From Wall Street to Beijing: A Comparative Study of Financial Crises

Arnav Maniar

The origins of the Great Recession can be traced back to the early 2000s housing boom, when a convergence of cheap credit, relaxed lending standards, and an insatiable appetite for profits created a powder keg in the U.S. mortgage industry. The subprime mortgage market was at the heart of the crisis, which became a breeding ground for predatory lending practices and the widespread securitization of high-risk loans.

With housing prices soaring amid easy credit conditions, major mortgage lenders like Countrywide Financial and New Century Financial embarked on a frenzy of subprime loan origination. Countrywide, led by co-founder and CEO Angelo Mozilo, became the nation's largest mortgage lender, originating a staggering $97 billion in subprime loans between 2005-2007 alone. Meanwhile, loan officers and brokers were incentivized with lucrative commissions to push risky loans on borrowers with poor credit, setting the stage for mass defaults down the line.

On Wall Street, investment banks jumped at the opportunity to repackage these subprime mortgages into complex mortgage-backed securities (MBS) and collateralized debt obligations (CDOs), which were aggressively marketed as safe investments despite their inherent risks. Rating agencies like Moody's and Standard & Poor's, facing conflicts of interest, assigned inflated AAA ratings to these toxic assets, enabling their widespread distribution throughout the global financial system.

This systemic failure was enabled by a confluence of factors, including deregulation, moral hazard, and a fundamental mispricing of risk. The 1999 repeal of the Glass-Steagall Act removed longstanding barriers between commercial and investment banking, allowing firms to engage in more speculative activities. Meanwhile, the "originate-to-distribute" model underpinning mortgage securitization created a perverse incentive for lenders to prioritize loan volume over quality, as they could offload risks to investors.

Furthermore, the rise of complex financial engineering and an overreliance on flawed quantitative risk models led to a gross underestimation of systemic risks. As Raghuram Rajan, former governor of the Reserve Bank of India, noted in his prescient 2005 paper, "Has Financial Development Made the World Riskier?", the proliferation of risk-transfer instruments like CDOs obscured the actual distribution of risk, creating dangerous vulnerabilities.

Compounding these issues was a severe lack of regulatory oversight and a belief in the self-correcting nature of markets. The Securities and Exchange Commission, tasked with overseeing major investment banks, failed to adequately monitor their risk exposures and leverage levels. Similarly, the credit rating agencies, which played a pivotal role in assessing the risk of mortgage-backed securities, faced conflicts of interest and lacked proper accountability.

This perfect storm of cheap credit, lax standards, misaligned incentives, flawed risk models, and regulatory failures created an environment ripe for speculative excess and the systematic mispricing of risk. As the housing bubble inevitably deflated, the fragility of the entire system was exposed, triggering a cascading effect that brought the global financial system to its knees.

The Desperate Chase for Profits

In their relentless pursuit of profits, Wall Street firms employed increasingly complex financial engineering tactics to amplify their exposure to the subprime mortgage market. We will explore four critical case studies of Wall Street's unfathomable greed.

Bear Stearns

Once a formidable presence on Wall Street, Bear Stearns allowed an insatiable appetite for profits to cloud its judgment and risk management practices. Under the leadership of CEO James "Jimmy" Cayne, Bear aggressively pursued the lucrative mortgage securitization business.

The firm established hedge funds like the High-Grade Structured Credit Strategies Enhanced Leverage funds, managed by Ralph Cioffi and Matthew Tannin, to invest heavily in subprime mortgage-backed securities. Despite internal warnings from seasoned professionals about the poor underwriting standards and unsustainable housing price appreciation, those concerns were dismissed. Tannin infamously stated the funds were "money good" in a March 2007 investor call.

By June 2007, with over $20 billion invested in risky mortgage securities, the two hedge funds imploded due to their exposure to deteriorating subprime loans. This triggered a liquidity crisis at Bear Stearns, exposing the firm's excessive leverage and overdependence on short-term funding markets.

In a desperate bid for survival, Bear turned to JP Morgan and the Federal Reserve for an emergency loan. However, confidence in the firm had been irreparably shattered. On March 16, 2008, after a dramatic weekend of negotiations, Bear Stearns was sold to JP Morgan Chase for a mere $10 per share, a startling 93% discount to its previous trading price.

The Federal Reserve's unprecedented $29 billion loan to facilitate the deal sparked outrage and highlighted the systemic risks posed by the investment bank's activities. Bear Stearns, once the indisputable king of mortgage securitization, had effectively ceased to exist as an independent entity due to its excessive risk-taking and flawed business practices.

By June 2007, the funds had collapsed, triggering a liquidity crisis at Bear Stearns that ultimately led to its fire-sale acquisition by JPMorgan Chase in March 2008. As William D. Cohan recounts in "House of Cards," Bear's top executives, including CEO James Cayne, were consumed by a "desperate chase for profits" and ignored red flags until it was too late.

Lehman Brothers

Similarly, Lehman Brothers, the venerable Wall Street firm that had weathered nearly a century and a half, ultimately collapsed under the weight of its own hubris and disastrous foray into the subprime mortgage securitization business. Under the leadership of CEO Richard "Dick" Fuld and President Joseph Gregory, Lehman became a key player in packaging subprime loans into mortgage-backed securities and collateralized debt obligations for distribution to investors worldwide.

However, beyond its aggressive pursuit of profits in this arena, Lehman also engaged in dubious accounting maneuvers to mask its actual leverage levels and risk exposures. The firm employed an accounting gimmick known as "Repo 105," using off-balance-sheet entities to temporarily remove over $50 billion in troubled assets from its books just before reporting periods.

As revealed in the Valukas Report, the court-appointed examiner's analysis, "Lehman's governing risk controls were radically defective...and risk management function was riddled with deficiencies" (Valukas 10). Despite these glaring issues, Fuld and his team pressed forward with their high-risk business strategies. They ignored warnings from within and dismissed concerns about the firm's excessive leverage and concentration in real estate.

When the housing bubble burst in 2007, Lehman was left holding a ticking time bomb of toxic mortgage assets. By early 2008, the firm had already reported staggering losses of over $7 billion, with far worse to come. As the crisis intensified, Lehman desperately sought a buyer or capital infusion, but its excessive leverage and opaque financial disclosures made any deal untenable. On September 15, 2008, after a weekend of frantic negotiations failed to produce a solution, Lehman Brothers filed for Chapter 11 bankruptcy protection, becoming the most prominent victim of the subprime mortgage crisis with over $619 billion in debt. The firm's collapse sent shockwaves through global financial markets and was a defining moment in the crisis, triggering a cascading effect of failures and government interventions.

Merrill Lynch

Merrill Lynch, once revered as the "Thundering Herd" of Wall Street, became one of the most significant casualties of the subprime mortgage crisis due to its unbridled pursuit of profits and excessive risk-taking. Under the leadership of CEO Stanley O'Neal and Osman Semerci, head of the firm's fixed income division, Merrill Lynch amassed a staggering $46 billion portfolio of mortgage-backed securities and collateralized debt obligations linked to subprime loans.

This accumulation of toxic assets went against explicit warnings from internal risk managers l about the poor underwriting standards and unsustainable housing price appreciation fueling the subprime market. However, traders dismissed these concerns, boasting, "We were making gobs of money selling this stuff...It was wildly profitable." Driven by an insatiable appetite for short-term profits, Merrill Lynch aggressively marketed and distributed these complex mortgage securities to investors worldwide, often misrepresenting their risk profiles. The firm's due diligence processes were woefully inadequate, failing to properly assess the underlying loans and heavy reliance on inflated home valuations.

As the U.S. housing market began to crumble in 2007, the value of Merrill's mortgage portfolio rapidly deteriorated, forcing the firm to begin reporting multi-billion dollar write-downs. By October 2007, these losses had reached over $8 billion, leading to the ousting of CEO Stan O'Neal. His successor, John Thain, attempted to steady the ship, but the losses continued to mount. In July 2008, Merrill reported a staggering $9.8 billion quarterly loss, driven largely by over $40 billion in mortgage-related write-downs that effectively wiped out the firm's capital base.

With no other options available, Merrill Lynch was acquired by Bank of America in a hastily arranged $50 billion deal in September 2008, backed by heavy government pressure and guarantees. However, the true extent of Merrill's losses and legal liabilities was later revealed to be far greater than initially disclosed, forcing Bank of America to seek a $20 billion government bailout in early 2009.

AIG

The near-collapse of the insurance giant American International Group (AIG) during the financial crisis exposed the systemic risks posed by the unregulated market for complex financial instruments like credit default swaps. Through its Financial Products unit, led by Joseph Cassano, AIG had built up a massive $500 billion portfolio of credit default swap (CDS) contracts, essentially insuring against defaults on mortgage-backed securities and other debt instruments. By selling CDS protection to financial firms like Goldman Sachs and Merrill Lynch, AIG was able to collect lucrative upfront premiums. However, the firm severely underestimated the risk of widespread mortgage defaults and lacked sufficient capital reserves to cover its potential obligations.

As the U.S. housing market deteriorated in 2007 and subprime mortgage defaults spiked, AIG was forced to begin posting billions of dollars in collateral payments to its CDS counterparties. This exposed the fundamental flaw in AIG's business model – the firm had failed to properly assess and price the risks associated with its credit default swap portfolio. Despite repeated warnings from internal risk managers about the growing potential for losses, AIG's Financial Products unit continued to write new CDS contracts, amassing an increasingly concentrated exposure to the U.S. housing market. Joseph Cassano infamously dismissed concerns about the unit's activities, stating, "It is hard for us, without being flippant, to even see a scenario within any kind of realm of reason that would see us losing $1 in any of those transactions."

By September 2008, AIG was teetering on the brink of failure, facing over $100 billion in additional collateral calls that a credit rating downgrade would trigger. With no viable private sector solution, the Federal Reserve took the unprecedented step of extending an $85 billion emergency credit line to AIG, effectively nationalizing the firm to prevent a catastrophic bankruptcy. Over the following months, the government's financial commitment to AIG swelled to over $182 billion, including additional loans, equity injections, and creating special vehicles to absorb the firm's toxic assets. This drew intense criticism from lawmakers and the public, who decried the bailout of a firm that had engaged in excessive risk-taking and lack of oversight.

Desperate Measures: TARP and Beyond

As the crisis intensified in the fall of 2008, the U.S. government implemented unprecedented measures to prevent a complete collapse of the financial system. The centerpiece was the Troubled Asset Relief Program (TARP), a $700 billion bailout fund authorized by Congress to provide capital injections and asset purchases from distressed banks. Major recipients included Citigroup, which received a $45 billion bailout package and a government guarantee on over $300 billion in toxic assets. Bank of America received $45 billion in TARP funds, while insurance giant AIG received $182 billion in emergency loans and capital injections to prevent failure.

Despite these interventions, the crisis escalated, prompting additional measures such as the Term Asset-Backed Securities Loan Facility (TALF) to restore liquidity to securitization markets and the Public-Private Investment Program (PPIP) to remove toxic assets from bank balance sheets. In their seminal work "The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It," Scott Patterson exposes the central role played by quantitative analysts in developing the flawed risk models that underpinned these toxic financial products: "The quants saw their mathematical models as modern-day fortunetellers, utilizing robust computer algorithms to put hard numbers at risk. However, in the process, they somehow failed to account for human frailty and the imperfect world it created" (xvi).

As the housing bubble began to deflate, the fragility of these financial instruments became apparent, triggering a cascading effect that brought down titans like Bear Stearns, Lehman Brothers, and Merrill Lynch. In a scathing indictment, Michael Lewis's "The Big Short" chronicles the hubris and willful blindness of Wall Street's elite, who dismissed warnings from contrarian investors like Michael Burry and Steve Eisman: "The entire financial system... was crooked and corrupt from top to bottom. The big Wall Street firms had created a billion-dollar machine designed to corrupt everyone exposed to it" (223). The fallout was severe, with millions of Americans losing their homes, jobs, and life savings. The crisis also exposed the systemic vulnerabilities of the global financial system, as the interconnectedness of markets allowed shockwaves to ripple across borders, triggering recessions and bailouts worldwide.

The Modern Chinese Economy

In the aftermath of the 2008 global financial crisis, the Chinese government unleashed a massive 4 trillion yuan ($586 billion) stimulus program to insulate its economy from the global downturn. This flood of cheap credit channeled through state-owned banks and local government financing vehicles set off an unprecedented debt binge that would fuel a speculative frenzy in the real estate sector. Between 2008 and 2013, outstanding bank loans in China more than doubled from 35 trillion yuan to over 74 trillion yuan, according to data from the China Banking and Insurance Regulatory Commission (CBIRC). Much of this credit found its way into the property market, fueling a construction boom that saw residential and commercial floor space across China's cities increase by over 75% during the same period.

According to data from the National Bureau of Statistics, property prices in major metropolises like Shanghai and Shenzhen skyrocketed, with average home values more than tripling between 2008 and 2018. This frenzy was driven by a confluence of factors, including easy access to credit, speculative investment demand, and local government's reliance on land sales as a primary source of revenue. As property values climbed, households and developers took on ever-increasing debt levels, confident that the real estate market would continue its upward trajectory. By 2020, household debt in China had reached a staggering 62.2 trillion yuan, or 62.2% of GDP, with over 70% of that debt tied to mortgages, according to the People's Bank of China (PBOC).

The Role of Shadow Banking and Regulatory Failures

Compounding the risks posed by China's debt-fueled real estate boom was the rapid growth of the country's unregulated shadow banking sector. This parallel banking system, comprising trust companies, wealth management products, and off-balance-sheet lending vehicles, allowed banks and non-bank financial institutions to circumvent lending restrictions and fuel the credit binge. By 2017, the size of China's shadow banking sector had swelled to an estimated 84.8 trillion yuan, according to Moody's Investors Service calculations. This represented nearly a third of the country's total banking assets and exposed the financial system to many opaque and potentially risky lending activities.

Chinese regulators had begun sounding alarms about the dangers posed by shadow banking as early as 2013 when the China Banking Regulatory Commission (CBRC) issued guidelines aimed at curbing the sector's growth. However, these efforts were often hamstrung by local authorities and powerful vested interests benefiting from the easy flow of credit. In a scathing critique, economists Dinny McMahon and Michael Pettis argued that China's regulatory apparatus had been effectively captured by the very entities it was supposed to oversee, stating: "Beijing's efforts to reform the financial system have been hamstrung by powerful interest groups...who have distorted ostensibly market-based reforms to protect their privileges and maintain access to cheap credit" (McMahon and Pettis, 2020).

The Evergrande Contagion and Systemic Risks

The first tremors of the impending crisis were felt in late 2021, when Evergrande, China's largest property developer, defaulted on its staggering $300 billion debt load. The company's collapse exposed the extent to which the real estate sector had become overleveraged, with developers routinely engaging in opaque financing schemes and off-balance-sheet borrowing. At its peak, Evergrande had accumulated over 2 trillion yuan ($305 billion) in liabilities, including loans from nearly 170 domestic banks and over 120 other financial firms, according to data from the company's financial statements. The developer's struggles sent shockwaves through China's financial system, with banks and shadow lenders scrambling to assess their exposure to the teetering real estate giant.

As fears of contagion mounted, other heavily indebted developers like Kaisa Group and Fantasia Holdings also defaulted on their debt obligations, triggering a liquidity crunch. According to estimates by Goldman Sachs, Chinese property developers faced a staggering $19.8 billion in offshore bond repayments in 2022 alone, raising concerns about a potential wave of defaults. The Chinese government's response was a series of piecemeal interventions and implicit guarantees to contain the fallout. However, critics argued that these measures only delayed an inevitable reckoning. "By prioritizing short-term stability over meaningful reform, Beijing has effectively kicked the can down the road," argued economist Michael Pettis. "The longer it delays addressing the structural imbalances in its economy, the more severe the eventual adjustment will be."

The COVID-19 Shock and Economic Slowdown

As the Evergrande crisis unfolded, China's economy was dealt another severe blow due to the COVID-19 pandemic. Draconian lockdown measures aimed at containing the virus disrupted supply chains, depressed consumer spending, and exacerbated the country's financial system strains. In 2020, China's GDP growth plummeted to just 2.3%, the weakest pace in over four decades, as strict containment measures brought large swaths of the economy to a standstill, according to official National Bureau of Statistics data. The following year, growth rebounded to 8.1%, but the recovery was uneven, with consumer spending and private investment lagging behind state-driven investment in infrastructure and real estate.

As economic growth slowed, bad loans began mounting in China's banking system. By the end of 2021, commercial banks reported over 3.8 trillion yuan ($580 billion) in non-performing loans (NPLs), a 17% increase from the previous year, according to data from the China Banking and Insurance Regulatory Commission (CBIRC). However, many analysts believed the true extent of bad debt was far higher, given the opaque nature of China's financial system and the incentives for underreporting NPLs. In a desperate bid to stimulate the economy, the People's Bank of China (PBOC) embarked on a series of interest rate cuts, lowering the benchmark lending rate to a record low of 3.65% by early 2023. However, these measures proved ineffective in the face of mounting systemic risks and a growing loss of confidence in the real estate sector, which accounted for around 25% of China's GDP.

Comparing the Subprime Mortgage Crisis and China's Financial Turmoil

While separated by over a decade, the subprime mortgage crisis that rattled Wall Street and the escalating turmoil in China's financial system share striking parallels that expose the inherent vulnerabilities of modern finance. At their core, both crises were fueled by excessive leverage, regulatory failures, and a systemic underpricing of risk that allowed speculative frenzies to take hold. However, a closer examination also reveals key distinctions that underscore China's unique challenges as it grapples with the consequences of its debt-driven growth model.

Perhaps the most glaring similarity between the two episodes lies in the role played by real estate speculation and complex financial engineering. On Wall Street, the seeds of the 2007-2009 crisis were sown through the rampant securitization of subprime mortgages, as banks like Merrill Lynch ($46 billion portfolio), Citigroup ($55 billion), and Bear Stearns ($20 billion funds) repackaged risky loans into opaque mortgage-backed securities. In China, a similar dynamic unfolded, with banks and shadow lenders fueling a property bubble by extending excessive credit to households and developers. By 2020, household debt had reached a staggering 62.2 trillion yuan ($9.5 trillion), with over 70% tied to mortgages (PBOC data). This speculative frenzy in the real estate sector mirrored the subprime mortgage mania that gripped the U.S. a decade earlier.

Moreover, both crises exposed the systemic risks posed by the widespread distribution of complex, opaque financial instruments throughout the global financial system. On Wall Street, banks like Citigroup and Merrill Lynch not only accumulated massive portfolios of mortgage-backed securities but also aggressively marketed and sold these toxic assets to investors worldwide, obscuring the true extent of the risks involved. In China, a parallel phenomenon occurred through the rapid growth of the shadow banking sector, which had swelled to an estimated 84.8 trillion yuan ($13 trillion) by 2017 (Moody's data). This web of unregulated trust companies and wealth management products allowed banks to circumvent lending restrictions and fuel the real estate credit binge, distributing risky loans throughout the financial system in increasingly complex and opaque ways.

However, a crucial distinction lies in the role played by regulatory failures and moral hazard. On Wall Street, the crisis was exacerbated by a fundamental breakdown in oversight, as agencies like the Securities and Exchange Commission (SEC) failed to monitor the activities of major investment banks adequately. This lack of scrutiny, combined with the belief that systemically important institutions would be bailed out, encouraged excessive risk-taking. In China, the regulatory failures were more directly tied to the capture of the oversight apparatus by powerful vested interests. This dynamic played out at the local level, where authorities often turned a blind eye to the excesses of the real estate sector and shadow banking activities, prioritizing economic growth and land sales over prudent risk management.

Another critical distinction lies in the catalysts that ultimately triggered the crises. On Wall Street, the subprime mortgage crisis was precipitated by the bursting of the U.S. housing bubble, which led to a wave of defaults that exposed the fragility of the mortgage-backed securities market. In China, the catalyst was more multifaceted, with the defaults of overleveraged property developers like Evergrande ($300 billion in debt) and the COVID-19 pandemic acting as compounding shocks to an already strained financial system.

Ultimately, both crises exposed the inherent fragility of highly leveraged, interconnected financial systems and the systemic risks posed by excessive risk-taking and opaque financial engineering. However, China's challenges are compounded by the sheer scale of its debt burden (300% of GDP by 2020, per BIS data) and the entrenched interests that have benefited from the credit-fueled growth model. As Michael Pettis warned, "The longer [China] delays addressing the structural imbalances in its economy, the more severe the eventual adjustment will be." This suggests that meaningful reform, including strengthening regulatory oversight, enhancing transparency, and addressing moral hazard, will be essential to mitigating the risks posed by China's financial system.

In contrast, the regulatory reforms implemented in the aftermath of the global financial crisis, such as the Dodd-Frank Act and the establishment of the Financial Stability Oversight Council in the U.S., aimed to address some of the systemic vulnerabilities exposed by the subprime crisis. However, the efficacy of these measures remains a subject of ongoing debate, with critics arguing that more robust action is needed to rein in the excesses of modern finance.

Lessons Learned and a Call for Reform

The Great Recession was a stark reminder of the devastating consequences of unchecked greed, reckless risk management, and regulatory capture within the financial sector. The crisis exposed the systemic vulnerabilities of a system that had become too complex, opaque, and interconnected, allowing shockwaves to reverberate across global markets with catastrophic consequences.As we examine the mounting risks within China's banking system, it is imperative that policymakers and regulators heed the lessons of the past and recognize the global interconnectedness of financial markets. Failure to address the issues of excessive leverage, lack of transparency, and moral hazard could perpetuate the cycle of boom-and-bust crises that have plagued financial systems throughout history.

To mitigate these risks, several vital reforms must be prioritized. First, robust regulatory frameworks and independent oversight must be established to ensure transparency, accountability, and sound risk management practices within financial institutions. Second, measures must be taken to address structural economic imbalances, such as China's reliance on debt-fueled growth and regional inequalities, to promote sustainable, consumption-driven economic development.

Third, global cooperation and information-sharing among regulatory bodies and central banks must be strengthened to enhance monitoring and early detection of systemic risks. Lastly, a cultural shift is needed within the financial sector, prioritizing ethical conduct and long-term stability and rejecting the reckless pursuit of short-term profits at the expense of systemic resilience.

As the world continues to grapple with the aftermath of the COVID-19 pandemic and the ongoing challenges of economic recovery, the lessons gleaned from the Great Recession and the potential risks looming in China's financial system serve as poignant reminders of the fragility of our increasingly interconnected global economy. By embracing transparency, accountability, and prudent risk management, we can work towards a more resilient and equitable financial system, one that serves the greater good rather than the narrow interests of a privileged few.

Works Cited

Avdjiev, Stefan, et al. "Chinese Banks' Debt Risks: Domestic or Global?" BIS Quarterly Review, Bank for International Settlements, Dec. 2021.

Chan, Kam Wing, and Xingquan Du. "China's Hukou System and the New Urbanisation Plan." China Review, vol. 19, no. 1, 2019.

Cohan, William D. House of Cards: A Tale of Hubris and Wretched Excess on Wall Street. Anchor Books, 2010.

Fan, Gang, and Nicholas C. Hope. "Capitalizing China." Hoover Institution Press, 2013.

Lewis, Michael. The Big Short: Inside the Doomsday Machine. W.W. Norton & Company, 2010.

McMahon, Dinny, and Michael Pettis. "China's Great Wall of Debt: Shadow Banks, Ghost Cities, Massive Loans, and the End of the Chinese Miracle." Houghton Mifflin Harcourt, 2020.

Patterson, Scott. The Quants: How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It. Crown Business, 2010.

Pettis, Michael. "The Great Rebalancing: Trade, Conflict, and the Perilous Road Ahead for the World Economy." Princeton University Press, 2022.

Prasad, Eswar, and Grace Li. "The Chinese Footprint in Global Financial Markets." Brookings Institution, 15 Jan. 2018.

Roubini, Nouriel, and Stephen Mihm. Crisis Economics: A Crash Course in the Future of Finance. Penguin Books, 2010.

Valukas, Anton R. "Report of Anton R. Valukas, Examiner." United States Bankruptcy Court Southern District of New York, 11 Mar. 2010.

Zandi, Mark, and Phillip Swagel. "The Great Recession: Lessons for Macroeconomic Policy from the Panic of 2008." VoxEU.org, 11 May 2009.

Zuckerman, Gregory. The Greatest Trade Ever: The Behind-the-Scenes Story of How John Paulson Defied Wall Street and Made Financial History. Crown Business, 2009.

Blinder, Alan S. *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead*. Penguin Books, 2016.

Farrell, Greg. *Crash of the Titans: Greed, Hubris, the Fall of Merrill Lynch, and the Near-Collapse of Bank of America*. Crown Business, 2010.