

# **Regulation, Competition and Independence in a Certification Society: Financial Reports vs. Baseball Cards**

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# **Regulation, Competition and Independence in a Certification Society: Financial Reports vs. Baseball Cards**

## **Abstract**

Mandatory certification of the financial reports of publicly-held corporations by independent auditors has been a key element in U.S. regulatory framework to improve financial reporting. The economic consequences of mandatory certification remain controversial. Although each market is unique, comparative analyses of certification services across markets can yield useful insights into the value and consequences of mandatory audit of financial reports. Using a framework for analysis of certification services, we report: (1) descriptive data about certification activity for a range of private sector goods; (2) qualifications and interests of experts who provide online certification or opinion for a fee; and (3) analysis of an online market for certification of baseball card.

We find that (1) markets for certification services are ubiquitous in the economy, many with potential for conflicts of interest; (2) the grading scales vary from pass/fail to 100 points with greater use of the former by government agencies; (3) the unregulated market for baseball card certification is dominated by firms who also sell other services; (4) buyers of certification services are willing to pay more for stricter grading; and (5) the net returns to the purchase of stricter certification services are higher, i.e., there is little evidence of a race-to-the-bottom. These observations from unregulated markets for certification services raise interesting questions about several maintained assumptions about the federal regulation of certification of corporate financial reports (e.g., the importance of independence).

# Regulation, Competition and Independence in a Certification Society:

## Financial Reports vs. Baseball Cards

### 1.0 Introduction

Two key features of the market for audit of financial reports are its regulation by government and the widespread assumption that independence is necessary for obtaining audit quality.<sup>1</sup> The increased involvement of government in regulating auditing runs against the trend for government to withdraw its involvement in standard setting activity across most sectors of the economy (Jamal and Sunder {2007}). Lizzeri's ([1999]) model suggests that one consequence of regulation (and monopolization) of audit markets is the reduction in precision of audit reports. Furthermore, an increase in mandated demand for independence goes against the view that the current structure of the audit profession is not conducive to developing an independent auditor (Moore et al., [2006]). Accounting literature exhibits some scepticism about the efficacy of government regulation with its emphasis on independence, but does not adduce much evidence on it. We seek to understand how regulation and demand for independence in auditing, compare with the functioning of private markets for certification services elsewhere in the economy.

Since certification services are widely available in many sectors of the economy (Power [1994]), the present study seeks a better understanding of the consequences of mandatory audit of financial reports through a comparison of certification services across markets. Private markets for certification services offer a range of reporting options, from pass/fail to discrete or continuous measures on 5, 10, or even 100-point scales. Cross-market comparisons may help us understand such variations. Private certification markets also provide an opportunity to observe

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<sup>1</sup> For example, see Sarbanes Oxley Act Title II (2002) Section and GAO's Government Auditing Standards (2007), Section 3.03.

markets with pure certifiers (who do not sell any other service) competing with certifiers who cross-sell services. Would auditors (or financial markets) be better off if audit firms offered only audit services? Finally, private certification markets provide an opportunity to more precisely define certification quality. One key concept that is hard to assess in audit markets is audit quality, and whether increased regulation of auditing would increase or decrease audit quality.

In response to a wave of corporate accounting frauds such as Enron and WorldCom, U.S. Congress enacted the Sarbanes-Oxley Act (SOX) in 2002, banned auditors from performing certain consulting services for their audit clients, and mandated corporate governance reforms to promote auditor independence. SOX also transferred the responsibility for setting U.S. auditing standards to a government agency (Public Company Auditing Oversight Board or PCAOB). Actual audit certification of corporate financial reports continues to be conducted by private CPA firms under the PCAOB's regulation and oversight. Whether these SOX reforms will actually improve auditing remains controversial (Kinney et al. [2004])<sup>2</sup>.

The paper is organized in two parts. Part One presents a preliminary framework for analysis of certification services and reports on our search for certification services for a wide range of goods sold online and offline in the economy. We also report on the fineness of reporting scales used by private certification agencies and federal government agencies who conduct audits to ascertain compliance with regulations. Part Two reports on a field experiment

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<sup>2</sup> There is some empirical evidence that the claim that consulting services impair auditor independence is incorrect. Studies have been conducted using accounting accruals, accounting re-statements, SEC enforcement actions, and litigation against auditors as dependent variables. Consulting either has no effect (Ashbaugh et al. [2003]; DeFond et al. [2002]), a positive effect (Dopuch et al. [2003]; Kinney et al. [2004]) or a small negative effect (Frankel et al. [2002]) on the quality of accounting numbers. The Frankel result is driven by a few small companies in their sample (Larcker and Richardson [2004]).

of certified baseball cards traded on EBay. Twenty-three certification websites compete in this market. Some are independent certifiers who do not provide any other services, whereas others are cross-sellers and offer a host of related services, including some that create potential conflicts of interest.

Our results indicate: (1) there is widespread demand for certification in the economy, often provided by experts who have actual or potential conflict of interest. (2) Private certification agencies provide reports using a variety of scales and compete in part by providing more fineness in their reports. Government agencies provide standard (boilerplate) reports. (3) Markets value certification providers who cross-sell services. In the baseball card certification market, poor certification quality (grade inflation) comes from independent certification agencies. (4) In the baseball card certification market, strict graders are rewarded and lenient graders are punished by market participants. There is no race to the bottom. We discuss the implications of our findings for recent auditing reforms and offer some concluding remarks.

## **Part 1: Standards and Certification**

### **2.0 A Framework for Analysis of Certification Services**

In this study, we use “to certify” in its broad meaning of “to give assurance of quality or validity”, and as a synonym for terms such as corroborate, verify, validate, measure, and guarantee. Let us consider the sources of demand for, and supply of, certification services in absence of regulation.

Buyers prefer to have an assurance that they receive what they pay for. When time lapses between the commitment and delivery, certification can make it easier for the buyer to formulate future plans; value of certification increasing with the length of time and the commitment of resources buyer must make in anticipation of the transaction being fulfilled. The willingness of

buyers to pay for certification depends on their own personal ability to discriminate. Snow shovels, with their quality obvious to most buyers, rarely carry certification; quality of toasters, cars and diamonds being less obvious, they often carry certification. Certification is a credence service whose value to the buyer depends on the reputation of the certifier, whether based on actual knowledge, verifiable credentials, or simply word-of-mouth. Finally, buyers would want certification from a party who has the motivation to provide accurate certification. If the buyer has reasons to doubt the incentives of the provider, especially conflict of interest, his willingness to pay for the service would diminish.

On the supply side of certification services, experts can be more accurate. Transactions experience in the relevant market enhances expertise, but also introduces mixed-motives (between revenues from certification and from direct transactions) to the supplier. Greater expertise should reduce the cost of discriminating among goods.

Existence of written, common knowledge standards makes it easier for the buyer and the seller of certification to communicate the meaning and content of the certificate. The fineness of the classification scheme associated with the certificate would be determined by the trade-off between the errors of the certifier and the decision sensitivity of the buyer.

What characteristics will the customer of a certification service be interested in?

**Knowledge:** the customer would prefer to have certification by someone who is knowledgeable about the good or service. In this respect, the certifier may carry a certification of his/her own in the form of credentials—a license, degree, experience, or reputation—that gives him/her claim to possess knowledge of the subject.

**Reputation.** Since the customer often pay for certification services in the hope of getting better terms of trade in any subsequent transactions, both actual knowledge as well as the reputation of the certifier are of value in this market.

**Motivation:** the customer would prefer to obtain certification from someone who has the motive to provide good quality service, or at least, does not have conflicts of interest that may keep him/her from providing good quality service. Payment for the service provides a positive motivation for the certifier; independence is a way of ascertaining that the certifier does not have motives that may adversely affect the interests of the customer.

**Standards:** The value and feasibility of using written standards varies by the context of certification. Written standards are important, for example, in grading of beef, steel welds, and most engineering products. However, when it comes to art, design, historical documents, and service in a restaurant, the value and feasibility of written standards in providing better certification is unclear. Another way of framing this is that certification (for all goods) can be provided with or without the existence of formal written standards, and the two kinds of services can compete with each other. Although recent decades have seen the growth of written standards in certification of financial reports, their value in raising the quality of audit services remains controversial.

**Report:** The report of certification services may vary from a single word (certified, or just a logo or seal of the certifying agency), a pass/fail report, to a grading scale (from 5-100 points) with sub-scales and qualitative comments. Lizzeri ([1999]) proposes that a monopolist certifier provides coarse pass/fail reports and earns rents on her finer private knowledge of the underlying quality of various goods and services. Competition in the certification market leads to provision of more informative audit reports. Consumers of certification services benefit from more

competition in certification markets primarily by getting more informative certification reports and possibly lower prices<sup>3</sup>.

**Price.** The amount and the form of pricing of the certification services vary. Variations of form include pay-for-service vs. subscription over a period of time or for a larger of bundle of services of which certification is a component.

The debate in the audit literature has focused largely on the single dimension of perception of independence, with little attention given to the possibility of markets trading off independence, competence, prices and other features. For public policy on audit reforms (e.g., audit firm rotation) understanding of such trade offs is important.

In Section 3.0 we examine a variety of private goods to document the range of certification services available in the economy. A broad definition of certification allows us to examine four kinds of services in the economy with which some aspects of audit services may be compared: (1) expert opinions based on written standards, as in grades of beef, (2) expert opinions in absence of written standards, as in the art world or providing an opinion on a bottle of wine, (3) ratings given by lay people, as in ratings for a restaurant and (4) meters such as Nielsen's, movies, books and music. In Section 4 we examine certification reports, and in Section 5 we examine the effect of independence by conducting a field experiment of a Baseball card certification market.

### **3.0 Extent of Certification Services in the Broader Economy**

One can find standards virtually everywhere in the U.S., as well as the world economy. As of 1996, the U.S. government had documented the existence of 93,000 national (U.S.) standards developed by 80 government and 604 private standard-setting organizations (Jamal

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<sup>3</sup> It is possible that certification quality could also improve though we are unaware of a formal model of the effort exerted by the certifier.



and Sunder [2007]). In addition to national standards, international standards exist in all areas of the economy<sup>4</sup> (see Jamal and Sunder [2007] for a discussion of standard-setting activity in the economy). One trend that is especially pronounced in the U.S. is for the Federal Government to withdraw from standard setting activity. Standards are increasingly set by private sector standard setting bodies. While there are anecdotal newspaper accounts that the U.S. Federal Government has also “outsourced” certification activity (e.g., to monitor compliance with food, health and safety standards) there is no systemic evidence on this. The setting up of the PCAOB to regulate auditing (and set auditing standards) goes against a clear trend for the Government to withdraw from standard setting activity in the economy. Accounting and auditing standards are a special case of standards used in the economy (Sunder [1988]; [1997]; Chapter 11). In this section, we describe the extent to which these standards are accompanied by the availability of services that certify standards compliance (Power [1994, 1999]).

Power ([1994]) suggests that there has been an “audit explosion” in society with a tremendous increase in audit activity in many spheres of society (his examples tend to be from the public sector, such as education, health care and other government supported activities which involve provision of public goods ). In a subsequent book, Power ([1999]) argues that demand for audit is fuelled by political demands for accountability and control, which the audit function is not able to satisfy. We seek to extend the generality of Power’s concept by focusing on the private sector rather than the government sector. In this paper we examine the extent of demand for audit and certification services in the larger economy, especially in unregulated activities.

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<sup>4</sup> For a bird’s eye view of the standards domain, see the websites of International Organization for Standardization or ISO (<http://www.iso.org/iso/en/ISOOnline.frontpage>), and American National Standards Institute or ANSI (<http://www.ansi.org/default.aspx>). As of March 1, 2005, ISO had 15,036 standards in place.

During the 1990's, many within the audit profession believed that they could expand their services to untapped markets outside of financial reporting (Elliott [1998]). The audit profession sought to redefine itself as a provider of a variety of "assurance" services. A key feature of this strategy to serve new customers was a shift in the definition of the audit client. Instead of the management or the audit committee being the client, the customer of these new services was to be a retail client attempting to make a purchasing decision. In the case of e-commerce, for example, a consumer trying to decide whether to enter into a transaction with an online merchant was the target of the proposed assurance services. The shareholder of the firm would be the equivalent target client in financial reporting.

Auditors' initial attempts to expand into e-commerce related services (e.g., WebTrust and SysTrust) were unsuccessful in part because two non-accounting competitors, TRUSTe and BBB Online, offered superior reporting standards and automated certification services at much lower prices (see Jamal, Maier and Sunder [2003]). Perhaps the inability of the audit profession to think of the retail consumer (or minority shareholders) as their client made it difficult for them to compete successfully in the market for e-commerce assurance services. The presence of TRUSTe and BBB Online in the field meant that accountants were simply wrong in identifying e-commerce as a virgin territory.

### 3.1 Standards and Certification

In order to assess the availability of certification services in the economy, we selected a sample of 817 items sold online and offline during June 12 – July 25, 2004. Goods sold online were selected from eBay.com (400 items), and goods sold offline were selected from the Producer Price Index (PPI – 358 items) and Consumer Price Index (CPI – 59 items) published by the U.S. Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov)). The "all categories" page on eBay lists all

the items available for sale in 31 main categories, and a hierarchical structure with layers of sub-categories that list thousands of items at the bottom. We selected all items at the first sub-category level (e.g., sports cards) resulting in a sample of 400 items, except catch all sub-categories such as “other.” The PPI has a similar hierarchical structure with 15 main categories. We selected a sample of all items at the second sub-category level resulting in a sample of 358 items. The CPI also has a less steep hierarchical structure but it is flatter, and in some cases there are no sub-categories (e.g., college textbooks). We chose all unique items in the CPI which were not in the PPI samples.

A variety of certification services are available for goods and services. The most formal and traditional service is the offer of an expert opinion about compliance with formal (written) standards. It is also possible to obtain an expert opinion in the absence of a formal set of standards. On the Internet it is now also possible to access ratings given by lay people (with no formal standards), and a variety of popularity meters which simply record the level of activity (e.g., bestseller book, music, and film lists).

The results of our search for certification services are shown in Table 1. Panel A of Table 1 indicates that for the 817 goods in our sample, we were able to find an expert who would provide a certification with compliance to a formal set of standards for 743 goods (91%). For another 59 goods (7%) we were able to find an expert who would provide an opinion, but without use of a formal set of standards (e.g., to rate sculpture, antiques, paintings, and gardening services). For the remaining items, we were able to find a lay person rating for 8 items (1%), a meter for 3 items (0.5%), and we were unable to find any kind of certification service for only 4 items (0.5%, e.g., parking services, tattoo’s and other body art). Overall, for 99.5% of the goods in our sample, it is possible to find some kind of certification service.

Panel B of Table 1 specifies the available combinations of certification services. For 322 items (40% of our sample) the full range of certification services (standards with expert opinion, expert opinion only with no formal standards, lay opinion, and meter) were available. For 114 items (14% of the sample) only an expert opinion, from an expert using a formal set of standards was available. For all remaining items, more than one kind of certification was available. These results support Power's (1994) characterization of our society as being an "audit society." They also suggest that AICPA was (and continues to be) mistaken in its attempt to offer "assurance" services to fill the purportedly unoccupied territory outside financial statement audit. Power ([1994]) focuses on the rise of auditing in the public sector in the U.K. The ubiquity of auditing in the economy suggests that it is hardly a public sector phenomenon, nor is it confined to the U.K. While demand for certification in the public sector may be fueled in part by political ideology, demand for certification in diverse areas of the economy appears to be driven by broader economic forces.

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Insert Table 1 about Here

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### 3.2 Qualification and Motivation of Experts Who Do Not Follow Written Standards

To gain a better understanding of the market for expert opinion, unencumbered by formal written standards (and possibly also the need for independence), we approached a website which we call XYZ for information about its experts who provide opinions on the internet. XYZ is an official partner of eBay and has 128 experts who offer opinions on 1,850 separate items for a fee of \$9.95 (basic service) or \$29.95 (enhanced service) per assessment. These experts do not follow any written standards, nor are their opinions based on reference to any formal standards. The site provides a description of some of its experts, including their accreditation by various

professional institutes, their educational background, and their related business and other relevant experience.

Since the list of experts is rotated periodically, we could not be sure that all their experts will be listed at any given time. We asked the website for information on all their experts who provided opinions on their site as of July 12, 2004. Data obtained from the website table on accreditation, education, and business interests of experts are summarized in Table 2.

As of July 12, 2004, XYZ had 128 experts providing opinions on its site. Of these experts, 50 (39%) held formal accreditation in a professional body, 32 (25%) had formal educational credentials in the area of their opinions (e.g., opinions on art being offered by persons having an advanced degree in art history), 101 (79%) were running a business involved in the activity they were providing opinions on (e.g., a carpet shop, or a wine store). Only 12 experts (9%) did not report any formal credentials and indicated that they were hobbyists, interested in activity on which they opined.

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Insert Table 2 about Here  
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### **Implications for Auditing**

Almost four out of every five eBay experts are also in the business of buying/selling the goods or services on which they provide expert advice to consumers. Likewise other studies have documented the pervasiveness of potential conflict of interest in various areas of the economy (e.g., doctors, financial analysts, investment bankers – see Moore et. al., [2006]). Due to funding and other social ties with the Big 4 audit firms, even auditing researchers can be thought of as having a potential conflict of interest in their work. The data suggests that potential conflict of interest in the market for certification is a norm, not an exception. In analyses of audit services,

a potential conflict of interest on the part of the auditors, especially in the form of provision of consulting services to audit clients, has been thought of as being completely unacceptable (e.g., Francis [2004]). This attitude in regulated audit domains contrasts sharply with the data from the unregulated eBay domain (and other private sector and professional domains), where consumers choose on their own to pay cash for the opinion/assessment of self-proclaimed experts with known conflicts of interest. Is it possible that their consumers are able to protect themselves against self-serving advice, and thus find it worthwhile to pay for such advice?<sup>5</sup> Could the customers of audit services do the same? If they could, is the demand for the total elimination of potential conflict-of-interest in auditing a case of regulatory overkill? Before returning to this issue in Section 5 (after reporting the results of a field study of certification of baseball cards sold on eBay), we examine the fineness of “grading” in audit reports.

#### **4. Developing a Reputation For Audit Quality Via Fineness of Audit Reports**

One key vehicle for building a reputation for audit quality is by providing informative audit reports to users of financial statements (Lizzeri [1999]). At their essence, the standard audit reports currently issued are pass/fail<sup>6</sup>. This would appear to be inconsistent with basic economic intuition about the optimal fineness of a grading scheme. These reports are however, consistent with the prediction of a model by Lizzeri ([1999]) that a monopolist certifier will produce low precision pass/fail reports. In the course of his work, auditor develops a detailed understanding of the quality of a company’s internal control system, the quality of its governance, the quality of its accounting policies and estimates, and the quality of its disclosure. Coarse grading (pass/fail)

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<sup>5</sup> The XYZ website has now set up a trusted marketplace where all items available for sale have been authenticated by a XYZ expert. On one hand this seems to increase the potential for conflict of interest, yet XYZ seems to think this is a useful service for their customers and that it will be profitable for XYZ as well.

<sup>6</sup> “The report shall state whether the financial statements are presented in accordance with generally accepted accounting principles (GAAP)... The report shall contain either an expression of opinion regarding the financial statements, taken as a whole, or an assertion to the effect that an opinion cannot be expressed.” ([http://www.pcaobus.org/standards/interim\\_standards/auditing\\_standards/index\\_au.asp?series=100&section=110](http://www.pcaobus.org/standards/interim_standards/auditing_standards/index_au.asp?series=100&section=110)). Auditor is expected to add detail when the report is “fail.”

does not convey the auditor's detailed understanding about the company to the shareholders. It also creates an incentive for companies to minimize the quality of their financial reports since nobody has anything to gain (at least from the auditor) by improving the quality of their financial reports beyond the minimum required for a pass rating.<sup>7</sup>

Dubey and Geanakoplos [2005, henceforth DG) model is a useful framework for analysis of grading schemes. The model suggests that an optimal grading scheme should have an intermediate level of fineness. A coarse (pass/fail) grading scheme is sub-optimal because it is uninformative and does not motivate agents to exert greater effort (quality). A grading scheme that is too fine introduces measurement error, and also de-motivates agents with intermediate levels of talent. An intermediate level of fineness, e.g., a 3-10 points system, provides useful information and motivates agents to work harder. Two additional results of DG are that the optimal grading scheme should create a small elite (make it very hard to get an A), and that an absolute grading scheme (e.g., score > 85 is an A) is always strictly better than grading on a curve.

To collect data on the fineness of rating standards in the government, we visited the websites of 80 federal government departments listed as having a standard-setting function in the most recent edition of a U.S. government publication of "Standards Activities of Organizations in the United States" (Toth 1996). We recorded a summary of the type of standards being set by each agency (e.g., the Department of Agriculture sets standards for food and farm products including tobacco). The Toth (1996) study provided data on whether the agency audits (or certifies) entities governed by their standards. We visited the website of each of these 80 federal agencies and attempted to find and download electronic copies of their standards. We were able

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<sup>7</sup> Blackwell's fineness condition suggests that, in a game against nature, a finer report would be more useful to shareholders.

to access copies of the standards for 64 federal government agencies (80% success rate). We examined the websites and/or the standards to determine whether the agency provides a minimum standard (pass/fail) or a series of grades (e.g., US Department of Agriculture beef grades).

Standards set by federal government agencies are mostly pass/fail standards. In the sample of 64 federal government agencies examined, 53 federal government agencies (83%) create standards that set a minimum requirement only (pass /fail). Standards set by the other eleven agencies (17%) issue a range of grades to differentiate the quality of goods (e.g., USDA Prime Beef). A study by Law (2005) suggests that some government agencies, e.g., the Food and Drug Administration (FDA), may lack adequate statutory authority or funds to enforce their standards. Since these agencies are not able to create an effective enforcement and deterrence regime, they use quality grading standards to try and induce regulated entities to use better product ingredients and accurate labelling practices. Given chronic complaints about under-funding of the SEC (although it had its budget doubled by SOX), one might also expect to observe graded reporting standards in financial markets. Out of the three key grading results of DG, all government agencies comply with one (setting an absolute level for a passing grade), and usually do not comply with the other two results (setting up an intermediate fineness grading system, and a small elite of super grades). The USDA, with its hierarchy of grades for various food and grain products, and elite programs (e.g., U.S. Prime beef) is an exception, fulfilling all three features of DG's optimal grading system.

In the private sector, there is greater variability in setting of standards and issuance of seals. Private certifiers sometimes use pass/fail standards (e.g. Underwriters Laboratory certification of electrical appliances), multiple seals to signal different levels of e-commerce



privacy (e.g., TRUSTe provides a separate seal to signal compliance with laws relating to children – see also Jamal, Maier and Sunder [2003], [2005]), 10-point rating scales (e.g., for certifying baseball cards) and even 100-point rating scales (e.g., Consumers Reports uses a 100-point scale to rate cars). Private certification markets are often characterized by standards competition where rival standard-setting organizations seek to differentiate themselves from their competitors along a variety of dimensions including fineness of reports and certification processes used (Jamal, Maier and Sunder [2003]). Sometimes consumers can get finer reports from the same organization (e.g., the XYZ site mentioned in Section 2.1 provides reports whose prices vary by the degree of detail) and sometimes finer reports can be purchased from competing organizations. For example, a consumer who wants to buy a toaster oven can get a pass/fail report from Underwriters Laboratory, and can also get a more detailed (finer) report from Consumers Reports. In some e-commerce markets (e.g., market for grading baseball cards) there is some evidence that new entrants into a market seek to differentiate themselves from established companies by providing a finer rating system (Jin, Kato and List [2004]).

We chose the unregulated baseball card certification market as a special case for a more detailed examination. We chose this baseball card market because it has four features not normally observable in audit markets. First, this is a competitive certification market where twenty three certification agencies compete in an online environment. Second, some certifiers in this market are completely independent whereas other certifiers cross-sell services. Third, We can develop clean measures of audit quality by using both process consistency and grading strictness to determine the effect of independence on certification quality. Fourth, we get to observe other features besides independence and audit quality that market participants might

value such as price, reporting precision, or other service dimensions (e.g., computer grading, having two graders grade a card).

Details about the operation of baseball card certification markets are provided by Jin, Kato and List ([2004]). Professional Sports Authenticator (PSA) started providing grading service in 1991. It is currently the dominant rater of baseball cards. PSA rates cards on a 10-point scale where grades go up in increments of 1 (e.g., 8, 9, 10). Each point on the scale also has a qualitative label (e.g., 10 = mint condition). PSA does not use a curve to grade, and does not create a super elite grade (a grade of 10 is given to about 10% of cards graded). PSA is thus consistent with two of DG's requirements (intermediate fineness, absolute grade cutoffs) and inconsistent with one of DG's requirement (no elite grade).

Starting in 1999, the privately held Beckett Grading Service (BGS). BGS has gained significant market share to emerge as the main competitor to PSA. BGS distinguishes itself from PSA in three ways: First, it uses a more precise rating scale. A 10-point scale is still used, but grades increase in increments of 0.5 (instead of 1 for PSA), allowing it to have twice as many potential ratings as PSA. Each numerical grade is assigned a qualitative label (e.g., mint condition). Additional detail on the quality of the card graded is also disclosed by providing sub-grades for centering, corners, edges and surfaces. Second, it uses a stricter grading standard. Few cards (0.1%) receive a grade of 10 from BGS. To promote market awareness of BGS's grading strictness, an online population report is posted and updated periodically to report the distribution of grades issued by BGS (see a BGS distribution showing at <http://www.beckett.com/grading/popreport.asp?action=summary>). In contrast, about 10% of PSA

cards get a grade of 10<sup>8</sup>. Third, BGS attempts to cater to different customer preferences (price discrimination) by offering three brands of service: a standard BGS service, a more elite vintage service (BVG), and a value product for more price conscious customers (BCCG). The actions of Beckett are consistent with all three of DG's requirements for a grading scheme: (1) a grading scheme of intermediate fineness, (2) a small elite grade (very hard to receive a perfect 10 grade), and (3) Use of an absolute grading scale (no curve).<sup>9</sup> The attempt by Beckett to create multiple brands (BVG and BCCG) for different clientele has no parallel in auditing.

The third major rater of baseball cards (but considerably behind PSA and BGS in market share) is Sportscard Guaranty (SGC). SGC entered this market in 1999 and attempted to distinguish itself by introducing additional precision by creating a 100-point scale (Jin, Kato and List [2004]). This additional precision seems to have created some market confusion, and SGC started providing a guide to convert its 100-point score into a 10-point score with standard qualitative labels. SGC does not provide additional disclosure about sub-grades. A non-linear conversion scale is used so there is no simple correspondence between the 100-point scale and SGC's 10-point scale. Krislov (1997) provides several examples where countries (and companies) use incompatible standards to differentiate their products from their rivals. The difficulty that SGC experienced in introducing a finer (100-point) grading scheme is consistent with DG's argument that high levels of fineness are suboptimal because they create measurement and interpretation errors. How different are two cards that are rated 95 and 94 respectively?

Twenty other baseball card certification services vie for customers (see Table 3). All of these sites use the 10-point scale, some use increments of 1, others of 0.5, and many add extra

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<sup>8</sup> PSA also issues a population report but a user has to pay a \$4.95 fee to access the report. The population report is also bundled with PSA's pricing guide which only provides prices of cards graded by PSA.

<sup>9</sup> Publication of the empirical distribution of grades could indirectly set a "norm" of what grades should be, even if the formal grading scheme does not require use of a grading curve.

grade categories (e.g. pristine) resulting in 10-22 possible grades. The creation of extra elite grades is consistent with DG's prediction. None of these twenty sites use a grading curve, and all have a reporting scheme of intermediate fineness. All twenty sites are thus using a grading scheme that is consistent with all three key requirements of DG. On the whole, the practices of private baseball certification agencies conform more to the suggestions of DG than do the practices of government agencies.

Some government agencies have recently started experimentation with issuing more detailed inspection reports. For example, California changed its restaurant hygiene reporting system from pass/fail to a letter grade system (where a score of 90-100% is reported as A, 80-89% is reported as B, 70-79% is reported as C, and a score from 60-70% is reported as a number. Two consecutive ratings with a score below 60 is an F and the restaurant can be shut down for failing the inspection). All restaurants in California are required by law to post these grades in a prominent place where they can be easily seen by consumers. A field study by Jin and Leslie (2003) has documented a shift in consumption patterns with restaurants graded A (C or lower) reporting a significant increase (decrease) in sales. They also document a significant decrease in visits to doctors and hospitals for food related illnesses after the change in hygiene reports suggesting that the change in grading scheme improved actual hygiene quality of California restaurants.

Recent press reports (e.g., Tergesen 2005) indicate that Moody's is developing a new line of business to certify the internal control systems of hedge funds with a report on a five point scale. In September 2006, Soring Capital was the first hedge fund to be rated by Moody's (they got a rating of 4). Moody's is looking for clients where the hedge fund being rated will pay for the rating service (just as auditors are currently paid by the companies they audit). Morningstar is

also expected to offer a similar internal control rating service, but they are planning to charge investors directly for their reports and be more independent of management (Tergesen 2005). In the economics literature Klein (1997) has proposed a model for who should pay (the buyer or the seller) for certification of goods whose quality is hard to observe. The competition between Moody's and Morningstar will provide an interesting opportunity to test the implications of Klein's model. In the audit literature, some preliminary evidence about having investors pay directly for audit services has been provided by Mayhew and Pike (2004).

Auditing standards currently require a pass/fail report and do not allow a more nuanced report. The size of the audit firm, or reputation based on care in client selection/monitoring GAAP compliance more effectively, may be the basis for creating an auditor reputation (see the PriceWaterhouse audit fee premium observed by Simunic [1980]). Given that a major objective of SOX is to convey information to shareholders about internal controls (currently provided as a pass/fail certification), a graded audit report with sub-grades for internal controls, governance, quality of accounting methods and quality of disclosure, would enable shareholders to get more value from the auditor.

In the early 1900's, unregulated audit firms issued either a short or a long-form report (see Brief 1987). The short-form report was in a standardized, pass/fail format like the one used currently. It could be as short as a single word ("Certified"), or a line ("I certify the above statement is correct"), or a paragraph (see Himmelblau 1927, pp. 12-15). The long-form audit reports included comments on the propriety of accounting methods, descriptions of audit procedures carried out, and occasional representations about the market values of certain current assets as being in excess of cost. The long form audit reports varied from client to client, and even for the same client over time (Himmelblau 1927). The Price Waterhouse 1902 report on

U.S. Steel set a standard for others to follow by providing useful information for shareholders (Vangermeersch 1986). The 1902 Price Waterhouse report provided comments on valuation issues such as fixed asset capitalization policy and depreciation, inventory valuation, revenue recognition, and audit procedures conducted to verify cash (see Vangermeersch 1986, p. 24). A century later, the boiler plate audit reports have lost the richness and detail conveyed in the earlier era. The current standard audit report does not convey to the reader the detailed knowledge the auditor acquires. One can argue that such knowledge could be of use to shareholders (and the boards of directors) in making better investment and governance decisions. The standard pass/fail audit report is closer to the practice in government agencies; and is at variance with the finer and more informative reports suggested by the Dubey and Geanakoplos' (2005 ) theory, as well as with the practice of private certification agencies<sup>10</sup>. The provision of certification reports by auditors and other certification providers in the economy are consistent with Lizzeri's ([1999]) prediction that one consequence of monopolization of certification markets is the provision of lower precision (pass/fail) certification reports. Regulation of auditing sets a floor on the precision of audit reports. Audit firms do not find it in their interest to provide more precision..

## **Part 2: Competition in Certification Markets**

### **5.0 Private Certification Markets**

In unregulated markets, certifiers set proprietary standards and the standard setters often provide certification services with respect to compliance with their own standards (see Jamal et al., 2003 for a description of competition in the e-commerce privacy market). This results in a

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<sup>10</sup> There are possibly some implementation issues such as legal liability which are beyond the scope of this paper (see Bush et al., 2006). These issues can be dealt with by providing a safe harbour, providing these reports only to the audit committee (and not directly to investors), or by creating a grading standard like that for U.S. Prime beef and then providing a certification for companies who have high quality financial reporting.

joint competition of both standards and certification services. In some cases, certification services are provided by third parties licensed by the standard-setter (e.g., ISO certification). In the pre-SEC era, individual accounting firms often initiated both accounting and auditing innovations. For example, the audit of U.S. Steel by Price Waterhouse prompted both the development of consolidated financial statements, as well as the long-form audit report (Vangermeersch 1986). Certification agencies for a variety of private goods such as automobiles, wines and baseball cards also develop both reporting standards as well as certification services. Frequently, these reporting standards use scales with different levels of fineness.

For many goods and services information aggregators (e.g., MSN Auto at <http://autos.msn.com>) create a composite report summarizing the ratings provided by a variety of certification providers (see Figure 1). For example, if you access a report on Honda Accord at MSN Auto, you can get an average rating from MSN's designated experts, the individual reports posted by each expert (on a 10 point scale), a user rating provided by various members of the public (non-experts) who have an opinion about this car (also on a 10 point scale), and an excerpt of an independent expert opinion from the *Consumer Reports* (on a 100 point scale). The *Consumer Reports* excerpt also provides sub-ratings for acceleration, accident avoidance, comfort and convenience, and real world fuel economy, all on a five-point scale. *Consumer Reports* also provides a qualitative discussion of the car.

Likewise, an information aggregator for wines (e.g., <http://www.vintages.com>) Tabulates ratings of listed wines by Robert Parker Jr. (100 point scale), James Sucking (100 point scale), Jancis Robinson (20 point scale), Tom Wilson (10 point scale), and Shari-Mogk- Edwards (5 point scale). In addition, qualitative comments from one or more of these experts are included. There is no evidence that consumers are confused by the provision of multiple opinions (on

varied scales). The existence of information aggregators suggests demand for such aggregation services. One impediment to such aggregation services is the threat of lawsuits from entities such as eBay who may claim the aggregators are stealing their proprietary data. To get a better understanding of the workings of unregulated certification markets (and especially the role of independence), we conduct a field study of the market for certification of baseball cards.

## **5.1 The Baseball Card Certification Market**

There is a thriving baseball card certification market on the Internet. In this market, prospective sellers of a baseball card can hire a certification agency to grade and certify the authenticity of their cards before selling them on the internet. As products, baseball cards are quite different from financial reports. Yet, the framework for analysis of certification services point to some common elements (motivations of buyers and sellers, roles of standards and reputation, and forms of reports and pricing) that may allow us to gain insights into functioning of such markets through cross-comparisons.

Each certification agency posts a written set of proprietary standards and a schedule of prices with higher prices charged for a faster response time. Competition among rating agencies covers both setting of standards as well as provision of certification services. Issuers of securities (companies or their management) can also hire an auditor to add credibility to their financial statements. Empirical examination of the consequences of independence and audit quality is complicated by the difficulty of observing and controlling these characteristics. In the baseball card certification market, we have an opportunity to observe pure auditors (who only certify baseball cards) as well as cross-sellers who sell a range of related services in addition to certification. Two of these services (creating pricing guides, and acting as a dealer in the market) create potential for conflict of interest that could hurt the purchasers of certification services. The



baseball card certification market also allows us to observe a cleaner measure of audit quality (we can observe grading strictness, and we can also observe test-retest process consistency). The baseball card market also provides an interesting opportunity to observe how unregulated certification providers may try to distinguish themselves along other dimensions such as value pricing (e.g., TFA), computer grading (CTA), having two experts grade each card (PRO), and letting each customer choose their own grade (MINT) (see Table 3)<sup>11</sup>.

The potential for a race to the bottom among certification agencies willing to lower their quality in vying for clients causes much anxiety in accounting. That an unregulated audit market will allow only the worst auditors to survive is a frequent theme (see Dye and Sunder [2001] for a discussion of such fears). Given that a major objective of SOX is to increase auditor independence, it would be interesting to know how a market for certification services reacts to independence and potential for conflicts of interest as well as grading strictness (leniency) and other service differentials.

Baseball cards have been produced and traded since the early 1800's. Originally they were given away by cigarette, and later by gum manufacturers, intended as a hobby for children; today collecting and trading baseball cards has become a serious hobby for many adults<sup>12</sup>. During the summer of 2004, there were 23 active websites offering certification services for baseball cards. Details about the services offered by these certification websites are shown in Table 3. We found references to an additional 14 certification services that no longer appear to be in business.

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<sup>11</sup> Note that the limited parallel we use here is between the two certification markets—for financial reports and baseball cards—and not between the financial reports and baseball cards themselves.

<sup>12</sup> Baseball cards are produced primarily by four companies (Fleer – founded in 1849; Topps – founded in 1938; Upper Deck – founded in 1989 and Donruss – founded 1954). These companies also produce cards for other sports and entertainment characters. Recently markets for cards have expanded to cover comic book figures and various children's TV program characters such as Pokemon, Digimon and Yugi-Yo cards. New cards are issued in packs or sets. Usually a pack will have one special card (with limited print run). These new card packs can be purchased from card dealer stores. A set will usually have a theme (e.g., 1950's New York Yankee's).

## 5.2 Baseball Card Rating Standards and Potential Conflict of Interest

Accugrade (ASA), the first entrant in this market, started grading in 1988. It pioneered the use of a 10-point rating system, and developed a tamper-proof plastic casing in which graded cards can be sealed. It no longer appears to be in the grading business, earning royalties from other rating services that use its patented processes. The second entrant, Professional Sports Authenticator (PSA) entered the market in 1991 and is at present the dominant grader of single as well as rookie baseball cards as well as basketball and football cards (see Tables 4 and 5). PSA uses its dominant status to collect a \$99 membership fee for access to its rating service<sup>13</sup>. PSA also offers a magazine and a price guide, and runs card shows where collectors can meet experts, get cards graded on site, and talk to PSA staff in person. PSA is a part of publicly-traded Collectors Universe (NASDAQ: CLTC). Collectors Universe offers rating services for coins, stamps, autographs and music. Beckett Grading Service (BGS), the second major rater of baseball cards, is a private company that has gained a significant market share in the card rating market (see Table 5A). In addition to rating cards, BGS offers a variety of services such as a magazine, price guide (which provides estimates of prices for baseball cards graded by BGS as well as by its competitors, and ungraded cards as well), and card shows. BGS rates cards for racing, a variety of sports (baseball, football, and basketball), comic books, and action (such as Pokemon and Digimon).

In order to assess the value of certification services in the economy, we collected a matched pair data set of baseball cards traded on eBay. We selected 321,045 baseball cards traded on eBay during August 19-September 3, 2004. We partitioned the cards by the decade in

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<sup>13</sup> During a return visit to the PSA website in May 2006, we found that they have made the membership fee optional. Membership has certain privileges (free card grading, magazine) but is no longer required to access the PSA grading service.

which they were issued (e.g., 1930's, 1940's ... 2000's, etc.), whether it was a single or a rookie card, and whether it had been graded. Of the 321,045 cards in our sample, 272,399 (85 percent) were singles, of which 31,778 (11 percent) had been graded. Of the 48,646 rookie cards, 12,290 (25 percent) had been graded (see Table 4). We stratified the graded cards by the decade of issue, and randomly selected a sample of 1,000 rookie graded cards for analysis<sup>14</sup>.

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Insert Table 4 about Here

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*Market Share.* Table 5A shows the estimates of market shares of six firms in the rookie card market on the basis of our stratified sample of 1,000 cards traded (the stratified sample is from the 321,045 baseball cards traded on Ebay during the two week period from August 19-September 3, 2004). PSA and the three levels of services provided by Beckett have about 35 percent market share each, with GEM claiming 16 percent market share.

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Insert Table 5A about Here

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*Fineness.* The grading schemes used vary between 9 to 22-grade schemes, which amount to a 10-point scale with 1 or ½ point increments, and some other variations such as addition of a plus sign or a “pristine” grade at the top of “mint” grade (Table 3). One website (SGC) uses a 100-point scale, and provides a (non-linear) table to convert the grades onto a 10-point scale.

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<sup>14</sup> We focus on rookie cards rather than singles because rookie cards are of higher value, they are more likely to be certified, and there are more certification agencies who provide services for rating rookie cards. The singles card market is completely dominated by PSA which has 78% of the singles market, but only 36% of the rookie card certification market.

*Strictness.* We have two bases for assessing the strictness of grading. First, Jin et al. [(2005)] conducted a field experiment in which they gave the same 212 baseball cards to three online websites (PSA, BGS and SGC), and to three offline dealers. The average scores were 8.5 for BGS and two dealers, 8.7 for PSA and one dealer, and 8.9 for SGC. After detailed analysis of their data, they concluded that BGS ratings used a tighter cut-off point and were more precise (see Table 5B based on Jin et al.'s Table 2). Jin et al. classified BGS as a strict grader and PSA and SGC as medium graders. There was a statistically significant difference in grades between BGS and both PSA, and SGC. There was no statistically significant difference between PSA and SGC. The Jin et al study assesses both grading strictness (average grade) and a process measure of audit quality (consistency and test-re-test reliability) and is the primary basis used to ascertain audit quality for our study.

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Insert Table 5B about Here  
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For graders not covered in the Jin et al., [(2005)] study we use the empirical frequency of grades observed in our samples to classify them in terms of grading strictness. In our sample of 1,000 rookie cards, GAI has an average rating very similar to that of BGS, PSA and SGC and the remaining graders (GEM, PGS and other) all have average grades which are much higher than BGS, PSA and SGC (see Table 5A). We thus classify these remaining services as being less strict in our discussion of rating strictness. Since sellers self-select which cards they send to each certification service, this measure suffers from the self selection problem common to many accounting archival studies. Frequency of grades provides additional corroboration to the controlled experiment run by Jin et al. [(2005)]. This raises a question as to whether the market adjusts adequately for grader reputation.

*Pricing.* PSA was the only firm with a membership fee (\$99, dropped recently) which indicates their pricing power in the market. A re-visit to their website in May 2006 indicates that becoming a member is now an optional activity; it is not required to access their certification service. Competitive pressure from Beckett appears to have eroded PSA's ability to force people to buy a membership. The certification price-per-card varies in the range \$2-50 across the 23 firms. Most firms provide the service at varying prices, charging a higher price for faster turnaround. The prices posted on the websites appear to be quite similar, and the competition is driven primarily by non-price variables. (see Table 3).

## **Method and Data Analysis**

In order to investigate the effect of grading, the grader, and the grade obtained, for each graded rookie card in our sample of 1,000, we found a matched (by same player, card maker, year of issue, rookie) un-rated baseball card. The values of un-rated cards were obtained from Beckett Baseball Card Monthly Guide (August 2004, Issue #234-online)<sup>15</sup>. The Beckett price guide provides a range of price estimates for each card with a high, average and low value estimate for each baseball card. For each rated card sold on eBay, we recorded the player, year, card maker, grader, grade received, buyer reputation, seller reputation, number of bids, and selling price.

Gross and net returns (after adjusting for the cost of certification) of baseball cards rated by six major certification service providers are shown in Table 6. All six certification services yield a positive gross return (selling price of a rated card is higher than the average estimate of the value for the same card in the Beckett pricing guide). However, the return net of the cost of

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<sup>15</sup> Dr James Beckett issued the first Baseball card pricing guide in 1979 by collecting information from baseball card dealers. In 1984 Beckett Publications was formed primarily as a seller of pricing guides. Over time other services were added including a magazine and sports card grading services. Then the company diversified into developing other pricing guides (e.g., football, and comic books) as well. Beckett now sells an annual pricing guide, a monthly pricing guide, and also provides an online pricing guide.

certification is positive for the strict grader (46 percent for BGS) also positive for the medium graders (92 percent for GAI, 4 percent for SGC, and -2 percent for PSA), and negative for the lenient graders (-14 percent for BCCG, and -23 percent for GEM). Older cards earn a higher return than more recently issued cards. Cards with a rating of 10 usually get a positive net return (except for BCCG and GEM who are lenient graders), whereas ratings of 9 are likely to generate lower, and often negative, net returns. Overall, it is better to get a 9 rating from a strict grader (BGS or GAI) than to get a 10 from the market leader (and moderate grader) PSA.<sup>16</sup>

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 Insert Table 6 about Here  
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In order to assess the relationship between the return from grading, and various characteristics of cards and grader identity, we estimated the following regression equation:

$$R_i = \alpha_1 + \beta_1 \text{Year}_i + \beta_2 \text{Grade}_i + \beta_3 \text{GPSA}_i + \beta_4 \text{GBGS}_i + \beta_5 \text{GBeckett}_i + \beta_6 \text{GGAI}_i + \beta_7 \text{GGEM}_i + \beta_8 \text{GSGC}_i + e_i$$

Where:

$R_i$  = net Return from getting a rookie baseball card graded. This is calculated as selling price of graded card on EBay – (book value of same card in Beckett pricing guide + minimum cost of certification service) divided by book value of same card in Beckett pricing guide.

$\text{Year}$  = Actual year when a baseball card was issued

$\text{Grade}$  = score assigned by an independent certification service on a scale from 1 to 10, increasing in increments of 0.5.

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<sup>16</sup> Note that the validity of comparisons of these data across graders and vintages is limited by the selection effects. Older cards, being rarer and more valuable on average, may be more likely to be presented for certification, especially by the stricter graders. Data from Jin et al.'s field experiment yields cleaner comparisons.

GPSA = Grader is PSA; GBGS = Grader is BGS, GBeckett = Grader is BECKETT (other than BGS); GGAI = Grader is GAI, GGEM = Grader is GEM; GSGC = Grader is SGC. These are the top 6 graders. For each individual top grader, the test is whether return to the specific grader is greater than return from all other non top graders.

The results in Table 7 indicate that the year, grade and identity of grader have a significant relationship with the selling price of a rookie baseball card. More recent cards earn a lower return (coefficient is negative,  $p < 0.001$ ) thus certification is more valuable for older cards. Likewise, the grade has a positive significant coefficient ( $p < 0.001$ ), a higher grade from a third party certification service generates a higher price. Getting a certification from a strict grader has a significant positive coefficient on price (BGS:  $p < 0.001$ ). Getting a certification from a moderately grader has a lesser but still significant positive coefficient for both a dominant grader (PSA:  $p < 0.01$ ), and also for a smaller grader (SGC:  $p < 0.05$ , GAI  $p < 0.001$ ). Getting a certification from a lenient grader actually has a negative coefficient on price (coefficient is negative, GEM:  $p < 0.001$ ). The coefficient is also negative for Beckett brands other than BGS, though the effect is not statistically significant. It appears to be easy to get a 10 from a grader like GEM, but it doesn't do any good to get this easy grade. This certification signals low quality and generates a net loss to the seller. There does not appear to be a race to the bottom.

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Insert Table 7 about Here

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It is not clear why Beckett has multiple brands though there is some speculation on various internet baseball discussion boards that Beckett has set up rival brands to allow grade inflation ( see for example [http://www.seanet.com/~brucemo/card\\_articles/pro\\_grading.htm](http://www.seanet.com/~brucemo/card_articles/pro_grading.htm)).

The market appears to price Beckett reports as though there is one brand with a strict grading system (BGS), and other brands with a more lenient grading system (BCCG). There is no evidence that the multiple brands are doing any harm to the flagship BGS brand. Beckett seems to be successfully creating a market differentiation strategy and tapping different segments of customers with different brands (just as Daimler Chrysler sells multiple brands to segment its customer market). Beckett claims to be offering a discount service for more price conscious customers, but the market suspects that Beckett is providing a more lenient grading standard in addition to lower prices in its discount brands, and prices each service accordingly.

### **Implications for Auditing**

In drawing cross-market implications for auditing, care is necessary. Baseball cards are physical objects of substantive interest, while financial reports are symbols representing complex entities of substantive interest to buyers of certification services. In both cases, buyers are willing to pay for expertise they do not have, in presence of varying degrees of specific standards as point of reference for certification. In both cases, buyers rely on the knowledge and reputation of the certifiers who compete for fee revenues. In both cases, individual certifiers choose the portfolio of certification as well as other services they may offer to their customers.

A key regulatory objective in financial reporting has been to promote the independence of auditors, in significant part by prohibiting and restricting the consulting services offered by audit firms. In the baseball card market, out of 23 certification agencies, seventeen offer only certification services (independent), whereas six (PSA, FGS, Beckett, SGC, CM and GAI – See Table 3) offer other services related either to baseball cards (e.g., pricing guides, dealers, magazines) and/or other cards, coins, stamps and other collectibles. The market share is dominated by two firms which cross-sell other services (PSA and Beckett). Card collectors pay



large premiums to purchase cards with a PSA or Beckett certification. The remaining firms have small market shares. Even among the smaller players, the dominant certification agencies are SGC and GAI, both of whom cross-sell services. Only one independent rating agency (GEM) has some market share. Ironically, GEM gets its market share by providing rampant grade inflation where all rookie cards graded by GEM get a grade of 10 (see Table 5A). A GEM certification yields a negative market return (see Table 7). It is clear that being independent is not a necessary (and not even a sufficient) condition for being successful in this certification market. Virtually all pure (independent) certification agencies do poorly in this market, and are likely to go out of business as the market consolidates over time. The lack of viability of a pure certification strategy may help explain why Arthur Andersen partners rejected an offer by Paul Volcker to save the firm if it agreed to become a pure auditor with no consulting.

If markets for certification services do not value independence (and may actually prefer auditor immersion in the market), it is going to be difficult for regulators to promote independence for auditors. Regulators may not be simply extending support for an auditor attribute (i.e. independence) valued by the market. Regulators may be going against the tide of market preference and hence independence may be an un-natural attribute of certification markets. As we saw in Section 2.1 (expert opinions on EBay), unregulated markets value opinions from experts who are immersed in a market (competent), and do not appear to be dissuaded by the potential for conflict of interest. Why do the accounting regulators emphasize independence (and especially the appearance of independence).

There is skepticism in accounting literature about the ability of an unregulated audit (or accounting) market to function properly; with concern about a race to the bottom (see Dye and Sunder [2001] for arguments on both sides). Yet we observe the opposite in the market for

baseball card certification. Beckett entered this market late, but made major inroads to develop a large market share by emphasizing grading strictness, not grade inflation. As shown in Table 7, lenient graders who engage in grade inflation generate a negative reputation and yield a negative return for buyers of their service. Recent studies of audit pricing also indicate that auditors who are industry experts, and especially city specific industry experts, command premium audit fees and also restrain the abnormal accounting accruals of their clients (i.e., they are strict auditors – see Francis et al., [2005; 2006]). In other markets for e-commerce privacy seals, Jamal, Maier and Sunder ([2003]) have shown that the higher quality certification providers dominate the market. Ironically the AICPA sought to have its WebTrust service enter the e-commerce privacy market by offering a lower quality standard (see Jamal, Maier and Sunder’s [2003] comparison of standards of several e-commerce privacy seal providers). The AICPA viewed this unregulated market as unoccupied territory and learned the hard way that providing low quality standards is not the recipe for success.

It would be troubling to observe grade inflation (low audit quality) in certification markets. In the baseball card certification market, the most obvious potential for grade inflation occurs in an agency called MINT where sellers of cards are asked to specify their own grades (see Table 3). The empirical distribution of grades indicates that another certification agency (GEM) also engage in grade inflation (see Table 5B). Both of these agencies (MINT and GEM) are independent baseball card certification agencies. None of the cross-selling certification agencies engage in grade inflation (see Table 5B). The data suggest that the cross-selling of services might inhibit instead of promote grade inflation in certification markets. Poor profitability / market position seems to lead to grade inflation.

Prima facie, it is difficult to question the value of auditor independence for the efficient functioning of the capital markets, especially in the post-Enron-Arthur Andersen world. Yet, Antle et al. (1997, p. 28) have argued:

Taking a holistic view, we have found that auditors have many incentives to protect their independence. Legal liability is significant, and any firm that would damage its independence risks an avalanche of litigation. Auditors' have substantial investments in reputations, audit technology and methodology, and directly in their financial stakes in accounting firms. We have found no evidence that the supply of non-audit services threatens auditor independence, and there is a strong intuitive case that accounting firms create value by capturing economies of scope between audit and non-audit services.

Empirical investigations of the audit market have not been supportive of the hypothesis that provision of consulting services to audit clients impairs the independence of auditors (see footnote 1 and Francis et al. 2005; 2006), or have a bearing on audit fees (Abdel-Khalik, 1990). Experimental study of Dopuch and King (1991) concluded: "...policy makers who favor proposals to prohibit auditing firms from providing both MAS and verification services to the same client should contemplate whether the prohibition will have an adverse effect on the market structure of the audit industry" (p. 89). Our own findings about the wide-spread prevalence of conflicts of interest in the unregulated baseball certification market raise doubt about the validity of the common sense assumption about the value of independence of the certifier that under girds the current regulatory regime. We are hard-pressed to find an explanation for this apparent paradox. This evidence is consistent with Simunic's (1984) suggestion about the economies of scope arising from information links between audit and consulting. Zhang (2004) also models the provision of auditing and consulting services to the same client as a matter of trade-off between the benefits of better-informed auditor judgment (on the basis of what the auditor may learn in the process of providing the consulting services) and the loss from conflict of interest in making those judgments. It seems plausible that while the regulatory emphasis on auditor independence may cut the profits of auditors, its consequences for the credibility and informativeness of

certification are ambiguous. Antle and Demski's (1991) analysis of the role of contracting frictions in presence of information externalities between multiple services leads them to call for: "...an expansive theory of auditing, one that addresses audit procedures, organization of the audit, product bundling, contracting, and competition" (p. 20).

Audit firms appear to have engaged in poor enforcement of GAAP, especially in the 1990's and regulation does not appear to be effective in preventing poor enforcement. Perhaps the lack of profitability and the lack of a distinctive capability lead to grading leniency and poor enforcement. A more careful analysis of why auditing became a commodity in the late 1980's may be required to understand the collapse of grading strictness in auditing during the 1990's. Support for blaming the cross-selling of services for the collapse of proper auditor enforcement of GAAP appears weak. The prosperity of audit firms may be the best antidote to client pressure and grade inflation.

### **Concluding Remarks**

In this paper we report evidence that certification services are widely available in the private good markets, including certification by experts who base their opinion on formal written standards, experts who do not use formal standards, lay person opinions, and meters. Power's ([1994; 1999]) findings on the demand for audit in the public sector are corroborated; the phenomenon of "audit explosion" pervades the private sector too.

Second, we examine the fineness of certification by government agencies and private certification services. Government agencies usually issue pass/fail reports. Private certification reports use a finer scale (5, 10, or 10 points) and often include some qualitative commentary and sub-scales, breaking down the overall rating into various sub-components. Often multiple certification reports are available for the same product. The pass/fail scheme in boiler plate format of financial audit reports appears to be drive by their mandated demand, and focused on

preventing litigation rather than providing information for decision making by shareholders and others. Recent appearance of un-mandated provision of graded reports on the quality of internal control of hedge funds by Moody's suggests that lifting of the mandatory requirement may give rise to demand for finer gradations in financial audit reports too.

Third, we conduct an eBay field study of certification of baseball cards where some agencies are pure auditors and others cross-sell related services. We find that the market is dominated by cross-sellers, and pure (independent) certifiers struggle to find customers in this market, resorting to grade inflation and low quality service. Strictness of grading pays, independence does not, and the two, surprisingly, do not go together. These baseball card market findings are consistent with the widespread demand for expert opinion in the economy, even in the presence of potential for conflict of interest. There is no race to the bottom; providers of low quality standards appear to fail in the marketplace. Independence is neither necessary nor sufficient for attaining grading strictness. It appears that profitability (or lack thereof) of the audit firm may be the key determinant of grading strictness.

There are many differences between the regulated market for audit services and unregulated certification markets for other goods and services. The communication and negotiation process that precedes the issuance of the audit certificate, the presence of a diverse group of stakeholders interested in the audit report, and the opacity of audit quality, are some obvious differences. The present study is only a start at attempts to disentangle the consequences of regulation in audit markets through the use of cross-market studies. Studies that account for differences and similarities across markets in analyzing certification services and their regulation may help us better understand the existing audit regime, and find ways of making it more effective.

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**Figure 1: Example of an Aggregated Ratings Report on Internet (MSN)**

2006 Honda Accord



[MSRP Price Range](#) \$18,225 - \$29,400  
[Invoice Price Range](#) \$16,412 - \$26,455

MSN Ratings

[Expert](#) 8.0  
[User](#) 9.3

**Consumer Reports**

[Overall Test Score](#)  
 89 [Read Snapshot](#)

[Price it with Options](#) [Save this Car](#)

[Overview](#) [Prices](#) [Features & Specs](#) [Photos](#) [Reviews](#) [Safety](#) [Reliability](#)

[At a Glance](#)[Expert Reviews](#)[Consumer Reports](#) @ [User Reviews](#)

**ConsumerReports.org**

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Ratings Snapshot

2006 Honda Accord EX V6

Other Trims Tested

- [EX 4-cyl](#)

Consumer Reports Overview

Highs: Acceleration, ride, handling, driving position, front-seat comfort, controls, crash-test results.

Lows: Road noise.

The Accord V6 is our top-rated family sedan. It has fairly agile handling, and the ride is steady and compliant. Inside the car the Accord is roomy, quiet and refined, although some road noise is noticeable. A telescoping steering column allows drivers to find an ideal position. The automatic shifts very smoothly and responsively. The four-cylinder engine is smoother than many V6s. Side and curtain air bags are standard. The V6 model is very quick and relatively fuel efficient. V6 models also get standard stability control for 2006. The V6 hybrid version is even quicker and gets 25 mpg overall, just one mpg better than the four-cylinder, which may not justify its \$30,000 price tag. Crash-test results are impressive.

Road Test Results

- Acceleration
- Accident avoidance
- Comfort and convenience
- Real-world fuel economy

**Key**

- Excellent
- Very Good
- Good
- Fair
- Poor

[For 20 more ratings and the Consumer Reports Bottom Line Price on this model, click here.](#)

Overall Rating  
(Family sedans)

	P	F	G	VG	E
Highest Rated				89	
EX V6				89	
Lowest Rated			35		

**Key** P F G VG E  
 Poor Fair Good Very Good Excellent

**Table 1: Certification Services for Products Sold Online and Offline in the US**

<b>PANEL A</b>	<b>Ebay (N=400)</b>	<b>PPI/CPI (N=417)</b>	<b>Total (N= 817)</b>	<b>% of Total (817)</b>
Expert Opinions Based on Written Standards	344	399	743	91%
Expert Opinions Without Written Standards	45	14	59	7%
Lay People Ratings	5	3	8	1%
Meter	3	0	3	0.5%
No Certification / Rating	3	1	4	0.5%
<b>Panel B: Detailed Breakdown of Certification Activities</b>				
All Certification Available (Expert Opinions Based on Written Standards, Expert Opinions Without Written Standards, Lay People Ratings, and Meters)	221	101	322	40%
Expert Opinions Based on Written Standards only	4	110	114	14%
Expert Opinions Based on Written Standards, Lay People Ratings and Meter	33	57	90	11%
Expert Opinions Based on Written Standards and Expert Opinions Without Written Standards	47	34	81	10%
Expert Opinions Based on Written Standards, Expert Opinions Without Written Standards, and Lay People Ratings	17	34	51	6%
Expert Opinions Based on Written Standards, and Meter	8	28	36	4%
Expert Opinions Based on Written Standards, Expert Opinions Without Written Standards, and Meter	11	15	26	3%
Expert Opinions Based on Written Standards, and Lay People Ratings	3	20	23	3%
All other combinations	56	18	74	9%

400 goods sold on eBay and 417 goods included in the U.S. CPI and PPI ([www.bls.gov](http://www.bls.gov)) were selected. We then searched for the existence of written standards, expert opinions based on written standards (e.g., Michelin guide rating of restaurants), expert opinions that are not based on any written standards (e.g., New York Times Food Critic Rating of restaurants), lay people ratings (on various websites), and meters recording level of activity (e.g., revenue of a restaurant, or reservation time to get into a restaurant) which people can use to infer quality and/or popularity of a product. These results are summarized in panel A. The panel A results indicate that for 91% of the goods in our sample, we were able to find an expert opinion based on written standards. For the remaining 9%, we were able to find an expert opinion but without reference to any written standards (7%), lay people rating (1%), a meter (0.5%) or no certification of any kind (0.5%).

For many goods, multiple forms of certification are available; in some cases everything from expert opinions based on written standards, expert opinions which are not based on any written standards, lay people ratings, and even meters recording level of activity. In panel B, we summarize the different forms of certification available for goods in our sample. The Panel B combinations are presented in order of their frequency. The most frequent combination (occurring 40% of the time) is to have all forms of certification available (Expert Opinions Based on Written Standards, Expert Opinions Without Written Standards, Lay People Ratings, and Meters).

**Table 2: Qualifications of Experts Providing Opinions on XYZ Website**

	<b>Accreditation</b>	<b>Education</b>	<b>Business</b>	<b>Hobby</b>
1. Art and Antiquities (n=14)	64%	50%	71%	7%
2. Books, Maps, Manuscripts (n=5)	20%	20%	80%	20%
3. Clocks, Watches and Timepieces (n=4)	25%	25%	100%	0%
4. Clothing, Linens, Rugs and Quilts (n=6)	33%	17%	100%	0%
5. Coins, Stamps, Numismatics (n=7)	29%	14%	100%	0%
6. Electronics (n=3)	33%	0%	67%	33%
7. Famous People (n=4)	25%	0%	100%	0%
8. Furniture and Accessories (n=8)	50%	0%	75%	13%
9. Glass (n=5)	40%	20%	100%	0%
10. Guns, Knives and Swords (n=5)	60%	0%	100%	0%
11. Jewelry (n=6)	50%	33%	83%	0%
12. Knick Knacks and Collectibles (n=7)	14%	28%	86%	0%
13. Music (n=4)	25%	25%	75%	0%
14. Nature's Treasures (n=1)	0%	100%	100%	0%
15. Photography, Cameras, Projectors (n=3)	33%	67%	67%	33%
16. Porcelain, Ceramic and Pottery (n=10)	50%	20%	60%	20%
17. Silver (n=7)	43%	29%	71%	14%
18. Sports (n=6)	17%	17%	67%	33%
19. Tools, Kitchenware & Equipment (n=3)	33%	0%	100%	0%
20. Toys, Dolls, Games (n=9)	44%	11%	78%	0%
21. Transportation (n=4)	25%	25%	25%	25%
22. Wine (n=2)	50%	50%	50%	0%
23. General Appraisers (other) (n=6)	33%	67%	83%	17%
Total (n=128)	50 (39%)	32 (25%)	101(79%)	12 (9%)

A site we call XYZ is an official partner of eBay and has 128 experts who offer opinions on 1,850 separate items for a fee of \$9.95 (basic service) or \$29.95 (enhanced service). The site provides a description of some of its experts. Data in this table on accreditation, education, and business interests of experts were obtained from XYZ and reflects attributes of competence of all experts providing opinions on the site as of July 12, 2004. As far as we know, these are self-assessments of competencies with no independent verification that we are aware of. Most of the experts who provide an opinion on this site (79%) also run a related business (e.g., the wine expert owns a wine shop, and the carpet expert owns a carpet shop).

**Table 3: Sports Card Grading Services (Summer 2004)**

<b>Name</b>	<b>Year Founded</b>	<b>Scale Categories</b>	<b>Grading Cost</b>	<b>Guarantee</b>	<b>Cross-seller</b>	<b>Feature</b>
1. Accugrade (ASA)	1988	13	\$5-15	No	No	Invented 10-point scale + First online rating agency
2. Professional Sports Authentication (PSA)	1991	10	\$9-50	Yes	Yes	Membership Fee (\$99 – get 6 cards graded free) + Largest Market Share
3. KSA	1996	14	\$12-19	No	No	Canadian
4. American Authentication (AAI)	1996	10	\$12-22	No	No	5 card minimum per order
5. Finest Grading (FGS)	1997	14	\$5-25	No	Yes	Value Pricing Card Shows
6. Map Industries	1998	14	\$8	No	No	Free Shipping
7. Beckett Grading Service (BGS) –Vintage Grading (BVG) –Collectors Club (BCCG)	1999	19	\$8-25 \$9-26 \$5	Yes	Yes	Price guide + provide sub-grades for centering, corners, edges, and surface
8. Sportscard Guaranty (SGC)	1999	18	\$7- 50	No	Yes	Started with 100-point scale
9. The Final Authority (TFA)	1999	19	\$5-13	Yes	No	Value Pricing
10. Collection Monster (CM)	1999	19	\$10	No	Yes	Government Grading
11. Advanced Grading (AGS)	2000	11	\$9-25	No	No	Top view holders
12. Mint Grading Services	2000	18	\$6-20	Yes	No	Customer chooses grade. If MGS disagrees, pay \$1 only
13. CTA Grading Experts	2000	11	\$10-30	No	No	Computer grading
14. Bear Stats	2002	14	\$10-20	No	No	Value Pricing

Grading (BSGS)						
15. Global Authentication (GAI)	2002	19	\$6-20	No	Yes	Former PSA Experts + Dealer Focused
16. Pro Sports Grading (PRO)	---	22	\$9-50	No	No	2 experts grade each card
17. Professional Grading Service (PGS)	---	19	\$5-35	Yes	No	Help to post on eBay
18. World Class Grading (WCG)	---	20	\$5-20	Yes	No	Value Pricing
19. Champs Grading Service (CGS)	---	10	\$2-3	Yes	No	Racing Specialists
20. Grade Tech	---	21	\$14-50	No	No	Computerized grading
21. Premier Grading (PGI)	---	20	\$6-20	No	No	Value
22. Gem Trading - Gem Elite	---	9	\$8-15 \$12-19	No	No	Value
23. Sports Memorabilia Authenticator (SMA)	---	19	\$6-8	No	No	Value / Older Cards

In summer, 2004, there were 23 active sports card grading services online. We visited each website to identify the year of formation, and the rating scales. They use a 10-point scale with 1 or ½ point increments; some use +s or have discontinuities in their scale (e.g., do not award some grades such as 9.5).

We also recorded the grading fee they charge for the slowest service offered as well as the fastest service (customers also have to pay shipping and insurance costs to separate companies). Under grading cost (e.g., \$5-15), the first number is the cost of a normal grading service, and the second number is the cost of getting an expedited grading service.

Some companies offer a guarantee to return graded cards within a specified time period. Some companies have offline activities such as card shows where sports cards can be bought or sold and graded at a physical location, magazines, price guides, provide their own auction sites and a range of other services.



**Table 4: Baseball Card Certification Services**

(Baseball Cards Traded on eBay, N=321,045)

*Singles (272,399 cards)**Rookies (48,646 cards)*

<b>Issue Date</b>	<b>Graded</b>	<b>UnGraded</b>	<b>Total</b>	<b>%Graded</b>	<b>Graded</b>	<b>UnGraded</b>	<b>Total</b>	<b>%Graded</b>
<b>Pre1930s</b>	1,935	2,933	4,868	<b>40%</b>	----	----	----	----
<b>1930s</b>	1,376	1,689	3,065	<b>45%</b>	----	----	----	----
<b>1940s</b>	417	1,448	1,865	<b>22%</b>	20	218	238	<b>8%</b>
<b>1950s</b>	6,160	22,869	29,029	<b>21%</b>	59	606	665	<b>9%</b>
<b>1960s</b>	7,291	28,007	35,298	<b>21%</b>	161	750	911	<b>18%</b>
<b>1970s</b>	6,858	14,171	21,029	<b>33%</b>	303	1,221	1,524	<b>20%</b>
<b>1980s</b>	3,692	8,533	12,225	<b>30%</b>	5,470	6,378	11,848	<b>46%</b>
<b>1990s</b>	2,693	25,163	27,856	<b>10%</b>	3,669	9,578	13,247	<b>28%</b>
<b>2000s</b>	1,356	135,808	137,164	<b>1%</b>	2,608	17,605	20,213	<b>13%</b>
<b>Total</b>	31,778	240,621	272,399	<b>11%</b>	12,290	36,356	48,646	<b>25%</b>

During August 19-Sept 3, 2004 a total of 321,045 baseball cards were traded on eBay. We counted the cards which had been graded by a 3<sup>rd</sup> party certification service. The data in the table show the number (and percent) of graded cards by decade in which they were issued. Data for single and rookie cards are shown separately to highlight the differences in the propensity to purchase grading services for different types of cards. eBay provides a breakdown by date of issue for singles cards from pre-1930s and 1930s, but not for rookie cards.

**Table 5A: Frequency of Grades Given by 3rd Party Certification Services**

(For a Sample of 1,000 Graded Rookie Baseball Cards)

3 <sup>rd</sup> Party Grader	Market Share %	Grade										Total	Average Score
		10	9.5	9.0	8.5	8.0	7.5	7.0	6.0	5.0	< 5		
<b>PSA</b>	36.8	105	0	159	0	80	0	17	4	2	1	368	<b>8.9</b>
<b>BGS</b>	22.7	1	85	73	37	13	14	1	1	1	1	227	<b>8.9</b>
<b>BCCG</b>	10.4	87	0	16	0	0	0	0	1	0	0	104	<b>9.8</b>
<b>BVG</b>	0.9	0	0	0	2	0	1	0	1	2	3	9	<b>5.3</b>
<b>GEM</b>	11.6	116	0	0	0	0	0	0	0	0	0	116	<b>10.0</b>
<b>GEM-E</b>	4.2	42	0	0	0	0	0	0	0	0	0	42	<b>10.0</b>
<b>SGC</b>	2.9	4	0	13	6	4	1	1	0	0	0	29	<b>8.8</b>
<b>GAI</b>	2.3	2	9	8	2	1	0	0	1	0	0	23	<b>9.1</b>
<b>PGS</b>	1.6	16	0	0	0	0	0	0	0	0	0	16	<b>10.0</b>
<b>Other</b>	6.6	33	2	20	8	2	0	0	0	1	0	66	<b>9.4</b>
<b>Total</b>	<b>100%</b>	<b>406</b>	<b>96</b>	<b>289</b>	<b>55</b>	<b>100</b>	<b>16</b>	<b>19</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>1000</b>	

The data in the table show the market share of nine baseball card certification services (including three versions of the service provided by Beckett Grading Service), and the grades received by cards in our sample. The leading 3<sup>rd</sup> party certification provider (PSA) issued a grade of 10 to 4 percent of the cards (105/368). In contrast, the second certification provider (BGS) issued a grade of 10 only once out of 227 cards, but tended to offer 9.5 more frequently (85/227 = 37 percent). The average grade of cards certified by both PSA and BGS were both 8.9.

**Table 5B: Frequency of Grades Given by 3rd Party Certification Services in Field Experiment**

(Source: Jin et al., 2005, Table 2)

3 <sup>rd</sup> Party Grader	Total No. of Cards	Grade												Average Score	
		10	9.5	9	8.5	8	7.5	7	6.5	6	5.5	5	4.5		4
<b>PSA</b>	212	11		134		66		1		0		0		0	<b>8.7</b>
<b>BGS</b>	212	0	0	40	124	43	3	2	0	0	0	0	0	0	<b>8.5</b>
<b>SGC</b>	212	13		134	49	11	3	2		0	0	0		0	<b>8.9</b>
<b>Kevin</b>	212	0	1	40	129	37	4	1	0	0	0	0	0	0	<b>8.5</b>
<b>Rick</b>	212	0	11	57	92	45	3	2	0	1	0	0	0	1	<b>8.5</b>
<b>Rodney</b>	212	0	1	120	62	25	2	0	0	2	0	0	0	0	<b>8.7</b>
<b>Total</b>		<b>24</b>	<b>13</b>	<b>525</b>	<b>456</b>	<b>227</b>	<b>15</b>	<b>8</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>8.6</b>

Jin et al ([2005]) conducted a round robin field experiment. They purchased 212 baseball cards and sent cards to three online Grading services (PSA, BGS and SGC) and three offline baseball card dealers (Kevin, Rick and Rodney) for grading. Grades assigned by these six graders are reported in the table. BGS and two offline dealers (Kevin and Rick) assigned an average grade of 8.5 and were more strict than the remaining three raters who assigned average grades of 8.7 (PSA), 8.9 (SGA) and 8.7 (Rodney).

**Table 6: Average Returns to Grading of Rookie Cards (by Grader and Decade of Issue)**

<b>Rater</b>	<b>Number of Cards</b>	<b>Gross Return %</b>	<b>Net Return %</b>	<b>2000+ Gr. =10 %</b>	<b>1990's Gr.=10 %</b>	<b>1980's Gr.= 10 %</b>	<b>2000+ Gr.=9 %</b>	<b>1990's Gr.= 9 %</b>	<b>1980's Gr.=9 %</b>	<b>1970's Gr.= 9 %</b>
<b>BGS</b>	227	264	46	333	-----	-----	44	86	176	-----
<b>GAI</b>	23	198	92	185	-----	-----	55	124	128	-----
<b>SGC</b>	29	125	4	303	-----	201	(27)	(65)	(1)	-----
<b>PSA</b>	368	238	(2)	25	47	178	(50)	(53)	(5)	683
<b>BCCG</b>	104	112	(14)	(15)	(11)	(3)	(68)	(72)	(25)	20
<b>GEM</b>	116	80.6	(23)	154	(38)	(24)	-----	-----	-----	-----

We selected a stratified-by-decade of issue sample of 1,000 from a population of 12,290 graded rookie baseball cards traded on eBay during August 19-September 3, 2004.

Gross return to getting a baseball card graded = ((selling price of a graded card – average price of the same card as per Beckett's baseball card pricing guide for un-graded cards)/average price of the same card as per Beckett's baseball card pricing guide for un-graded cards).

Net return to getting a baseball card graded = ((selling price of a graded card – average price of the same card as per Beckett's baseball card pricing guide for un-graded cards – the lowest cost of grading option provided by the certification service)/average price of the same card as per Beckett's baseball card pricing guide for un-graded cards).

The date indicates the decade when the card was issued. A card in the 2000+ category is a recently issued card. The grade 10 is the highest grade issued by the certification service (9.5 is the highest grade issued by BGS and GAI), the grade 9 is the second highest grade issued by the certification service.

**Table 7: Regression Analysis**

We conducted a regression where  $R_i = \alpha_1 + \beta_1 \text{Year}_i + \beta_2 \text{Grade}_i + \beta_3 \text{GPSA}_i + \beta_4 \text{GBGS}_i + \beta_5 \text{GBeckett}_i + \beta_6 \text{GGAI}_i + \beta_7 \text{GGEM}_i + \beta_8 \text{GSGC}_i + e_i$

$R_i$  = Return from getting a baseball card graded. This is calculated as selling price of graded card on EBay – (book value of same card in Beckett pricing guide + minimum cost of certification service) divided by book value of same card in Beckett pricing guide.

Year = Actual year when a baseball card was issued

Grade = score assigned by an independent certification service on a scale from 1 to 10, increasing in increments of 0.5.

GPSA = Grader is PSA; GBGS = Grader is BGS, GBeckett = Grader is BECKETT (other than BGS); GGAI = Grader is GAI, GGEM = Grader is GEM; GSGC = Grader is SGC. These are the top 5 graders. For each individual top grader, the test is whether return to the specific grader is greater than return from all other non top graders.

Regression (990)df,  $R^2 = 0.1747$ ,  $p < 0.001$ . (Adjusted  $R^2 = 0.168$ )

	<b>Coefficient</b>	<b>Std Error</b>	<b>T Statistic</b>
Intercept	108.68	12.60	8.63 ***
Year	-0.058	0.006	-8.97 ***
Grade	0.72	0.06	12.65 ***
GPSA	0.37	0.16	2.22**
GBGS	1.12	0.18	6.25***
GECKETT	-0.18	0.19	-0.98
GGAI	1.21	0.31	3.87 ***
GGEM	-0.73	0.18	-3.97***
GSGC	0.48	0.28	1.68*

\*\*\* p < 0.001

\*\* p < 0.01

\* p < 0.05