assets rather than the lending portfolio as a whole. Further insights might also be gained by examining credit problems within each asset sector, particularly if specific sectors are deemed to be more volatile or more likely to cause difficulties. Such details (e.g., past due amounts by asset sector) are available from the data sources mentioned earlier but are not examined in this paper.

Table 1
Summary of FDIC-Assisted Bank Failures: 1980 - 1993

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	Total
PA	7	5	25	35	62	87	98	133	165	319	285	231	107	12	1571
PI	0	0	0	0	0	0	0	0	0	0	6	10	46	30	92
AA	12	31	85	49	23	41	42	45	238	3	1	3	2	0	575

Table 1
Summary of FDIC-Assisted Bank Failures: 1980 - 1993

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	Total
Other	3	4	9	15	21	52	64	84	67	212	90	27	26	8	682
Total	$22	40	119	99	106	180	204	262	470	534	382	271	181	50	2920

PA = purchase-and-assumption, PI = purchase-and-assumption of insured deposits, AA = assisted acquisitions

SUMMARY AND CONCLUSIONS

The Texas ratio has become a much publicized measure associated with banking institutions that are more likely to fail once that ratio reaches a particularly high level. But is it truly a useful indicator? We have shown that it does appear to have some merit. The intuition behind the ratio itself is solid and it can be calculated with only minimum effort with readily available data.

However, that does not necessarily mean that it is a panacea for all who may be looking for such a measure. For example, there can be marked differences between types of loans and an individual institution's exposure to specific types of lending. The Texas ratio includes only totals (total amounts of loans, nonaccruals, etc.) and does not examine loan portfolios. Some types of loans have a higher likelihood of going into nonaccrual or default status so banks making more of those types of loans will have higher ratios.

Furthermore, categorizing a loan as being in nonaccrual or default status says little about the value of any collateral associated with the loan and hence the potential loss to be suffered with the loss. Again, defaults on specific types of loans may result in higher levels of loss, but only in cases in which borrowers actually default. The loans themselves can be quite profitable prior to any specific defaults and if this allows a bank to build up its reserves against potential bad credits, the problems may not be so severe.

On the other hand one can consider the opposite situation in which specific forms of lending are not particularly profitable but also not considered particularly risky. If no reserves are built up due to a previous lack of profitability, only a modicum of bad credits could cause significant problems.

In conclusion, the rapid acceptance of the Texas ratio in examining the potential failure of banks has become a very interesting phenomenon. It is based on data that is readily available for any and all types of financial institutions, involves only simple calculations, and provides very straightforward output. Although there is always potential danger when providing "simple" people with "simple" tools to assess very complex situations, the use of such simple tools provides greater opportunities for more examinations of the current financial situations of financial institutions. To create an analogy from the books of Douglas Adams, it may not be the answer to "life, the universe, and everything," (the answer to which by the way is "42"), but it brings us closer to understanding the types of questions that need to be raised by those who are truly concerned with the financial health of various financial institutions. Given the rapidly increasing level of bank failures, one can presume that there will be a renewed amount of interest placed in this area, both in academia and among the general population.

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A SURVEY OF WORKERS IN THE FUNERAL INDUSTRY: A PRELIMINARY INVESTIGATION

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ABSTRACT

The funeral industry is hidden from most Americans. In the research literature, it is also ignored. This was a preliminary investigation into the workers in the funeral industry be various demographic measures. We also searched for different viewpoints on political and ethical issues. The report also highlights areas for future research on this unique industry population.

Everyone has memories of Ward Cleaver, the father in the TV classic Leave it to Beaver. Always wearing wing-tips and slacks, Ward was a middle aged man, who worked full time, middle class, happily married, with two adoring children. Sometimes art imitates life, at least some of the time. Based on a recent survey, Ward Cleaver looks a lot like the typical Oklahoma funeral director.

This survey was conducted at the 2008 Oklahoma Funeral Directors Association (OFDA) Convention at Tulsa with the assistance of Jay Baines, Executive Director, and the OFDA Officers. What do we know about the membership of OFDA? How can this information help us plan for the future?

This survey was more of a pilot study, with a small pool of responses, but the results can be used to generalize to OFDA's population, with some caveats. First, this survey was not a complete picture, since not all of OFDA's membership was involved. Second, the survey was not random, since it was conducted in Tulsa; those members from the Tulsa region of the state are over-represented in the responses. Third, the survey was voluntary, so not all those attending did participate. Finally, there was no follow up to confirm the answers that were given were correct. These are problems to be sure, but they are problems for all surveys.

We received 35 completed responses. Ten surveys were omitted because of incomplete responses. All but one of the respondents were licensed funeral directors. Of our respondents, the majority (52%) were employees, a third were owners (32%) and the remainder were retired.

The first concern was the age of the OFDA membership. I noticed a lot of gray hair in the audience (ignoring my own, of course). Will OFDA be able to maintain itself as the baby boom generation begins to retire? From this survey, 60% were 45-65 years old. On average, each funeral director had 18 years of experience being a funeral director. Milan Yager, executive VP of the National Association of Professional Employer Organizations explained, "For a small business, losing even one seasoned knowledge worker affects them competitively" (Leonard, 2008).

Is OFDA prepared for the retirement of the baby boom generation? Are there enough new graduates to take the places of the many OFDA members who will be retirement age soon? This is a very real concern, not just for OFDA, but for all organizations. Recently, John Turner (2008) found that 12,000 baby boomers reach age 50 in America EVERY SINGLE DAY.

In line with our Ward Cleaver theme, 80% were male, 69% were married, and 72% have two or more kids. Ward Cleaver would describe 70% of the OFDA membership, as least based on the results so far.

Interestingly, the dominance of males in this sample contrasts with the reports of a recent Business Week article, which showed women in the funeral industry have grown 71% in the last 12 years (Farrell, 2008). This trend is likely to continue, as women are the majority (60%) of students at mortuary colleges (Farrell, 2008).

In other matters, when I examined the results, two groups emerged. The responses were either from Oklahoma's two metro areas (Tulsa and OKC) or they were from very small towns (less than 10,000 in population). The medium sized towns (10,000 to 200,000 population) were under represented in the sample. Is this a problem of OFDA not attracting those members to the convention? Is this a problem of the location of the convention? Was this just a fluke from the small sample? Obviously, more work needs to be done to answer this question with confidence.

In our sample, the respondents were busy, handling an average of 189 services a year. The survey did not breakdown the responsibilities of each person; it just asked the number of cases the firm handled. As a result, more than one respondent could be from the same funeral home and therefore referring to the same number of services.

When political affiliations were considered, the majority were conservative or moderate (66%), which is in line with Oklahoma's conservative political climate. Only 9% identified with liberal. Interestingly, over a quarter (26%) of the respondents were not involved in politics. This number was a surprise to me, and perhaps more detail is required. It would be hard to be a community person like a funeral director and be heavily involved in partisan politics. I have never seen a funeral home with a large political sign in the front yard. It just seems out of place in this industry. What does it mean to be "not involved"? Do these 26% vote, donate to campaigns, participate in political functions/fundraisers, etc? Obviously, more detail is needed.

In the "good news" category, Oklahoma funeral directors have very high job satisfaction, with 49% saying they are "very satisfied" and another 32% saying they were "satisfied". This makes 81% of the Oklahoma funeral directors happy in their job. In contrast, only 6% say they are very dissatisfied with their job. These are phenomenal numbers.

What can explain these numbers? Happiness comes from our four drives: to acquire; to bond; to comprehend; and to defend (Lawrence and Nohria, 2002). Those four drives motivate every action we take. It is not surprising that these four drives are very strong in the funeral industry, leading to strong job satisfaction.

The funeral director serves families at their most difficult time, and as a result, sees great emotional rewards in their work. Additionally, funeral home workers bond like a family, which only increases job satisfaction. Finally, from our survey, funeral directors are highly education, with 73% having a bachelor's degree or more. Historically this has been positively related with happiness and prosperity.

More than warm fuzzy feelings of satisfaction, it is in the employer's interest to keep the employees happy. Turnover costs firms a fortune in recruiting, training, lost productivity, and severance costs (Doran, 2008). Satisfying work is the top ranked reason people stay in their job (Nancherla, 2008). Research has found there is little real difference between the generations of workers (Nancherla, 2008).

On public image, there is more good news. Oklahoma funeral directors are quite satisfied with their public image, with 71.5% being very satisfied or satisfied. At the other end of the spectrum, only 12% are dissatisfied with their public image.

So far, we have found that Oklahoma funeral directors are very satisfied with job and their public image. There must be something to the adage; the first three letters in funeral are f-u-n! Let's not discount the fact that 69% are married, 66% are non-smokers, and 63% are not stockholders (in this bear market), all of which contribute to happiness.

There is some bad news, and of course that relates to the media. When we asked how people feel about the media image of funeral homes, the news was not promising. Only 20% say they are satisfied with the media image. A majority (52%) are dissatisfied with media image of their profession.

In this question, 22% had no opinion, which was surprising. Perhaps the question should have distinguished media image of your funeral home versus funeral homes in general. That is a point for future surveys.

Of course, the problematic media image of the funeral industry is not a new revelation. When I was younger (and thinner) I wrote an article for NFDA's Director Magazine about this problem (Ludlum, 1989). This media image problem should not catch anyone in this industry by surprise.

As a group, Oklahoma funeral directors are very happy with their jobs, and with their public image. The media image notwithstanding, the results are good news for the long term of this industry as it strives to serve those in need.

We asked whether the media incidents involving Enron and similar companies were typical of big business. Half of the OFDA membership (50%) agreed or strongly agreed, while only 6% disagreed or strongly disagreed. As a group, the funeral directors were cynical about big business. This might also relate to low number of investors in our sample.

We also asked a couple of questions on general ethical views. First, we asked if there were uniform definitions of right and wrong. The overwhelming majority (71.42%) agreed or strongly agreed, while only 8.57% disagreed. Being a professional group, all regulated by the same body, this might be expected.

We wanted to see if their views had translated into action. The majority of funeral homes (60%) did have an ethics code for their business. This is good for a guide for their interactions with the public. However, less than half had an employee handbook, which would guide behaviors between the business and its employees. Obviously, more work needs to be done to encourage a dialogue between funeral home owners and their employees.

In conclusion, much more investigation needs to be done in this specific industry on several fronts. First, the industry needs to prepare for the end of the baby boom generation, which it appears will strike this industry quite hard. Second, the sample needs to expand to include more women and younger members. Finally, the industry as a whole needs to further its work in a dialogue with employees.

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The authors have been happily married for over twenty-two years. The authors wish to thank OFDA Executive Director Jay Baines and the OFDA officers for their assistance in this project. Any errors or omissions are due solely to the authors.

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MULTI-RATING DYNAMICS IN THE WORLD MARKET: EVIDENCE FROM FITCH, MOODY'S AND STANDARD AND POOR'S RATINGS

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ABSTRACT

Credit rating agencies are one of the major source of information for the market and the service they offer represent a qualified opinion on the quality of issuers and issues. With the lack of affordability of rating agencies demonstrated in some recent financial failures, all the solutions studied in order to increase the independence and objectivity of the judgments are again posed to the attention of the audience. The multi-rating solution is one of the solution more frequently proposed in literature because the higher is the number of rating agencies involved in the evaluation the lower is the probability of collusion between raters and rated entities.

The study proposed considers multi-rating dynamics considering all rating issued by the three major world rating agencies (Fitch ratings, Moody's Investor Services and Standard and Poors') in the period 1999-2008. Results achieved demonstrate that multi-rating choice is affected not only by the characteristics of the firm but also by the previous and expected rating dynamics. The entity and duration of a split rating (if occurs) is also affected by the characteristics of the rated entity and by the level of initial risk exposure.

Keywords: rating agencies, multi-rating and split rating
JEL codes: G14, G29

COMPARISON OF INTERACIVE TELEVISION COURSES WITH ALTERNATIVE DELIVERY METHODS

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ABSTRACT

The observations regarding the Interactive Television (ITV) course are compared to the author's experiences with the identical graduate finance course offered in a completely online format and in a traditional face to face classroom format. Modern ITV is a form of delivery of the same course in multiple locations with the instructor and students able to see and hear each other in real time. The sending location typically involves the instructor providing either a traditional lecture or a lecture accompanied by computer generated materials or by the use of a document camera which can serve as a "white board" to write upon or to illustrate, for example, the use of a calculator. Students in the same room are able to view the identical illustrations being provided to the students in the "away" classroom. Each student has a microphone, which they can press to ask a question that is heard by everyone in both classrooms. The author presented his "Seminar in Financial Management" MBA level course in both the online and the ITV format during the current semester and has previously presented it in the typical classroom environment. The paper concerns some of the pros and cons associated with each form of delivery and the assessment of student outcomes in each format.

Advantages of the ITV format:

- Student convenience in the sense of being able to attend class in either location.
- The class is "live" which is beneficial to auditory learners who may not find the typical online course appropriate for their style of learning.
- The ability of the instructor to broadcast from either location thereby providing more of a sense of "class community" for the students.
- The need to be extremely organized in the preparation and presentation of material that is largely done in an electronic format. For example, the delivery method is not particularly friendly to those who want to "wing it" since handwritten material is possible but awkward to use.
- Exams are taken in the "real" rather than "electronic" world, which seems less intimidating to students.
- Good teaching faculty members are able to reach a greater audience that might be possible in the traditional classroom environment particularly since our MBA program is largely an evening based program.

Disadvantages of the ITV format:

- The need to be extremely organized in the preparation and presentation of material that is largely done in an electronic format. It is difficult to simply show up and "wing it" since much of the material has to be prepared in advance and had to be optimized for electronic presentation.
- The technology is such that the instructor is limited in their ability to move around the room freely since they will quickly move out of camera range. We have set up four locations (marked on the floor) where the instructor can focus the camera with a handheld remote control but it is more awkward than the typical classroom.
- Some students simply feel better when the live professor is present and have a tendency to move back and forth between rooms as the instructor moves. This would be a lesser problem in an environment where the locations are further apart than the 20 miles in the case of my University.
- Technically, it is possible to dramatically increase the size of the classes with resultant demands on faculty for grading support, etc.
- The technology is relatively expensive and constantly being improved so it is unrealistic to expect ITV to be a single time investment.

My initial experiences with ITV is that students interact much better than is the case with the online classes where e-mail and discussion groups is the means of creating a sense of community. It remains to be seen whether that is borne out in the grades achieved since I am providing identical examinations and homework problems to both groups as a means of examining outcomes that may be related to the delivery mechanism.

DOUBLE JEOPARDY IN KUWAIT BANKS: A FOCUS ON MUTUAL FUNDS

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ABSTRACT

The authors investigate the "double jeopardy" (DJ) concept in the domain of financial services, focusing on the mutual funds sector of the market. Based on more than three hundred responding investors of mutual fund services, the authors provide evidence that a DJ effect does exist for banks offering mutual funds in Kuwait.

INTRODUCTION

The fact that competitive markets oftentimes exhibit similar market share characteristics, which were found to be correlated with the number of brand loyal buyers, was first noticed by McPhee (1963). This observance that brands with large market shares usually had the most brand loyal buyers (and vice versa) was termed "*double jeopardy*" (DJ) because it seemed unfair for smaller brands to suffer in both ways.

This study applies the aspects of DJ to banks offering mutual fund services in Kuwait. The setting is relevant because few have investigated the DJ phenomenon in Asia (Yang et al, 2005). Plus, only one investigation to this point has studied double jeopardy in the Kuwait market (Pleshko and Al-Wugayan, 2008). Nor have there been many studies in the retail services industries. Most research has focused on brand-level relationships rather than service-level or store-level relationships, as would be necessary in retailing or banking (Meyer-Waarden and Benavent, 2006, Rafiq and Fulford, 2005).

THE DOUBLE JEOPARDY PHENOMENON

A firm's long-term success depends on both its ability to attract customers and its capability to retain these customers (McDowell and Dick, 2001). Indeed, Robinson (1979) and Raj (1985) state that the larger the number of loyal customers, the more secure will be the brand's market share. Therefore, as a priority, all companies must both find ways to attract new customers to an existing user base and to retain these buyers over the long term. So, it must be that firms constantly battle with competitors to maintain or increase both the number of buyers and the loyalty of these customers.

Double jeopardy is broadly characterized as a phenomenon whereby small-share brands attract somewhat fewer loyal consumers, who tend to buy the brand in smaller quantities, while larger-share brands are purchased more often by customers who exhibit more loyalty (Ehrenberg and Goodhardt, 2002; Badinger and Robinson, 1997, Donthu, 1994; Martin, 1973; Michael and Smith, 1999). Thus, less popular brands are punished twice: (i) they have fewer buyers who show

(ii) less loyalty to the brands they buy. McPhee (1963) explained that DJ occurs when consumers select between two brands of relatively equal merit, one having a larger market share and the other having a smaller market share. This does not necessarily signify a weak small brand or a strong large brand. Rather, it reveals that the smaller share brand is less popular than the larger share brand for some reason (Pleshko and Souiden, 2007, Ehrenberg and Goodhardt, 2002, Ehrenberg et al, 1990). Although long established, the DJ phenomenon has a variety of issues as yet unsettled (Ehrenberg and Goodhardt, 2002). For instance, though previous research has found an obvious relationship between brand share and loyalty in many instances, whether loyalty is a cause or a result of high share remains unclear (McDowell and Dick, 2001).

DATA COLLECTION AND SAMPLE

The data for the current study are gathered from a group of consumers who are mutual fund investors at banks in the state of Kuwait. It was important to select a type of service that would add to the study of double jeopardy, as we would expect to find differences based on product-classes (Chaudhuri and Holbrook, 2002).

The sample, comprised of bank customers in the State of Kuwait, is derived from a sampling frame provided by the Ministry of Planning. The data are from self-administered questionnaires collected from visits to households of both local citizens and foreign residents. This process results in a total of seven hundred and seventy respondents, of which three hundred and thirty are mutual fund investors and thus included in the study. Note that the sampling methods employed a multi-stage approach in order to ensure the sample proportions closely matched the actual proportions of bank users in Kuwait. The sample also reflects the distribution of residence over the six districts of Kuwait. Non-Response was lower than ten percent, a seemingly acceptable number given the sensitive nature of the information gathered. To gather the data, the respondents were asked to note the bank and investment amounts for each mutual fund investment. The quality of data was ensured by the field data collectors who disqualified respondents unwilling to share information about their banking activities.

Currently there are thirty-six companies offering mutual fund services, with most of the activity handled through the ten major banks of Kuwait. Thus, the ten banks are each included in the study as individual entities, while the remaining twenty-six providers are grouped together into an 'other' category due to the small market shares. When one considers that investors have mutual fund investments with multiple banks, the three hundred thirty respondents in the study count as five hundred and thirty investors across the thirty six banks. Additionally, these investors have a total of seven hundred and thirty-two mutual fund investments in Kuwait. These mutual fund investments total approximately Kd16,538,179. Eighty-four percent are associated with the ten major banks and the remaining sixteen percent invested in the other twenty-six banks.

MEASUREMENT

The study includes two constructs: one pertaining to market share and one pertaining to consumer loyalty. The overall numbers for the two indicators are derived by summing across the respondents to arrive at aggregate sample totals for each bank. These overall measures are

percentages for the market shares and a frequency for loyalty. The indicators are described below and are derived from research in other industries where similar measures are shown to be reliable and valid for aggregate measures within services retailers (Pleshko, 2006).

The market-share indicator (MSVA) refers to the share of money invested that each bank holds. Recall from the previous paragraphs that the total value of the respondents' investments in mutual funds is Kd16,538,179. Thus, MSVA is calculated as follows: $MSVA_i = Z_i/16,538,179$, where 'Z' refers to the investment amount held by each bank. So, regarding Bank33 for example: $MSVA_{33} = 3,083,503/16,538,179 = 18.64\%$. The range of MSVA is from a low of 0.61% for 'other' banks to a high of 23.61% for Bank 17.

The loyalty indicator (LOYF) refers to the number of mutual fund investors at each bank. Specifically, LOYF is defined as the number of investors at each bank, where the investors are assigned to a specific bank only when they have the largest investment from their total mutual fund monies at that bank. You may recall from previous paragraphs that the total number of classified respondents is three hundred and twenty-seven. So, regarding Bank33 for example: $LOYF_{33} = 45$. The range of LOYF is from a low of three for 'other' banks to a high of forty-six for Bank17.

The aggregate data used in the analyses is the following for each bank with market share preceding loyalty inside the parentheses: Bank33 (.1864,45), Bank17 (.2361,46), Bank27 (.0768,40), Bank20 (.1014,20), Bank03 (.0423,20), Bank12 (.0419,16), Bank32 (.0383,16), Bank28 (.0271,15), Bank15 (.0305,14), Bank34 (.0602,14), and BankOthers(.0061,3). Note that the BankOthers data is the average of those banks.

ANALYSIS/RESULTS

The Spearman (1904) rank correlation coefficient is used to analyze the association between market share and the variables under investigation. Spearman's test statistic, *rho* or "*r*", is calculated with data taken from 'n' pairs (*Xi, Yi*) of observations from the respondents on the same objects, the retail brand outlets. In this study, market share makes up one of the observational items in the pair, while loyalty is the other item. The observations within each pair of variables is then ordered from smallest to largest and assigned the respective ranks from one to n, where n refers to the number of banks: eleven in this case. Tied ranks are averaged.

The test statistic, *rho*, is calculated as follows: $rho=1–6[Sum(d^2)/n(n^2-1)]$. In the equation, '*n*' equals the number of paired rankings (in this case, eleven) and '*d*' equals the absolute differences between the rankings for each bank. The test statistic ranges between +1 (perfect positive association) and -1 (perfect negative association). In this study, two-tailed tests are performed, giving the general hypotheses for the paired variables: *Ho***:** independently ranked pairs (*no* relationship between the rankings of loyalty and share) or *Ha***:** related ranked pairs (relationship between the rankings of loyalty and share. The test of LOYF-MSVA (rho=+.8523, p<.01) shows a significant positive relationship. Thus, support is provided for the existence of double jeopardy in Kuwait banks offering mutual fund investment services.

DISCUSSION/LIMITATIONS

The findings of this study reveal that the concept of double jeopardy (DJ) does apply to banks which are mutual fund providers in the state of Kuwait for the given sample. The rank orders of market share and loyalty are significantly and positively related, revealing a strong DJ effect in the measures used for the test. Thus, we can conclude that banks with larger shares in mutual fund services also have larger percentages of loyal buyers and vice versa.

This finding adds additional support to the relevance of Double Jeopardy in retailing and/or service providers, which are distinct from the brand names which they market. Previous research in retail services using similar methods has shown DJ to be strongly evident in other banking services (consumer loans) and fast-food outlets (Pleshko and Al-Wugayan, 2008; Pleshko et al, 2006). Thus, it appears that double jeopardy is an important strategic issue for managers not only dealing with FMCG products, but also for service and retail providers.

The readers must wonder if the current findings are indicative of general tendencies or simply a characteristic of this limited study in the Kuwait market. More and varied studies taken over time using multiple measures are probably needed to truly identify the scope of the double jeopardy phenomenon in banking. Additionally, this study only addressed mutual fund investments: no evidence is provided that these findings apply to other banking services, such as business loans or money transfers. Future research might also include both different target respondents (commercial banking) as well as different product-markets, both in the banking sector and elsewhere.

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