UNIVERSITY OF COLORADO AT BOULDER **LEEDS SCHOOL OF BUSINESS**

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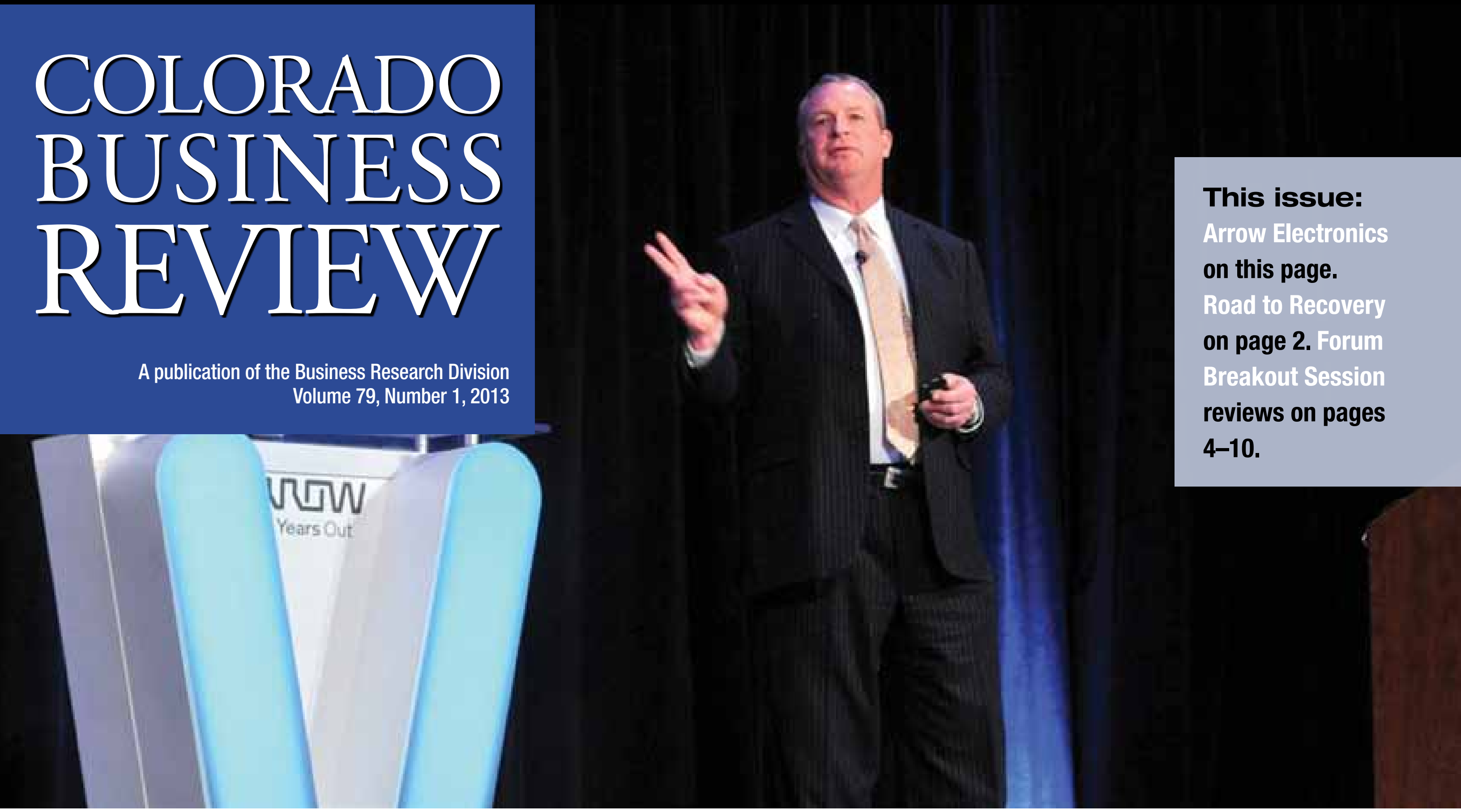
This issue:
Arrow Electronics on this page. Road to Recovery on page 2. Forum Breakout Session reviews on pages 4–10.



Mike Long, Chairman, President, and CEO of Arrow Electronics, presented the keynote address at the 48th annual Colorado Business Economic Outlook Forum.

Forum Keynote Address

Colorado's Core Business Objectives Appealed to Arrow Electronics

From his global perspective as Chairman, President, and CEO of Colorado's largest public company, Arrow Electronics, Mike Long shared his views on the future outlook for Colorado. Arrow's $21 billion in annual revenue is generated by 17,000 employees in 53 countries, but Long pointed to the positive impact that the State of Colorado brings to Arrow as the location for this Fortune 133 company's global headquarters.

Long reflected on the reasons why the company decided to relocate its headquarters to Colorado in late 2011. Rather than pointing primarily to tax credits, or labor costs, or other tactical measures that companies might use to make these decisions, Long emphasized the importance of several intangible aspects of Colorado that dominated Arrow's deliberations. Among these, Long pointed to the six core objectives of the State's "Blueprint for Colorado": build a business friendly environment; retain, grow, and recruit companies; increase access to capital; create and market a stronger Colorado brand; educate and train the workforce of the future; and cultivate innovation and technology.

Long reflected on the business environment, pointing out that Colorado was historically renowned for barn raisings. In recruiting Arrow to Colorado, Long recalled that Governor Hickenlooper suggested, "Collaboration is the new competition."

Relative to access to capital, Long noted that this need is not always provided by banks, private equity, and traditional financial sources alone. Pointing to the fact that Arrow carries over $4.3 billion in receivables, and with average working capital around $3 billion, Long made the point that Arrow is one of the largest "banks" in the state, particularly for businesses in the electronics sector. By recruiting large companies to Colorado, Long suggested, access to capital can improve dramatically.

Long mentioned that he held optimism for the State's efforts to build a stronger brand. He pointed to the importance of Arrow's "Five Years Out" brand message, and said that if the State of Colorado could supplement the current strong segment messaging (like it does with tourism) with a strong business brand message, then businesses could attach to it and benefit.

Speaking to the State's efforts to build the workforce for the future, Long pointed to Arrow's collaborative partnership with the University of Colorado. Long mentioned that many college graduates hired by Arrow require about four years on the job before they are fully integrated into the business.

CONTINUED ON PAGE 3

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Summary of Forecast

Colorado Continues on the Road to Recovery

From the Editor

Colorado remains positioned for economic growth in 2013 as highlighted at the 48th annual Colorado Business Economic Outlook Forum held on December 3 at the Denver Marriott City Center. The half-day event featured an employment forecast for 13 industry sectors; a keynote address by Mike Long, Chairman, President, and CEO of Arrow Electronics; and three industry breakout sessions. Summaries of the day's proceedings appear in this issue. For additional details, visit leeds.colorado.edu/brd.

Richard Wobbekind

The following observations summarize the thoughts of the Colorado Business Economic Outlook committee members as of early December for 2013.

Job growth accelerated in Colorado in 2012, with the state adding 47,900 jobs, a gain of 2.1%. This leaves the state with a jobs deficit of 2.3% from the April 2009 peak employment. The consensus of the 2013 estimating committees is that employment growth will continue in 2013, with the state adding another 42,100 new jobs, growth of 1.8%.

Over the past 10 years, goods-producing industries lost a net 59,300 jobs, while services-producing industries gained 180,500 jobs. Both goods- and services-producing sectors are anticipated to add workers in 2013.

The three goods-producing sectors will increase their employment base this year:

Construction—This industry is exhibiting strong year-over-year growth in permits, construction values, and employment. Total value of Construction will rise 12.1% in 2013, to $12.6 billion. The largest increase will be attributable to residential construction, growing more than $1 billion this year. Total housing permits are expected to rise to 24,500, with the 28.9% growth marked by year-over-year gains in both single-family and multifamily units.

Manufacturing—Following a decade of decline, Manufacturing employment is expected to increase for the third consecutive year, ending 2012 with 1,800 more jobs. This growth will be mostly in the Other Durable Goods Sector and in Fabricated Metals. The exporting of manufactured goods will also rise in 2013.

Natural Resources and Mining—In 2012, Natural Resources and Mining employment hit the highest level since the 1980s, mostly attributable to new resource extraction along the Niobrara formation. In 2013, the value of production is anticipated to increase for oil, natural gas, carbon dioxide, coal, minerals, and uranium. This will translate to modest employment growth of 3.3%, to 31,700.

The outlook for services employment shows growth in all sectors but Information in both 2012 and 2013:

Education and Health Services—Private education and health care services are expected to add 7,600 jobs this year, demonstrating resilience both during and after the recession. Most of the growth has been in health care, driven by population growth and demographic shifts.

Professional and Business Services—Employment in this sector will increase by 7,400 jobs in 2013, building on gains in the Professional, Scientific, and Technical Services subsectors related to Colorado's high-tech industries and research institutions. One point of caution is the potential cursory effects of severe cuts in federal spending on research.

Trade, Transportation, and Utilities—TTU employment is anticipated to increase by 5,600 due to growth in wholesale and retail trade. Transportation and Warehousing employment pulled back in

ESTIMATED NET JOBS CREATED IN NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT SECTORS, 2002–2013

(In Thousands)

Sector	2002-2012[a]	2011[a]	2012[b]	2013[c]
Natural Resources and Mining	17.8	3.5	2.8	1.0
Construction	-45.4	-2.9	2.8	6.3
Manufacturing	-31.7	3.6	3.0	1.8
Total Goods Producing	*-59.3*	*4.2*	*8.6*	*9.1*
Trade, Transportation, and Utilities	-3.7	4.7	6.1	5.6
Information	-23.2	-0.2	-2.1	-0.6
Financial Activities	-3.4	-0.5	2.3	2.5
Professional and Business Services	57.4	9.9	14.3	7.4
Education and Health Services	73.0	8.7	8.1	7.6
Leisure and Hospitality	32.0	8.3	7.7	5.0
Other Services	9.3	0.6	1.9	1.6
Government	39.1	-0.3	1.0	3.8
Total Services Producing	*180.5*	*31.2*	*39.3*	*32.9*
Total Jobs Created[c]	121.2	35.4	47.9	42.1

[a]Revised. [b]Estimated. [c]Forecast.

Sources: Colorado Department of Labor and Employment and Colorado Business Economic Outlook Committees.

COLORADO'S RECOVERY, CONTINUED FROM PAGE 2

2012, and Utilities recorded a very slight increase. It is projected that Denver International Airport will record another record year, with 53 million passengers. Retail sales are anticipated to continue increasing this year, albeit at a slower rate.

Leisure and Hospitality—Despite a number of setbacks in 2012 (e.g., fires, drought), the Leisure and Hospitality industry added 7,700 jobs. The 2013 forecast calls for 5,000 additional jobs, mostly in the Accommodation and Food Services sectors. This forecast rests on a number of assumptions, including average snowfall and reasonable gasoline prices.

Government—Government is expected to add jobs in 2013, but not at all levels. Even without automatic sequestration, federal government employment is expected to fall by 200 jobs in 2013. State government finances are anticipated to rebound (nominally) to prerecession levels in 2013, but the demands for those funds is ever greater as many education, infrastructure, and social assistance programs were severely cut over the past four years. State government is expected to increase by 1,400 jobs, with most of employment growth concentrated in higher education, which is trying to keep pace with growth in enrollment. Local government will add 2,600 jobs, with the greatest gains in local (K–12) education.

Financial Activities—After five consecutive years of employment losses, the Financial Activities Sector added 2,300 jobs last year. Growth will continue in 2013, with the sector adding 2,500 jobs, although it will be subdued by increased financial regulation and tepid economic growth impacting lending.

Information—The job losses that precipitated in 2012 were partially attributable to decreasing employment in the telecom sector, which is linked to the merger of CenturyLink and Qwest. While both Broadcasting and Publishing benefited from the costly national and local elections, the Publishing Sector continues to reel from changing economies, causing consolidation and content sharing. Software is generally outperforming the Information Sector, with the lack of talent one constraining factor.

With a talented workforce, high-tech (but diversified) economy, relatively low costs of doing business, global economic access, and superior quality of life, Colorado is poised for long-term economic growth.

For more information on each industry sector, visit leeds.colorado.edu/brd.

COLORADO & ARROW ELECTRONICS, CONTINUED FROM PAGE 1

Working with CU in a combined business program, Long believes that this timetable may be shortened by 50%, a great economic benefit to business and workforce driver for the state.

Having sponsored the Colorado Innovation Network Summit (COIN), Long mentioned that the essence of Arrow's existence over nearly 80 years has surrounded innovation. "Guiding Innovation Forward" is a mantra that is used by the company, and this resonates well with the State's innovation initiatives. Arrow is committed to helping the State, and others, in their quest for innovation.

In looking forward for Colorado, Long acknowledged that today presents challenging economic times, but he encouraged the audience to put this in perspective by pointing out that over the years Arrow had seen the Depression, a World War, and a fire that had killed 13 company executives. Long made the point that opportunities start with a problem, and not a profit, and that companies that identify and solve problems find that the profits take care of themselves.

He mentioned Arrow has, in part, created one problem that it is now working aggressively to abate: e-waste. Approximately 300 million new electronic devices enter the market each year, and the question becomes, "where do the old ones go?" Arrow is the largest Value Recovery Solutions provider in the world, but Long says that despite this large footprint, Arrow recaptures less than 1% of the number of new devices entering the market. Until that number increases dramatically, he said, Arrow has a long way to go. He stated that when that becomes more than a $1 billion annual business, a very large number of jobs will be created in Colorado and around the world. Problems like these, Long believes, will be the economic drivers for the future of the state.

Long concluded his presentation by noting three important aspects of business that he feels are critical in going forward: shared sacrifice, clarity, and "walking the talk." He pointed out the success that Arrow has had by making hard decisions that are shared by all levels in the organization. He suggested that the main difference between a "good" worker and a "poor" performer was often that the "good" workers had clarity in their jobs and knew what they need to do and why they do it. This clarity, he said, was the responsibility of leadership. Finally, he said that at Arrow, if employees say that they are going to do something, or that the company is capable of doing something, then the company really does it. With that, Arrow and the State of Colorado travel together on a path of mutual success.

Forum Breakout Session

The Global Scramble for Minerals and Energy—Its Impact on Colorado

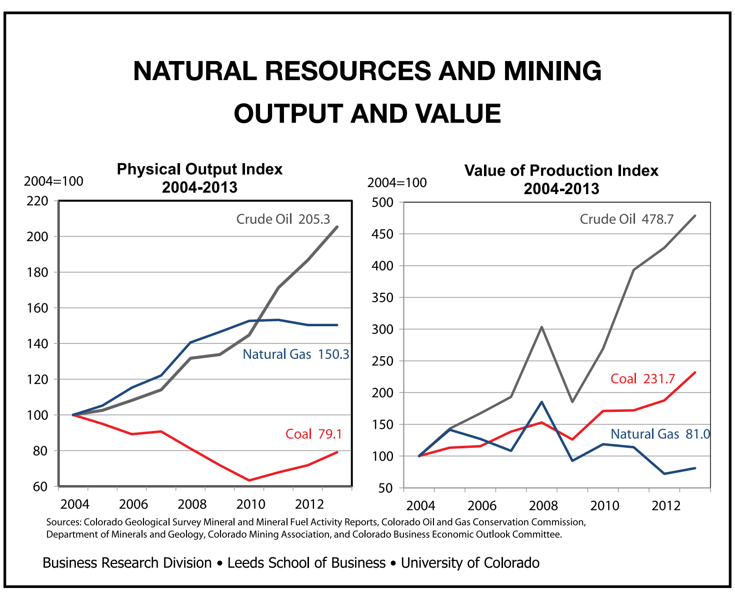
Cindy DiPersio and Ryan Streit

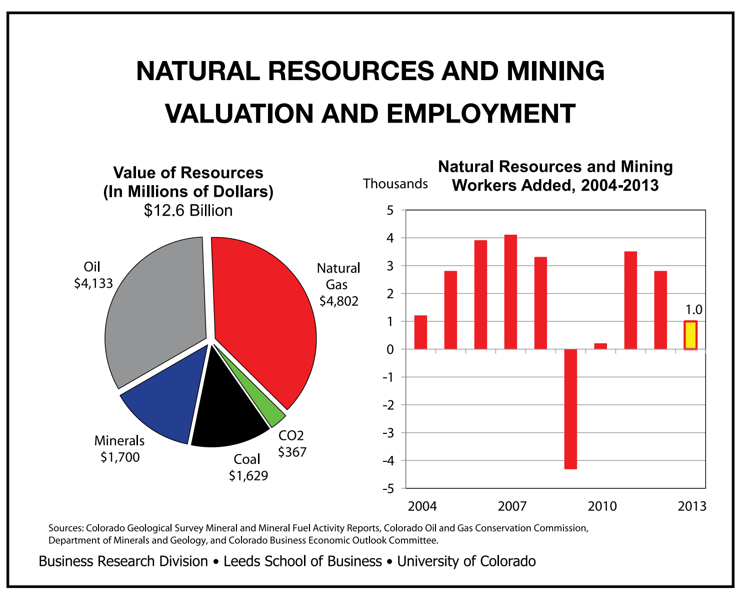
Opinions expressed by panelists reflect the most current market information available as of early December.

The United States is no stranger to the forces of globalization. The unprecedented level of economic interdependence among many of the world's key trading nations continues to drive increasingly fierce competition for scarce resources. Minerals and energy have thus taken center stage as critical factors in the long-term global economic outlook. For Colorado, this worldwide competition means potential for rapid growth and increased international stature in the natural resources and mining sector. Already, the production of natural resources in Colorado has been growing in importance to the state's economy, climbing from approximately $2 billion in 1995 to $11.4 billion in 2012. With depleting resources and increasing global demand, how does Colorado as an energy- and mineral-rich state deal with the mounting pressure to develop these resources? As well, how does the United States cope with surging economies, in particular China, that are producing and using the world's supply of natural resources and energy at an ever-increasing rate? Moderated by **John Tobin** of the Energy LITERACY Project, this forum breakout session featured speaker **Vincent Matthews**, director of the Colorado Geological Survey, who examined the scramble for these limited resources and the impact that the U.S. and other major economies will have on global consumption and production in the coming years.

One of the most significant issues facing the United States is natural resources-driven inflation, caused largely by rapid growth in emerging markets like China. Despite its recent slowing, the tremendous growth of the Chinese economy over the past several years is driving huge increases in the country's energy consumption and mineral production. The copper market, for example, has seen surges in both demand and prices, largely due to China's expansion. Nearly half of all copper mined in the world has been mined in just the last 25 years, and the price of copper soared 457% from January 2003 to July 2008 before falling during the recession. It has since resumed a steep, upward trend as it is used extensively in construction, power generation and transmission, and electronics manufacturing, and in the production of machinery and vehicles. Overall, the United States may see increasing shortages of critical raw materials, like copper, as emerging economies continue to add to the inflationary pressure felt in post-industrial nations.

While copper provides a stark example of the increasing competition the United States faces in the international mineral markets, it is not the only resource to experience inflationary trends. The oil, coal, and cement industries have also seen significant shifts in production and demand due to China's rapid development, the slow recovery in the United States, and a protracted period of economic weakness in Western Europe. In 2010, China became the





Mineral and energy session speaker Vincent Matthews, director of the Colorado Geological Survey.

world's #1 market for cars, causing its demand for oil to skyrocket, with imports now at roughly 58% of consumption. Additionally, China now consumes roughly half of all cement produced in the world, and together with the United States, accounts for 57% of global coal production and 63% of world coal consumption.

One might think that the United States could move away from its dependence on certain resources like oil and coal in order to mitigate some of these inflationary pressures, but while other energy sources like natural gas and geothermal power may appear to be feasible alternatives, there is no single "silver bullet" to America's natural resource needs. Colorado stands to benefit significantly from growth in the natural gas industry. The state's production has climbed from just over 200 billion cubic feet of natural gas in 1990 to roughly 1.5 trillion cubic feet in 2010. However, the United States as a whole continues to see natural gas imports increase dramatically as the country attempts to meet its own growing demand for energy while competing with China's rapid expansion simultaneously. Colorado is also home to some of the most active geothermal hotspots in the United States, offering another opportunity for the state to grow its presence on the international energy stage. When it comes to the country as a whole, however, it will again be insufficient to fully compensate for the pressures caused by global competition.

In the simplest of terms, the United States must look to diversify its energy portfolio as much as possible if it hopes to effectively respond to issues associated with the increasing scarcity of vital natural resources. As worldwide competition for fossil fuels and key minerals continues to create inflationary pressures on both developed and developing nations, the United States, and Colorado specifically, will have to be flexible and of course, resourceful.

Cindy DiPersio (cindy.dipersio@colorado.edu) is a Project Manager, and Ryan Streit (ryan.streit@colorado.edu) is a Student Research Assistant, both with the BRD.

To view the panelists' presentations from this forum breakout session, please visit the Business Research Division website at leeds.colorado.edu/brd.

Forum Breakout Session

Small Business Financing in the 2013 Economy

Ryan Streit

Opinions expressed by panelists reflected the most current market information available as of early December.

From political gridlock in Washington to the ongoing sovereign debt crisis in Europe, the 2013 global economy will be rife with uncertainty. For Colorado, this macroeconomic environment poses significant challenges to small business leaders as they attempt to seek financing and grow their enterprises. In this forum breakout session, **Ron New** of Stifel Nicolaus Capital Markets led an insightful discussion of these challenges and the many other factors that will affect Colorado small business financing in 2013.

Ron New of Stifel Nicolaus Capital Markets

Above all, regulatory pressures remain the biggest concern for banks moving forward. Panelist **Don Childears**, president and CEO of the Colorado Bankers Association, offered a detailed look at the regulatory environment facing lenders as the economy slowly gets back on its feet, including increased capital requirements and new rules regarding loan classifications and concentrations. Specifically, the Dodd-Frank Act poses the greatest threat to small business financing in 2013, Childears argued, as it imposes thousands of new regulations on banks that will consequently be reluctant to lend to marginal borrowers in an already suppressed market. Coupled with the Federal Reserve's implementation of Basel III, the global banking standards originally formulated in 2011, these regulations will only compound market conditions that already dampen lending activity, such as lack of loan demand and asset value deterioration. The federal policy response to the financial collapse of 2008 has not been purely negative, however. With the creation of the Consumer Financial Protection Bureau, for example, one of the central pillars of bank regulation—ensuring safety and soundness—has been strengthened, according to Childears. Overall, as the regulatory outlook evolves over the next several years, lenders will continue to play a critical role in helping to shape the small business financing environment in Colorado and the country as a whole.

In understanding the overwhelmingly complex regulatory environment in which lenders must operate, Colorado's small business leaders must work to streamline their financing efforts both for their own benefit and that of the banks. As **Mark Abell**, a senior vice president and Small Business Administration (SBA) specialist at Vectra Bank, described in the breakout session, the Great Recession was preceded by more than a decade of increasingly risky and complex financial innovations that ultimately precipitated the creation of a small business lending bubble within the larger housing bubble of the mid-2000s. Since this hyperactive market contracted dramatically during the recession and is now saddled with additional regulations, Abell pointedly explained that the financial sector, in general, will continue to be

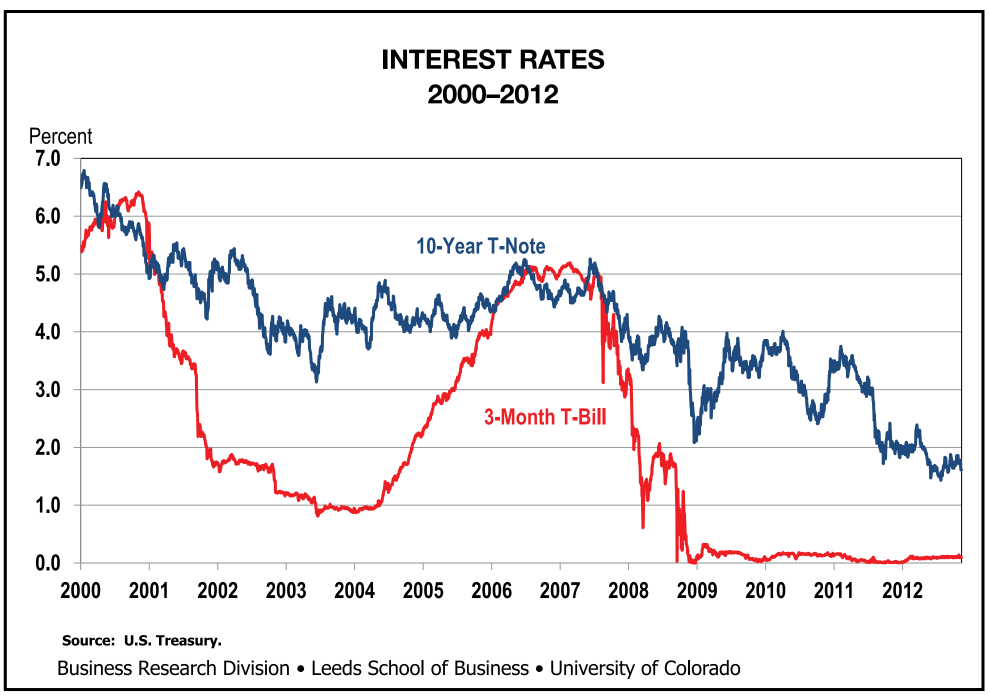
Don Childears, president and CEO of the Colorado Bankers Association

To view the panelists' presentations from this forum breakout session, please visit the Business Research Division website at leeds.colorado.edu/brd.

Mark Abell with Vectra Bank of Colorado

slow to trust risk assessments and will largely avoid start-ups, cyclical or seasonal businesses, and those in turnaround situations. As panelist **Alex Dempster**, a commercial loan officer with the Colorado Housing and Finance Authority (CHFA), echoed, established businesses simply have a demonstrated track record of stability, planning, management, and access to capital, making them more attractive to lenders than start-ups and younger, riskier enterprises. Of course, each case is unique, and both Dempster and Abell stressed that while the SBA and CHFA can help small businesses more easily than banks, due to partial government loan guarantees and a variety of credit enhancement options, the fundamentals of credit remain absolutely critical. Any small business owner should know these fundamentals, recognized as the five "Cs": cash flow, collateral, capital, conditions, and character. Overall, small business leaders are encouraged to research their financing options thoroughly and to start developing relationships with potential lenders early in their projects. By doing so, small businesses can more easily navigate the enormously complicated lending environment and help Colorado achieve greater competitiveness and growth in the 2013 economy.

Ryan Streit is a Student Research Assistant with the BRD and a CU Presidents Leadership Class Scholar, the flagship program of the Presidents Leadership Institute. He may be contacted at ryan.streit@colorado.edu.



Forum Breakout Session

Uncertainty in the Denver Real Estate Market

Emily Zalasky and Ryan Streit

Opinions expressed by panelists reflected the most current market information available as of early December.

The Great Recession of 2008 took an enormous toll on the United States real estate industry. As the country continues its crawl out of the downturn, activity in both the residential and commercial real estate markets provide key positive indicators for what to expect in 2013. In this breakout session, moderated by **Thomas Thibodeau**, academic director of the University of Colorado Real Estate Center, panelists from top real estate companies detailed current trends in the Metro Denver area.

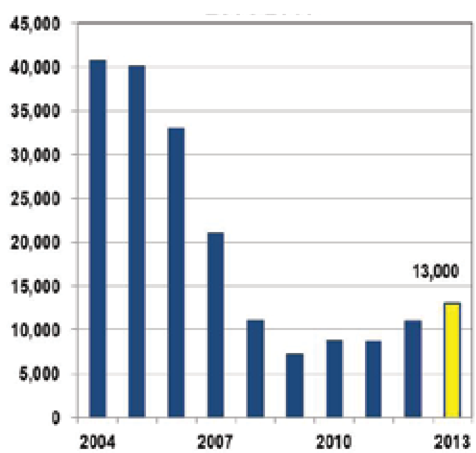
Residential

The general macroeconomic environment in the United States remains uncertain. However, while fiscal policy at the national level poses significant challenges to restoring stability and economic growth, expansionary monetary policy continues to bolster the recovery. As panelist **Peter Niederman**, CEO of Kentwood Real Estate, explained, historically low mortgage and interest rates continue to offer unprecedented opportunities in the residential real estate market, and Coloradans have taken advantage. Condominium sales in the state were up 25.1% in 2012, while single-family sales increased 27.8%, and even the luxury-home market saw 10.4% growth in sales over 2011. Colorado also experienced an impressive 31% decline in housing inventory in 2012, and as panelist **Terrance Hunt**, principal with ARA, emphasized, renters will also continue to play a key role in moving the state's real estate market forward. In Q3 2012, Denver emerged as the number one market in the country for rent growth. As Hunt explained, this was primarily due to declining home ownership, which fell about 4% in 2012, and an extremely tight rental market in which vacancy rates have declined to roughly 4.3%. Hunt provided that each 1% decrease in the rate of home ownership equates to about 11,000 new renters in the Denver area. Additionally, record sales prices, combined with highly visible new development in the residential real estate market and an explosive prime renter demographic emerging in young, relocating adults, indicate that the real estate industry is poised for even further growth. Some of the risk factors these panelists highlighted include regulatory reform impacting the overall mortgage lending environment and significant multifamily unit construction downtown. As the United States continues its recovery into 2013, residential real estate fundamentals will remain strong and continue improving.

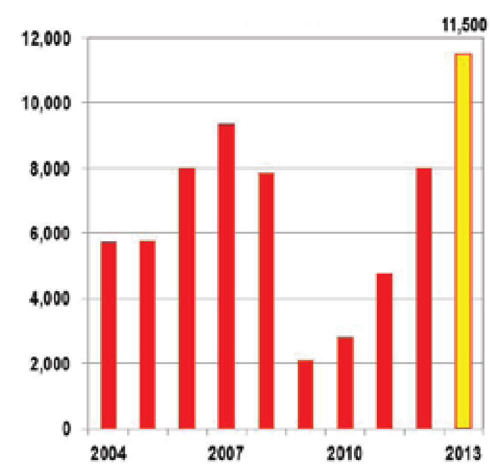
Commercial

While the residential real estate market undoubtedly remains one of the most closely watched industries throughout the country's recovery, the commercial real estate industry deserves significant attention as well. Panelist **Nicholas J. Pavlakovich,** executive director of the brokerage services group with Cushman & Wakefield, Inc., discussed what he sees as a nearly stalled recovery in the national office

COLORADO SINGLE FAMILY PERMITS 2004–2013



COLORADO MULTIFAMILY PERMITS 2004–2013



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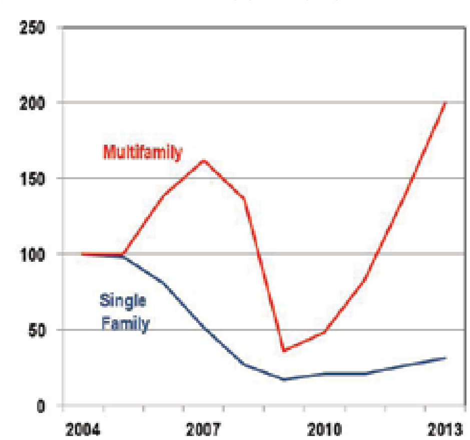
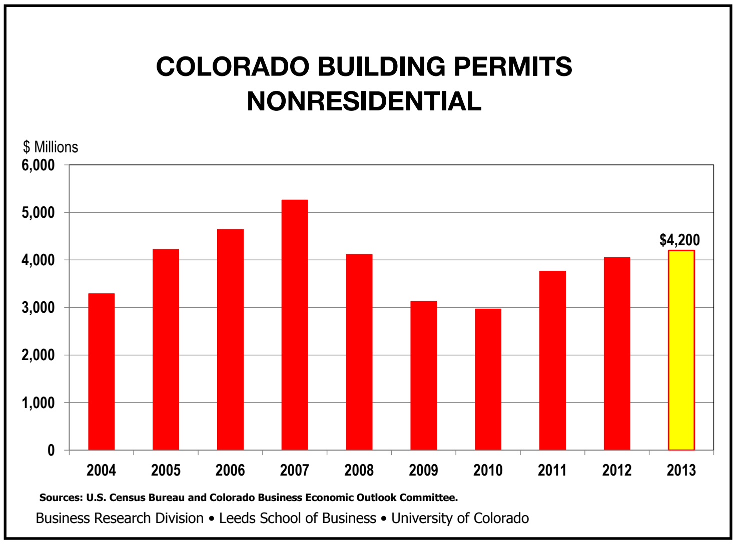


Sources: U.S. Census Bureau and Colorado Business Economic Outlook Committee.

Denver real estate market breakout session speakers (left to right): Nicholas J. Pavlakovich, Cushman & Wakefield, Inc.; Paul B. Kluck, CBRE; David O. Larson, Legend Retail Group, LLC; John Jugl, Jones Lang LaSalle; Terrance Hunt, ARA; and Peter Niederman, Kentwood Real Estate (at podium). Tom Thibodeau, University of Colorado Real Estate Center (second from right), moderated the session.

real estate market, expecting rental rates to remain stagnant and unemployment to remain flat around the nation in 2013. However, he noted that Denver is poised for positive growth in office rental rates. It has seen job growth of 2.8%, and Class A rents are up 7.2% year-over-year. **Paul Kluck**, first vice president of CBRE, echoed this assessment of the Denver office market in his discussion of the city's industrial market, in which he foresees a significant spike in rental rates in 2013 due to declining vacancy and increasing absorption. Overall, the Denver Metro market as a whole ranks 11th nationally in preferred U.S. markets for investors, likely due to the enormous number of people moving from suburban areas to an urban environment close to transportation and entertainment. As panelist **John Jugl**, regional director of capital markets for Jones Lang LaSalle, provided, there is an underlying sense of optimism regarding the strong, highly diversified Denver market throughout the global institutional investment community as roughly 60% of all acquisitions were sourced through institutional capital in 2012, well above the national average. Despite these gains, however, it is important to note that downsizing will continue as businesses seek to cut costs and look to real estate to do so, especially in the retail sector. Legend Retail Group, LLC partner **David O. Larson** detailed three major trends affecting the market for retail space in Denver. First, the city will see a gradual reduction in overall retail square footage as there are now fewer and smaller retailers coming out of the recent recession. Second, Internet sales will continue to grow rapidly, posing significant challenges to brick-and-mortar stores. Last, evolving demographics, such as the aging baby boomers and upcoming millenials, will increasingly force retailers to adapt to new consumer tastes and trends. Other hindrances to growth in the Denver commercial real estate market as a whole include federal spending cuts, particularly in defense-related industries, and slow job growth. In general, however, much like the residential real estate market, commercial real estate in Denver will experience a positive 2013.

Emily Zalasky (emily.zalasky@colorado.edu) and Ryan Streit (ryan.streit@colorado.edu) are Student Research Assistants with the Business Research Division.



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Richard L. Wobbekind, editor; Cindy DiPersio, assistant editor; Brian Lewandowski, technical advisor; Lynn Reed, designer.

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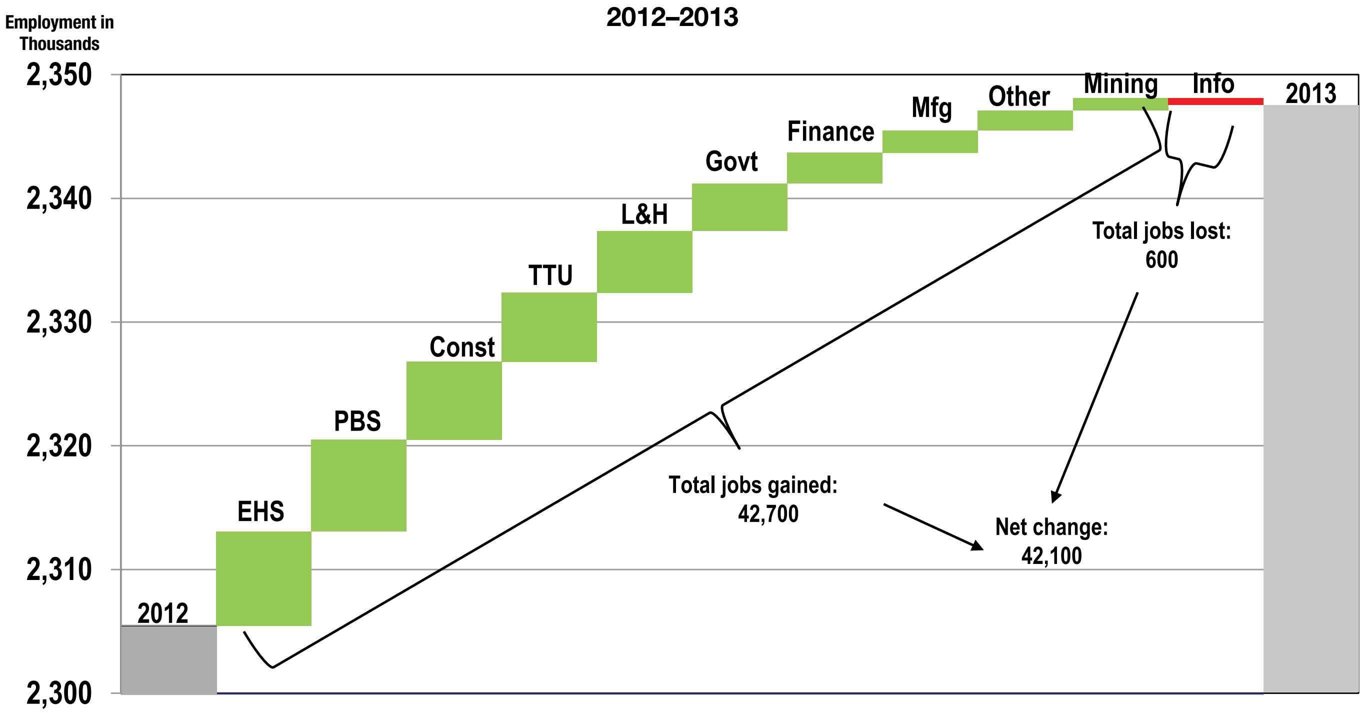
For information/address change:

Business Research Division
420 UCB, University of Colorado Boulder
Boulder, CO 80309-0420 • 303-492-8227

EMPLOYMENT CHANGE
2012–2013



Source: Bureau of Labor Statistics, Current Employment Statistics (NSA).