EFFECTS OF TECHNOLOGY ON RETAIL SALES, COMMERCIAL PROPERTY VALUES AND PERCENTAGE RENTS

★ AMERICAN REAL ESTATE SOCIETY (ARES)

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Overview

This study examines the impact of e-commerce and the effect of technology on traditional retail sales, commercial property values and percentage rents. This study analyzes standard retail leases and seeks evidence of retailers shifting on-site sales to off-site e-commerce and catalog operations. The results indicate that of those surveyed, most shopping center owners, managers and leases contain no provisions for these sales, which have value implications to owners. In addition, this study presents both theoretical concepts and empirical results that suggest commercial leases need to be altered to account for online and catalog sales. Alternative uses for vacant bank buildings and retail spaces are suggested as well as specific recommendations to owners / tenants to reduce the threat of e-commerce to retail centers.

Introduction

E-commerce is causing a leakage of retail sales at traditional retail locations. That is, many e-commerce sales are occurring at traditional retail locations and are recorded as catalog sales or computer sales for next day
pickup or delivery directly to customers' homes. The sales information is often logged off-site at the tenant's national data center, although the physical retail center acts as the purchasing cause of point of contact for the sale. The results are lost on-site sales information, reduced tabulation of gross sales per square foot reported to the property management company/owners and potential loss of percentage rents.

The potential effects of e-commerce on traditional retail property values could eventually be profound. Two primary aspects could be responsible: (1) more off-site retail sales resulting in less foot traffic, lower impulse sales by non-anchor tenants, lower profit margins due to comparative Web shopping, greater competition, lower profit margins for tenants and eventually higher vacancies; and (2) more on-site retail sales that are accounted for as off-site or catalog sales or computer orders.

It can be assumed that every Internet sale equates to a loss of gross sales revenue reported to or attributed to traditional retail property and/or a reduction of catalog sales. This assumes that at any given time, there is only a finite amount of retail sales or catalog sales and disposable income per household and that traditional retail sales can only be maintained if the economy expands at an increasing rate, faster than the growth of e-commerce.

**Literature Review**

The implications of technology and the predicted downsizing of the various commercial and residential real estate professions (Baen and Guitler, 1997) have not noticeably occurred except in the lending/banking and title insurance areas (Power, 1998). Mergers and technological efficiencies have contributed greatly in increasing vacant branch bank facilities either within malls or on pad sites within the immediate area of major retail properties. Alternative uses of vacant retail centers and bank buildings have become common topics in the mainstream press (Brown, 1998) and have become a priority topic for funded research (ICSC Priority Research Topic, 1999).

Major national retailers are either closing stores and moving to the Internet (Etalkias, 1999) or making major moves to begin or expand online sales within existing retail operations (J. C. Penney, Wal-Mart, Radio Shack, etc.).

While the trend is occurring faster than the traditional academic journal articles can be published, the mainstream press is full of references that are causing real concern to shopping center owners, retail leasing agents and property managers. Examples are:
1. “REIT Interest—Will the Internet Kill All the Shopping Centers?” (Martinez, 1999).

The countless similar mainstream press references have added significant anxiety to traditional retailers and property owners. Prestigious real estate and e-commerce consultants however are monitoring profits and cost savings for clients and finding major changes in the perception of the traditional sticks and bricks approach to retailing/marketing. “There’s oodles and oodles of business-to-business success stories, however,” says Steven Johnson, director of e-commerce at Anderson Consulting in Chicago. “Our studies show that companies such as Dell Computer, Charles Schwab and Cisco Systems, companies that have moved aggressively toward e-commerce models, are enhancing revenues (generally by 10 to 20%), cutting costs (20% to 45%) and reducing working capital and physical infrastructure requirements (20% to 60%).” (Calgary Herald, 1998).

The e-commerce battle is not just between retailers and landlords. Major manufacturers are also going online and bypassing distributors, wholesalers and retailers. The Wall Street Journal (1998) reported, “If consumer merchants can’t separate themselves from the pack, they are likely to transform most online markets into low-margin commodity businesses. Price cuts will become the main weapon in a chaotic battle for market share.”

### Historical and Contemporary Overview

The traditional retail center or mall is made up of five major components, of which the physical real estate itself (the sticks and bricks) is but one (Exhibit 1). The sword of technology and the cost of real estate property (Exhibit 2) has clouded the real estate analyst’s vision to project future rents, percentage rents and, therefore, property values. Percentage rents have traditionally been a hedge against inflation and often form the upside potential for negotiating higher base rents at the end of a lease term.

In the past, retail center planners, investors and financing firms have concerned themselves with buildings that would;
EXHIBIT 1. THE RETAIL CENTER/MALL CONCEPT UNDER FIRE BY TECHNOLOGY

1. Physical Retail Center

2. Center Anchor Tenants
   - Shift to e-commerce and catalog online sales in stores.
   - Targets for other new e-commerce firms and virtual discount malls.

3. Property Managers and Leasing Agents
   - At risk to competition of on-line leasing, marketing, and brokerage websites.
   - Increasing total square footage managed per manager due to technological efficiencies.
   - At risk to lower leasing commission brokerage fees and performance-based management fees due to potential decrease in mall center annual revenues and percentage rents.

4. Center/Major Profit Sources: Smaller Tenants
   - At risk to less foot traffic.
   - Customer shift to competing off-site e-commerce.
   - Declining quality of customer service and sales clerks due to low unemployment rates and low pay.
   - Fewer clerks on commission.

5. Shoppers—Consumers
   - Targeted for e-commerce sales and catalog sales at their homes and offices.
   - Computer-based comparative shopping for major items will divert mall foot traffic to other locations with lower rents, operating costs, etc.
   - The drive to lower prices and home delivery convenience.
   - Large improvements and efficiencies in off-site deliveries (FedEx, UPS, UPS, etc.)

1. Lease to tenants with the value-added upside and inflation hedge of percentage rents based on gross sales at the point of purchase.
2. Offer a tenant mix and design that enhance both destination and impulse buying.
3. Offer visitors pleasant and entertaining activities to create the atmosphere of a visit to the retail center as an event rather than an outing or occurrence.
4. Offer easy and safe access, parking and pleasant shopping experiences.
5. Cash flow and appreciation of the sticks and bricks through property management, facilities maintenance, marketing of the retail center and upside prospects of rents (contract and percentage).


<table>
<thead>
<tr>
<th>Rents % Rents Property Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Good</strong></td>
</tr>
<tr>
<td>Efficiency in transactions and manufacturing</td>
</tr>
<tr>
<td>More informed shoppers on quality and price</td>
</tr>
<tr>
<td>E-commerce has lower overhead and requires less and less expensive real estate</td>
</tr>
<tr>
<td>Explosive computer literacy in the U.S.</td>
</tr>
<tr>
<td>More online shopping</td>
</tr>
<tr>
<td>More home-based businesses and employment</td>
</tr>
<tr>
<td>No wage/salary pressure for consumer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>The Bad</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Layoffs, fewer employees, fewer foot traffic shoppers</td>
</tr>
<tr>
<td>Lower profit margins and profits to tenants</td>
</tr>
<tr>
<td>Gross sales will be reduced; demand may drop for traditional space</td>
</tr>
<tr>
<td>Decrease in traditional marketing at retail centers</td>
</tr>
<tr>
<td>Faceless buyers/sellers; no customer service</td>
</tr>
<tr>
<td>Further displacement of urban, concept and location factors</td>
</tr>
<tr>
<td>No chance for add-on sales</td>
</tr>
</tbody>
</table>

These basic objectives of retailing evolved from central city locations and migrated to the suburbs of most metropolitan areas in the United States over the last 60 years (Exhibit 3). The blossoming of the suburban retail centers has most often been at the expense of inter-city retail tenants, property owners and loss of tax base for the central cities.

More recently, suburban regional malls have overbuilt with multiple
EXHIBIT 3. CHANGING RETAIL PERSPECTIVES

1980-1990s

Historical Retail Perspectives
Location: Central Cities—Superior Market
Location: Central Cities—Suburban Mix
Location: Suburbs—Superior Market

1990-1999

Contemporary Retail Perspectives

Battle of the bigger, better, greater number of tenants, largest regional malls vs. Wal-Mart, Sam's Discount Stores, etc.; for:
- Demographics
- Location vs. Price
- Dominant Regional Mall
- Demographics
- Location vs. Price—Multiple Malls in One Region
- Demographics
- Location vs. Price—Super Malls and Freeway Outlet Malls

2000 + Beyond

Virtual Retail Perspectives
- Product viewing locations with product website ordering address on every product: Website location for one global price, FedEx, UPS, etc.
- Malls
- Airports
- Consumer/Store (walking ad)
- Media (TV, radio, print, etc.)
- Traditional retail locations become places to pick up, return and receive repair service for products ordered on Internet
- More traditional retail space dedicated to storage, warehouse, repair areas and customer service.

Malls within one region competing for a finite amount of disposable income dollars within that region. The battle of the bigger, better, newer, greater-number-of-tenants mega malls has also been met with a discount malls and discount retailers' war with Wal-Mart, Sam's Discount Stores, etc. The American shopper and mall developers have been confronted with high dollar demographic/location/price versus discount warehouse retailing.

The evolution of retail sales to e-commerce has added a third dimension to competitive product viewing and retailing that goes far beyond the physical and locational factors of the traditional retail location (Exhibits 3 and 4) combined with a downward movement of prices to a single world price for many items, accompanied by smaller profit margins. There are new threats to retail property values as a result of technology (Exhibit 4).

Early indications are that the following tenant profiles have been most affected by e-commerce giving them technological efficiencies that will change the potential tenant mix and profitability from traditional spaces leased to this type of retailer. Tenants, retailers and service providers that have been seriously affected to date by technology and therefore their profitability and ability or willingness to pay rents are:
EXHIBIT 4. THREATS TO RETAIL VALUES

Traditional Threats
- Recession
- High interest rates/reduced cash
- Unemployment
- Competing centers
- Reduction in consumer spending
- Changing neighborhood demographics/tenants
- Building obsolescence/infrastructure
- Lack of available financing
- Major vacancies in a center (bank, branches, anchor, etc.)

Technology
- Telemarketing/call centers in other states
- E-commerce
- Consumer auctions
- Efficient delivery systems of products
- Medium/lower price information

1. Bookstores—Amazon.com
2. Travel agencies—Shoestring/America Airlines/Southwest Airlines
3. Record, tape and CD stores
4. Automobile dealerships
5. Banks—Non-Banks (branch closings due to mergers, ATM machines, etc.)
6. Stock brokerage and investment firms (e-trades)
7. Computer stores (Deel Computer)
8. Superb stores
9. Up and Gainers
   a. Grocery stores
   b. Drug stores and pharmacies
   c. Electronic stores/Radio Shack, etc.

Retail real estate owners must be on guard not to underestimate the effects of e-commerce on traditional retailing. Potential short-term value and commercial real estate professionals’ employment implications using conservative e-commerce gross sales figures appear to be significant (Exhibit 5). Typical deadly retail owner perceptions collected from recent interviews with members of the International Council of Shopping Centers (ICSC, 1998):

1. “Technology is no threat to my portfolio. It’s my tenant’s problem.”
2. “The Web will never replace the need for human contact.”
3. “Excellent customer service and property management will protect my centers from the threat of technology.”
<table>
<thead>
<tr>
<th></th>
<th>Estimated E-Commerce Sales 1998</th>
<th>1999 Estimate</th>
<th>2003 Estimate</th>
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</thead>
<tbody>
<tr>
<td>Lost Rents (NOI)</td>
<td>15,200,000</td>
<td>250,000</td>
<td>200,000</td>
</tr>
<tr>
<td>PV of Lost Value CAP 8%</td>
<td>3,250,000</td>
<td>3,230,000</td>
<td>330,000</td>
</tr>
<tr>
<td></td>
<td>Value</td>
<td>&lt;2,750,000</td>
<td>&lt;3,500,000</td>
</tr>
</tbody>
</table>

|                         | <1,650,000                      | <1,975,000    | <3,300,000    |
|                         | <2,875                          | <7,800        | 9,500,000     |

Note: The table shows estimated E-Commerce sales for 1998, along with calculations for lost rents, present value of lost value, and value estimations for 1999 and 2003. The calculations are presented in dollar figures and percentages.
<table>
<thead>
<tr>
<th>Description</th>
<th>1999 Estimate</th>
<th>2003 Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOI Loss = Prevailing CAP = Loss Due to E-Commerce</td>
<td>$132,000</td>
<td>$0</td>
</tr>
<tr>
<td>Lost in Fees</td>
<td>$6,000</td>
<td>$13,000</td>
</tr>
<tr>
<td>Lost Fees/Av. Property Manager Salary Per Year Fewer Professional Managers and/or Leasing Agents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fee</td>
<td>$600</td>
<td>$13,000</td>
</tr>
<tr>
<td>- Salary</td>
<td>$600/$13,000</td>
<td>$7,000/$12,400</td>
</tr>
<tr>
<td>- Less</td>
<td>$60/$60</td>
<td>$60/$60</td>
</tr>
<tr>
<td>- Less Professional Managers and/or Leasing Agents</td>
<td>$&lt;110&gt;</td>
<td>$&lt;110&gt;</td>
</tr>
<tr>
<td>Total</td>
<td>$19,000,000</td>
<td>$31,200</td>
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EXHIBIT 5. (CONTINUED)

<table>
<thead>
<tr>
<th>Lost Values of Shopping Center Sales (from #2)</th>
<th>1999 Estimate</th>
<th>2003 Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost Real Estate Sales Commissions @ 3%</td>
<td>x .03</td>
<td></td>
</tr>
<tr>
<td>Lost in Commissions</td>
<td>&lt;49.500&gt;</td>
<td>&lt;97.500&gt;</td>
</tr>
<tr>
<td>Lost in Commissions/Estimated</td>
<td>&lt;49.500 Million&gt;</td>
<td>&lt;82.500 Million&gt;</td>
</tr>
<tr>
<td>Average Annual Income of Commercial Brokers per year</td>
<td>J/2 7</td>
<td></td>
</tr>
<tr>
<td>Reduction in Commercial Real Estate Agents in the U.S.</td>
<td>&lt;495&gt;</td>
<td>&lt;975&gt;</td>
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<tr>
<td></td>
<td>&lt;82.5&gt;</td>
<td>&lt;592&gt;</td>
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<td></td>
<td>&lt;1.033&gt;</td>
<td>&lt;930&gt;</td>
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<tr>
<td></td>
<td>&lt;2.340&gt;</td>
<td>&lt;28.500&gt;</td>
</tr>
</tbody>
</table>

Notes: Values are in U.S. dollars
*Forecast Research Proposal 1999 Estimates
1House Consulting Group-BEER
2Cyber Dialogue-BEER
3Forecast Research-BEER
4International Data Corp.-BEER
5Exel Group-BEER

*Goldsmith, A. "E-Commerce may soar to 1999 levels..." Source: Datamation, inc.; Lake Beauti City, FL; Online Marketing News, October 13, 1999 worldwide estimates.
4. "My retail center's Web page will maintain a fresh flow of visitors to our mall and our retail tenants."

5. "My retail tenants would never make electronic purchases for customers that would register sales 'off the books' to avoid percentage rents."

Approximately 111 commercial retail professionals and owners attending an International Council of Shopping Centers (ICSC) meeting in November 1998 on the subject of "The Future of Retailing" completed a questionnaire (see Appendix A). The results (see Appendix B) were both interesting and important in terms of the attitudes of those persons perhaps closest to ground zero of the implications of e-commerce on retail property. Respondents' perceptions and retail center technology levels are apparent. Their conclusions as to the future of shopping centers as investments at prevailing CAP rates are startling. It should be noted that 58% of the respondents were retail property owners and leasing agents (24% and 34%, respectively) with 24% being developers and only 3% being investors/owners.

**Long-term Value Implications:**

**A Theoretical Illustration**

The Appendix presents excerpted work by Cruickshank and Baen (1998) that involves simple assumptions but drives home the point that the present value of a theoretical retail center losing either percentage rents and/or retail rental increases due to e-commerce, technologies, etc., is substantial.

**Observations/Areas of Concern and Recommendations**

1. Online sales and ordering are occurring at physical retail centers that are the purview of the sale. Owners must restructure leases to capture some portion of their sales and at the least, the gross sales information. Online sales are also occurring in shoppers' homes after being viewed in retail centers. It would be difficult if not impossible to capture income from these home e-commerce sales that were showcased in malls unless entrance fees were charged or leases were also based on the number of shoppers entering the facilities.
2. The convenience, selection of goods, downward movement of prices and faster home delivery systems available through online sales will increasingly compete with traditional retail sales.

3. Customer service at traditional malls has been dwindling. The quality, vitality and enthusiasm of sales clerks have been declining due to low pay, high U.S. employment rates and lack of training. Many sales clerks are order takers at best and many actually offend shoppers with poor manners and service. Landlords and retailers need to form alliances to improve customer service throughout the retail center through new training and incentive-based sales programs. However, with falling profit margins (due to e-commerce competitive shopping services) this may prove uneconomical.

4. Malls need to become more family oriented with free computer rooms for games and/or homework rooms for children of shopping parents. Perhaps the computer might not be connected to the Internet to eliminate competitive shopping or ordering online.

5. Improvements in customer service and information desks need to be accomplished through better, faster, more efficient information such as sales (actual sales), community information, community demographics and special services for mall visitors.

6. Posted prices in traditional retail stores are becoming negotiable by shoppers carrying online comparative price lists by competitive stores or sites by name and location. Store managers often match the lowest price on the list (McIntyre, 1999). At least one major retailer (Barnes & Noble) is practicing this e-commerce leakage technique. This may turn American retail centers into oversize Mexican markets or Middle Eastern bazaars where everywhere is negotiable. Gross sales figures and percentage rents may increase while tenants go bankrupt due to super competitive e-commerce pricing and crashing merchant profit margin. Wireless, customer hand-held comparative price shoppers are currently being tested on the East Coast. McIntyre (1999) reports the story of one woman. When she's in the market for a beauseller, she searches online book sites like Amazon.com, prints up the best price and then matches into Barnes & Noble to get them to match it. If a salesperson balks, not to worry. She asks to see the store manager, who invariably offers the deal. The cashiers are often amazed. They'll say: 'I had no idea we did that!'

**Conclusion**

Traditional malls and retailing are being challenged by e-commerce. Their continued stability, profitability and values as investment-grade real estate
will require careful research, monitoring and innovations. Retail tenant leases should include or capture some percentage of catalog and/or e-commerce sales.

Additional research is needed in the areas of monitoring gross sales, on-site e-commerce sales, profit margins of retail tenants and improvements in mall activities/customer service. Efforts of retail center owners and their tenants are not successful in countering Internet sales, while maintaining profitability and tenancy, major research in the area of alternative uses of retail shopping centers will be the hot research topic of the future.

**References**


REEF, Strategic Outlook—On-line Retailing and Its Potential Impact on Shopping Center Sales, Number 23, August 1999.


Acknowledgment

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Appendix

A Theoretical Illustration

Based on the projections of future Internet commerce previously mentioned, this example provides a fairly conservative estimate on how retail real estate values could be affected by a changing retail industry. Using the underwriting assumptions for each prospective case, a dramatic change in value is calculated. In Case 1, normal underwriting standards of today are used to calculate the value of the shopping center. Using these general policies, a value of $10,371,634 is calculated. In Case 2, the potential effects of online shopping are introduced: larger vacancy rates and reduced rent growth, indicating a value of $7,790,103. Therefore, under these general assumptions, the current value of the shopping center is reduced by 25%.

Are these projections and calculations on the effect of online shopping a real threat to the retail real estate industry? In observing what has already happened to the stock brokerage, travel and banking industries due to Internet communications, the answer is yes, and it is only a matter of time. The primary holdback to online shopping today is consumers' fears about transmitting credit card information between computer terminals. Industry participants are attempting to reduce these fears by emphasizing the safety of online transfers in comparison to the accepted method of verbally furnishing credit card information over the telephone.

It is assumed that new technology and security devices will help ease these fears; however, it will take some time before the majority of the Internet population feels comfortable giving credit card information online.

This example (Table 1) is for presentation purposes to estimate the potential effects online shopping could have on the underlying value of a general shopping center. It assumes a fully occupied 100,000 sq. ft. shopping center with current lease rates of $10 per sq. ft. net. Expenses are assumed to be $3 per sq. ft. growing at a projected inflation rate of 3% annually. No capital expenses or tenant turnover are assumed. The analysis estimates the value of the center by discounting back the estimated future cash flows at a discount rate of 11%. The property is assumed to
sell at the end of the tenth year at a 9% cap rate on year 11's net operating income.

**Case 1:** Traditional underwriting assumptions.
- Rental Rate: $10.00 per sq. ft. increasing at 3% annually.
- Vacancy Rate: 7% of gross potential revenue.

**Case 2:** Potential underwriting assumptions with effect of online shopping.
- Rental Rate: $10.00 per sq. ft. remaining flat throughout the term due to loss of rent increases and/or percentage rents due to growth of e-commerce.
- Vacancy Rate: 15% of gross potential revenue. Vacancies increase due to a theoretical 5% loss of tenants due to e-commerce, travel agencies, bookstores, music stores, etc.
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<tr>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,080,000</td>
<td>1,092,727</td>
<td>1,125,509</td>
<td>1,159,274</td>
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<td>368,952</td>
<td>380,031</td>
<td>391,432</td>
<td>403,175</td>
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<td>1,339,000</td>
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<td>119,716</td>
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**Table 1: Long-Term Value Implications: A Theoretical Illustration**

**Case 1**

- **Rental Income**:
  - Year 1: $1,000,000
  - Year 11: $1,343,916

- **Expenses**:
  - Year 1: $300,000
  - Year 11: $403,175

- **Operating Income**:
  - Year 1: $909,000
  - Year 11: $12,982,444

- **Net Present Value**: $1,185,079

- **Sale Price in 10 yrs**: $1,141,620

- **Initial Investment**: $1,168,819

- **CAP Rate**: 11.5%
<table>
<thead>
<tr>
<th>Year</th>
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</tbody>
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**Case 2**

**Rental income**
1,000,000  1,000,000  1,000,000  1,000,000  1,000,000  1,000,000  1,000,000  1,000,000  1,000,000

**Expense reimbursement**
300,000  300,000  300,000  300,000  300,000  300,000  300,000  300,000  300,000

**Potential gross rental revenue**
1,300,000  1,300,000  1,300,000  1,300,000  1,300,000  1,300,000  1,300,000  1,300,000  1,300,000

**Vacancy**
691,000  196,350  197,740  199,173  200,648  202,167  203,732  205,344  207,005

**Effective gross rental revenue**
1,159,000  1,159,000  1,159,000  1,159,000  1,159,000  1,159,000  1,159,000  1,159,000  1,159,000

**Expenditures**
805,000  805,000  805,000  805,000  805,000  805,000  805,000  805,000  805,000

**Net operating income**
723,255  652,290  598,606  517,330  474,377  420,554  383,529  344,822  310,001  288,198

**Present value of cash flow @ 11%**
723,255  652,290  598,606  517,330  474,377  420,554  383,529  344,822  310,001  288,198

**Note:** The indicated value of Case 1 is $10,373,876 and for Case 2 is $12,399,303.