

# Asset Price Bubbles

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Lawrence J. Lau, Ph. D.

Ralph and Claire Landau Professor of Economics, The Chinese Univ. of Hong Kong  
and

Kwoh-Ting Li Professor in Economic Development, Emeritus, Stanford University

Institute of Global Economics and Finance  
The Chinese University of Hong Kong  
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Tel: (852)3710-6888; Fax: (852)2104-6938

Email: [lawrence@lawrencejlau.com](mailto:lawrence@lawrencejlau.com); WebPages: [www.igef.cuhk.edu.hk/ljl](http://www.igef.cuhk.edu.hk/ljl)

# Outline

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- ◆ Introduction
- ◆ The Anatomy of Asset Price Bubbles
- ◆ Examples
- ◆ Controlling Asset Price Bubbles
- ◆ Concluding Remarks

# Introduction

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- ◆ Asset prices include equity (stock) prices, debt prices, commodity (precious metals) prices and real property (real estate) prices
- ◆ Charles MacKay, Memoirs of Extraordinary Popular Delusions and the Madness of Crowds, New York: Harriman House, 2003 (originally published in 1841).
- ◆ Carmen M. Reinhart and Kenneth S. Rogoff, This Time is Different: Eight Centuries of Financial Folly, Princeton and Oxford: Princeton University Press, 2009.

# Definition of a Bubble

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- ◆ An asset price bubble occurs when the prices of assets rise far above their intrinsic values, in response to rising demands driven by expectations of further price rises. While overvaluations of assets may sometimes persist for a long time (but as we shall see, most bubbles do not last that long), bubbles all eventually burst, causing precipitous declines in the prices of the assets.
- ◆ The rising demands are generally motivated by two considerations: first, for speculative investors, the possibility of capital gains as prices are expected to rise further; and second, for users, the fear that unless the assets are acquired immediately their prices will very quickly rise beyond their financial reach.

# Working Definition of a Bubble

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- ◆ Robert J. Barro and Jose J.F. Ursua, “Stock-Market Crashes and Depressions” NBER Working Paper #14760, Cambridge, MA: National Bureau of Economic Research, February 2009.
- ◆ A market crash is defined as a decline in value of 25% or more within a relatively short period of time.

# The Anatomy of An Asset Price Bubble

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- ◆ Expectations can be self-fulfilling—if everyone expects the price of an asset, or the prices of a class of assets, to rise, and acts accordingly, the price of the asset will rise, at least for a while.
- ◆ An interesting example of self-fulfilling expectations is from the Chinese development experience, but not from asset markets. In the aftermath of 1989, the Chinese economy was quite depressed in 1990 and 1991. But in 1992, because of the southern tour of Mr. DENG Xiaoping, all of a sudden everyone in China turned from bearish to bullish, and the result was a huge economic boom in the following years. This demonstrates the power of expectations.
- ◆ But not all expectations are self-fulfilling. There are examples of expectations that are self-non-fulfilling. One famous example is the following: There is an annual campus-wide dance party on a university campus. Everyone expects the campus “queen,” the “flower of the university” to have a date already, so no one asks her. As a result, she stays home alone that evening. The universally held expectation is not fulfilled.

# The Anatomy of An Asset Price Bubble

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- ◆ There are also reverse bubbles, based on expectations that are sometimes fed by rumours. If there is widespread expectation that a firm will fail, and the investors with such expectations act accordingly, by selling as well as short-selling the shares and bonds of the firm and buying credit default swaps on the firm, the firm will fail.

# The Anatomy of An Asset Price Bubble

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- ◆ Initially, there are (possibly irrational) expectations of price rises for certain assets or classes of assets. The expectations can be based on hype, wishful thinking, rumours, or manipulated market outcomes (e.g., contrived auction results). Such expectations can be self-fulfilling—if market participants so believe and act accordingly. The price of assets begins to rise.
- ◆ Rising prices of the assets validate and reinforce the expectations of further rising prices (The investment will be a “sure” thing!) and attract the attention and the demands of new investors.
- ◆ The new demands cause the prices to continue to rise further and perhaps even to accelerate the pace of price rises.



# The Anatomy of An Asset Price Bubble

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- ◆ The cycle of higher expectations bringing greater demands and greater demands driving prices and hence expectations even higher repeats itself.
- ◆ At some point, there are no more new investors: the growth of demand slows as do the price rises, if any.
- ◆ With the prices no longer rising, expectations are no longer fulfilled and begin to change gradually, from bullish to bearish, and then there is a sudden rush to exit as no one wants to be the last person to sell (even though there may be investors still in denial who will hold to the end).
- ◆ The bubbles will be bigger if leverage is allowed to be used. The negative externalities will be greater the higher the degree of leverage permitted for the investors because the lenders, and in the case of real property, the builders, contractors and suppliers, will also be adversely impacted.

# Examples

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- ◆ One of the most famous historical examples of an asset price bubble is the so-called "tulipmania" which occurred in the Netherlands in 1637. More recent examples include the dot.com stock price bubble in the late 1990s, and the real estate price bubbles in Japan in the late 1980s and early 1990s and in the U.S. in the 2000s, as well as the initial phases of stock markets of many emerging economies.

# Examples

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- ◆ Tulipmania
- ◆ The South Sea Bubble
- ◆ The Dot.Com Bubble
- ◆ The New York and Tokyo Stock Exchanges
- ◆ The U.S. residential real estate price bubble
- ◆ The Hong Kong real estate price bubble
- ◆ Gold and oil, commodity price bubbles
- ◆ The emerging stock markets

# Tulipmania

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- ◆ Tulipmania was generally recognised as the first major financial bubble. In 1637, investors in the Netherlands began to purchase tulip bulbs (郁金香), pushing their prices to unprecedented highs. At the peak, the average price of a single tulip bulb could be used to purchase 12 acres of land. However, as the prices of tulip bulbs collapsed precipitously over the course of a week, many tulip bulb owners instantly went bankrupt.
- ◆ Tulipmania reflects the general cycle of an asset price bubble: investors have irrational but self-fulfilling expectations of a price rise, and their purchases lead to a huge upswing in the price of an asset or commodity. Through the positive-feedback loop, new investors are attracted whose demands drive up the price further. Finally, when the price stops rising, or at least not so rapidly, the expectations of the investors are not fulfilled and they realise that they are holding a vastly over-valued asset, and rush to sell, but that leads to a collapse in the price of the asset, bursting the bubble.

# The South Sea Bubble

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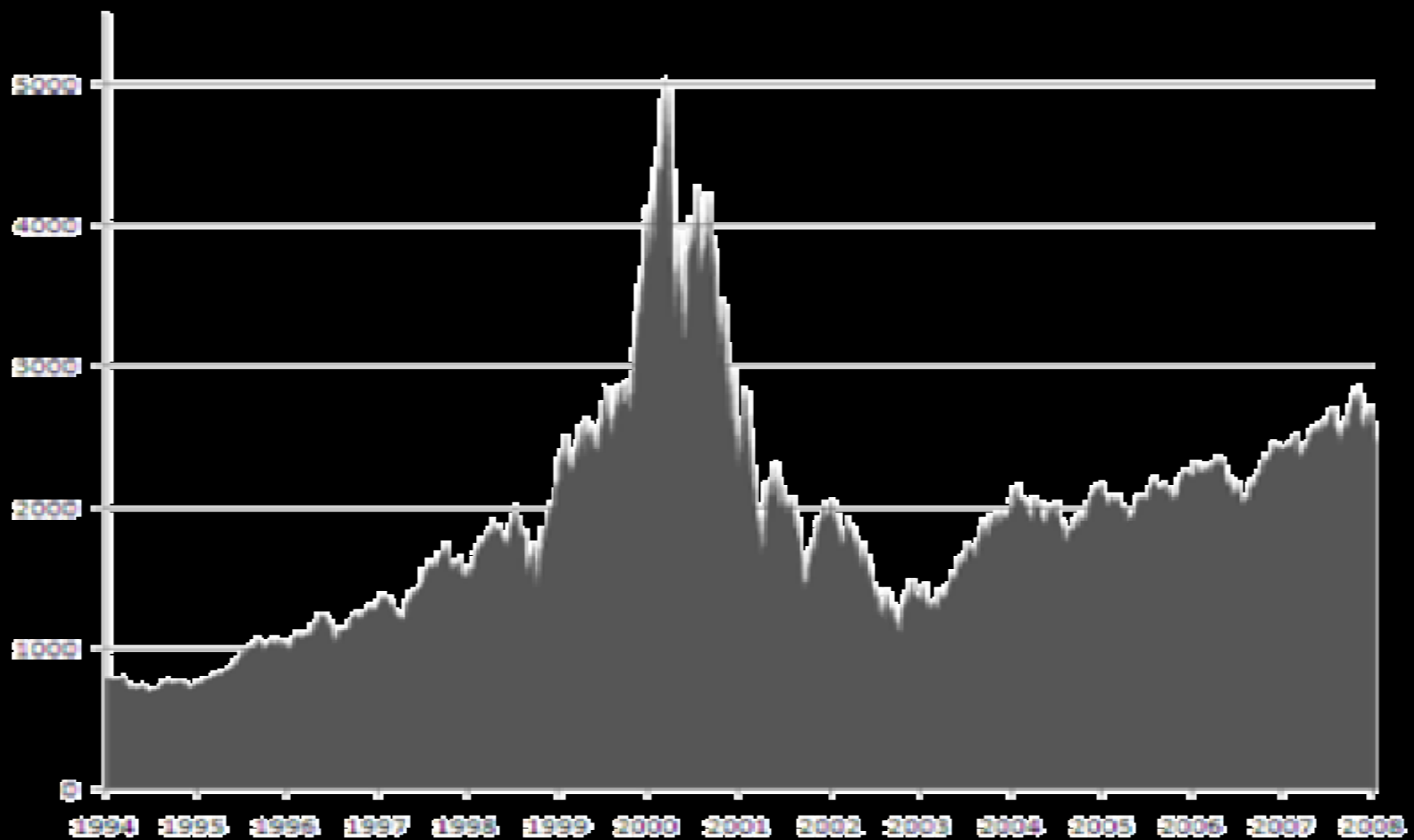
- ◆ “The South Sea Company was a British joint stock company that traded in South America during the 18th century. Founded in 1711, the company was granted a monopoly to trade in Spain's South American colonies as part of a treaty during the War of Spanish Succession. In return, the company assumed the national debt England had incurred during the war. Speculation in the company's stock led to a great economic bubble known as the South Sea Bubble in 1720, which caused financial ruin for many.” from Wikipedia.
- ◆ The stock price of the South Sea Company went from £128 a share in January 1720 to a peak of £1,000 in early August, but then fell abruptly to £150 by the end of September, 1720.

# The Dot.Com Bubble

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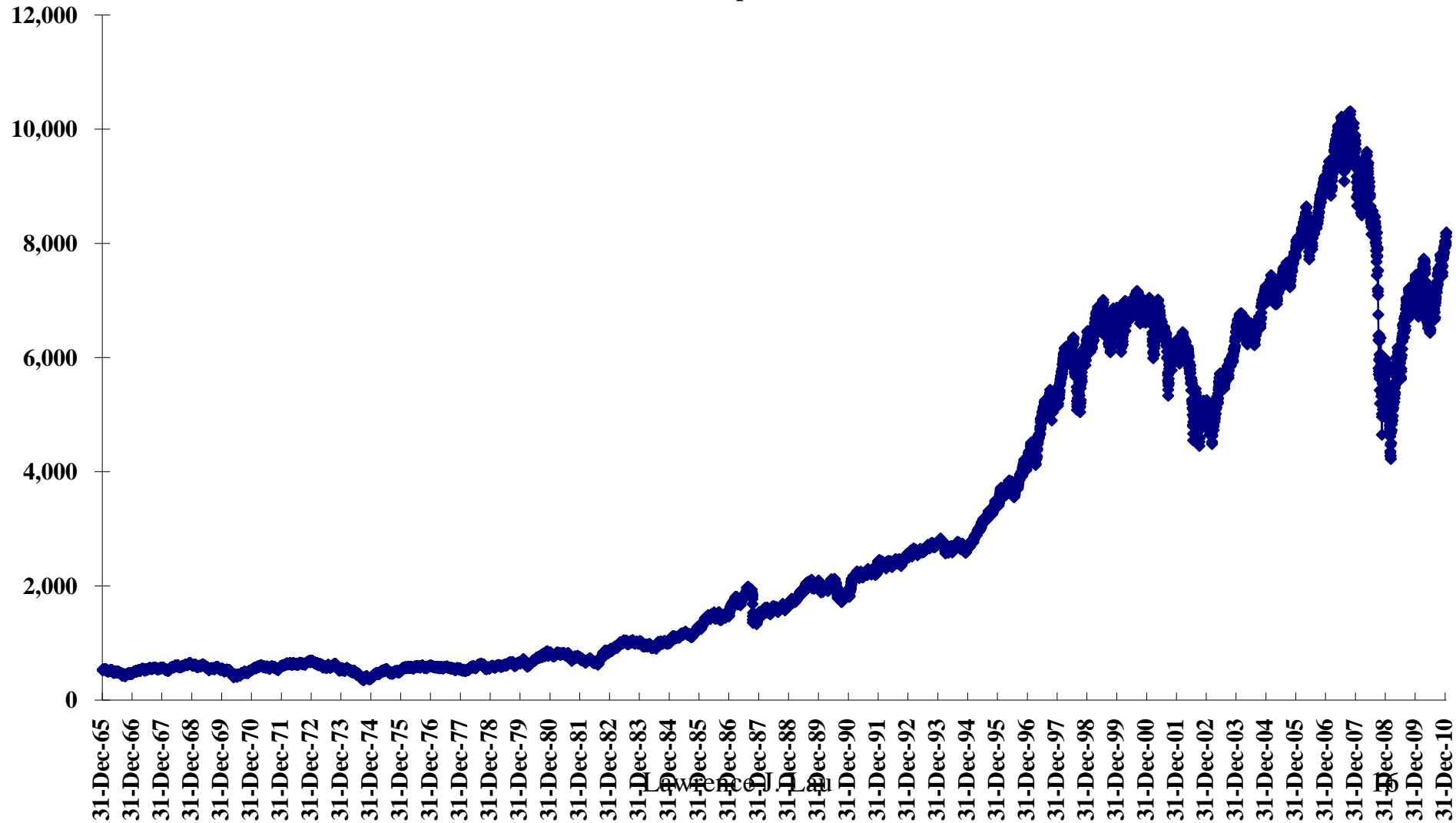
- ◆ The "dot-com bubble" was a speculative bubble of the stocks of internet-related companies during the period of 1995–2000. There was a spectacular rise in the prices of shares of companies listed on the NASDAQ—anything with the suffix of .com or the prefix of e- or i-. The price index of such stocks reached a peak on 10 March 2000.
- ◆ Many of these companies had had successful initial public offerings (IPOs) with no track record, revenue or earnings, but on the bases of a business plan alone.
- ◆ From a historical perspective, the dot-com boom can be compared to the other technology-inspired booms of the past such as the automobile in the 1920s. Many of the automobile companies founded then went bankrupt but as I pointed out in 2000, despite that unfortunate experience, the horses did not come back; similarly, the internet continued to stay and grow despite the bursting of the dot-com bubble.

# The Dot.Com Bubble



# The Composite Stock Price Index of New York Stock Exchanges since 1965

NYSE Composite Index





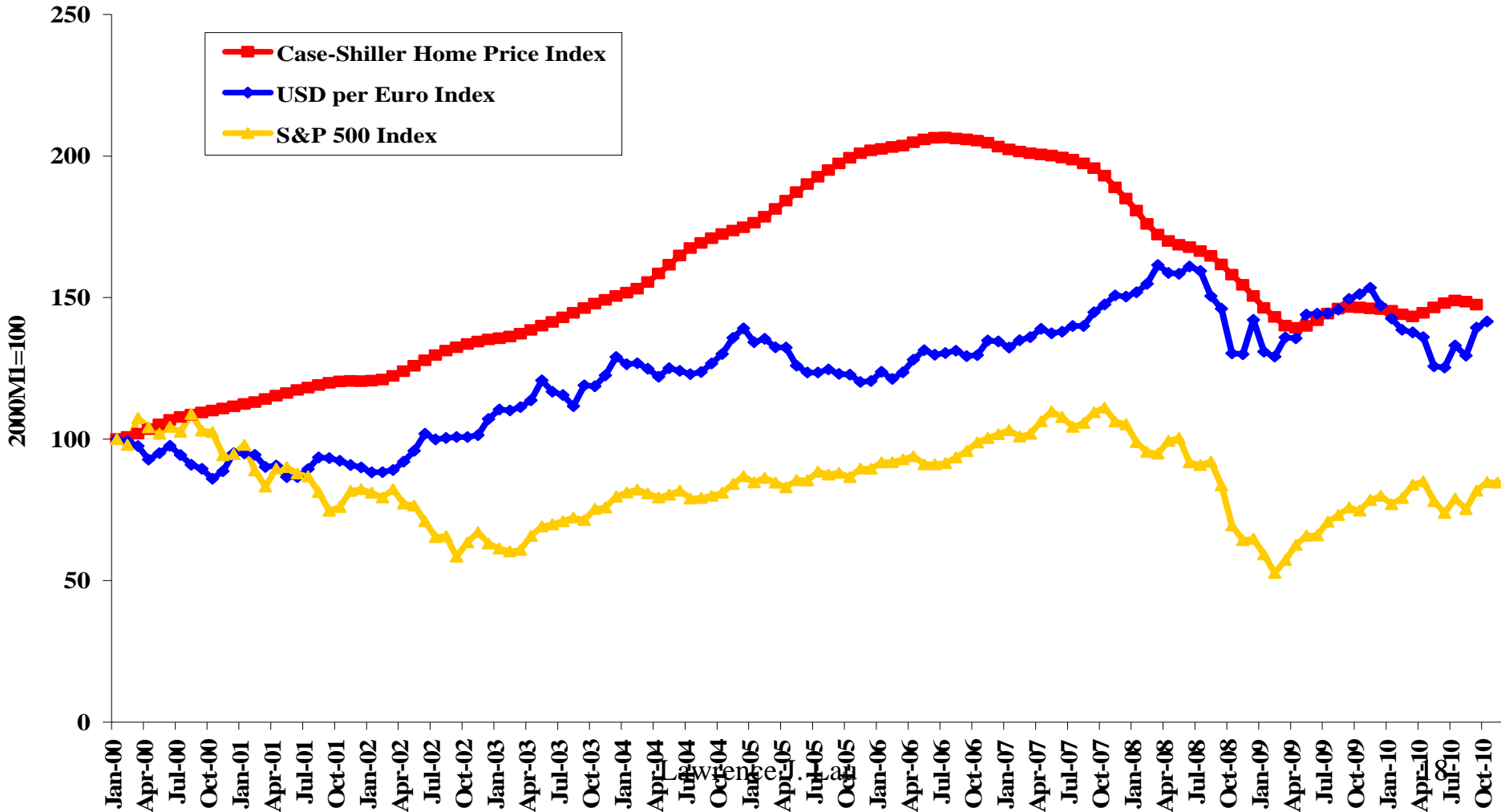
# The Nikkei 225 Stock Price Index of Tokyo Stock Exchange since 1984

NIKKEI 225 Index



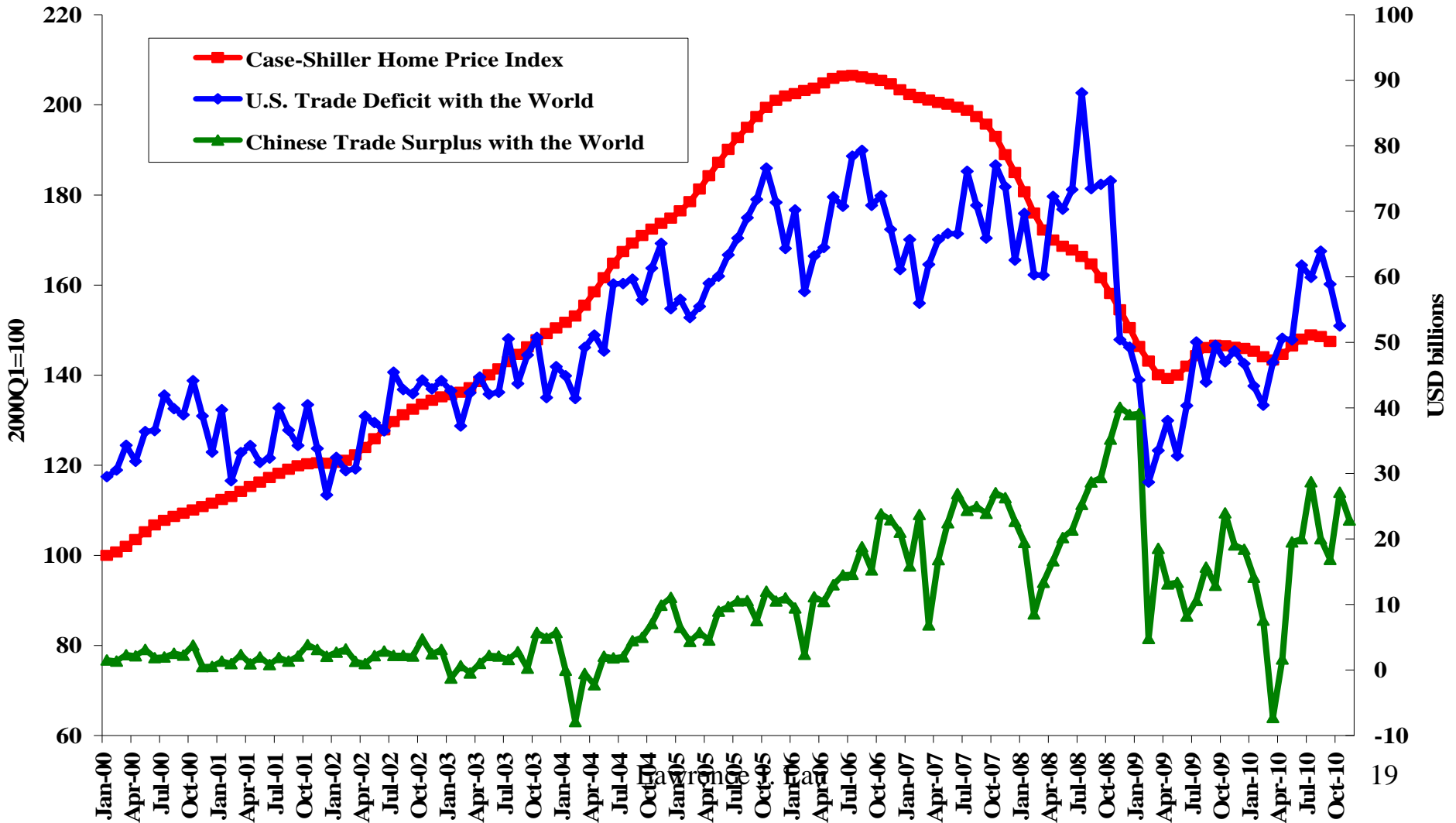
# Case-Shiller U.S. Home Price Index, US\$-Euro Exchange Rate & the S&P 500 Index

Comparison of Case-Shiller U.S. Home Price Index, US\$-Euro Exchange Rate and S&P 500 Index  
(2000M1=100)



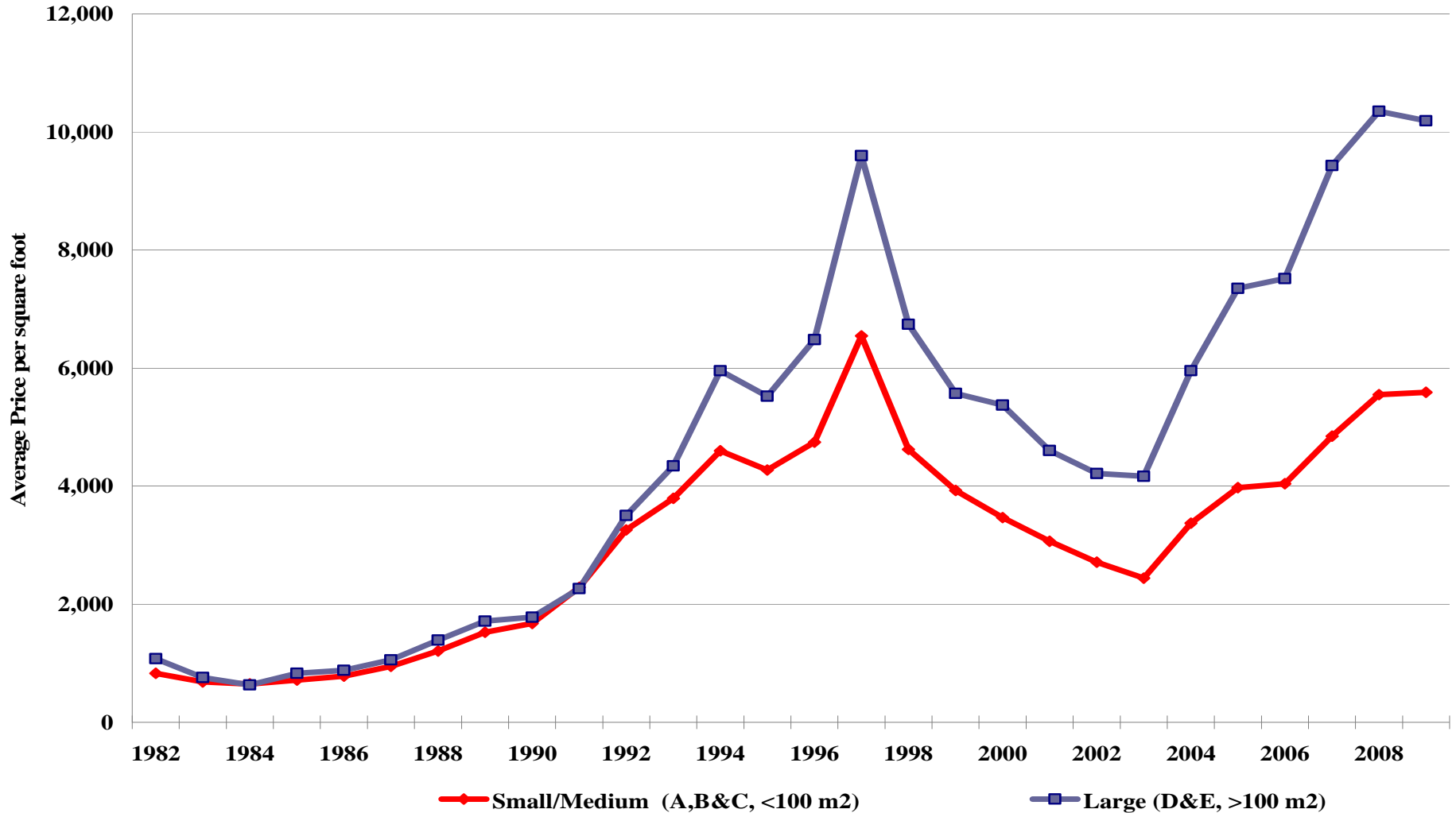
# Case-Shiller U.S. Home Price Index, Chinese Trade Surplus & U.S. Trade Deficit, Bill. US\$

Case-Shiller U.S. Home Price Index, Chinese Trade Surplus and U.S. Trade Deficit

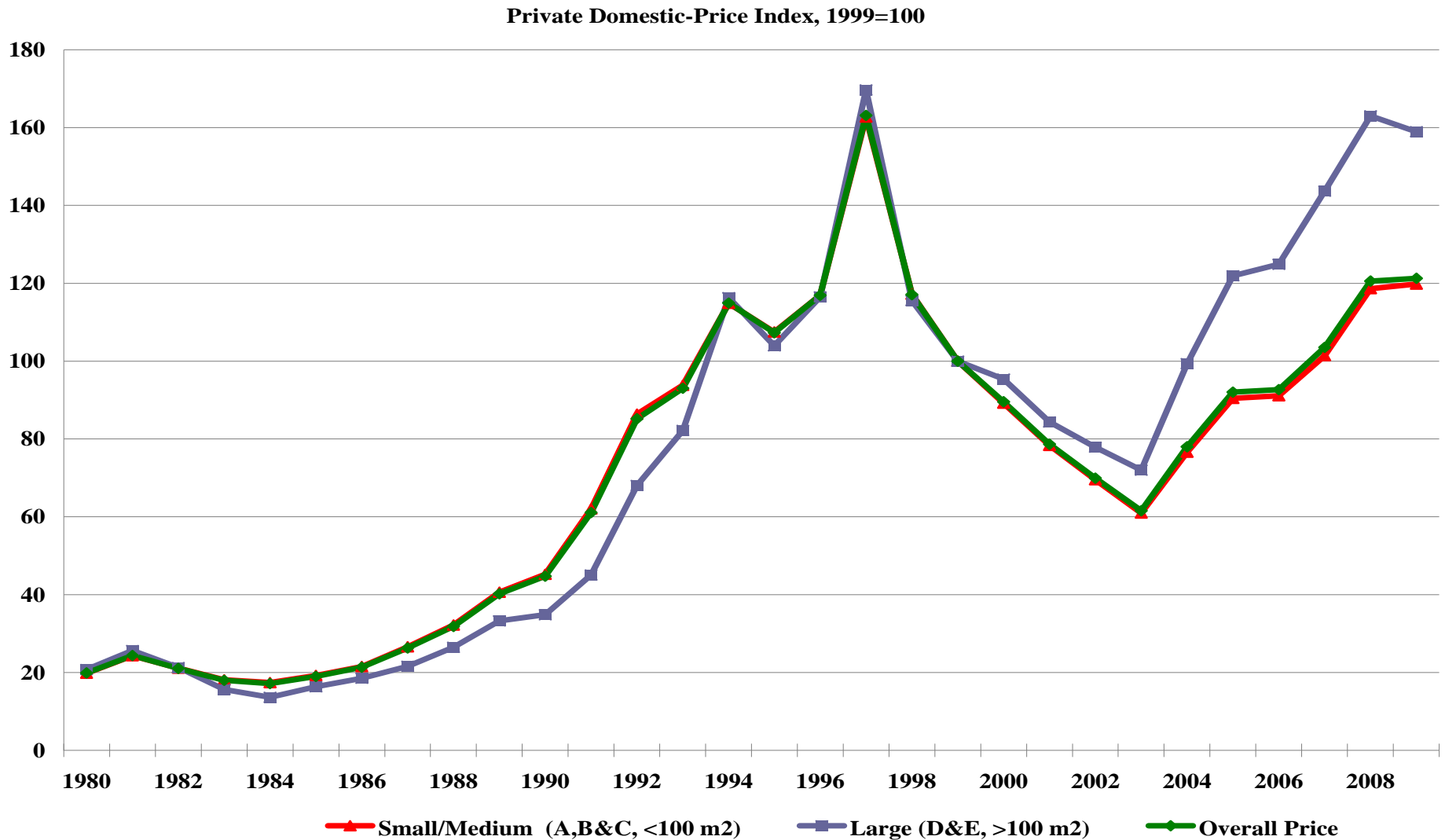


# Private Domestic Residential Real Estate Prices, Hong Kong, HK\$/sq. ft.

Private Domestic-Average Prices by Class

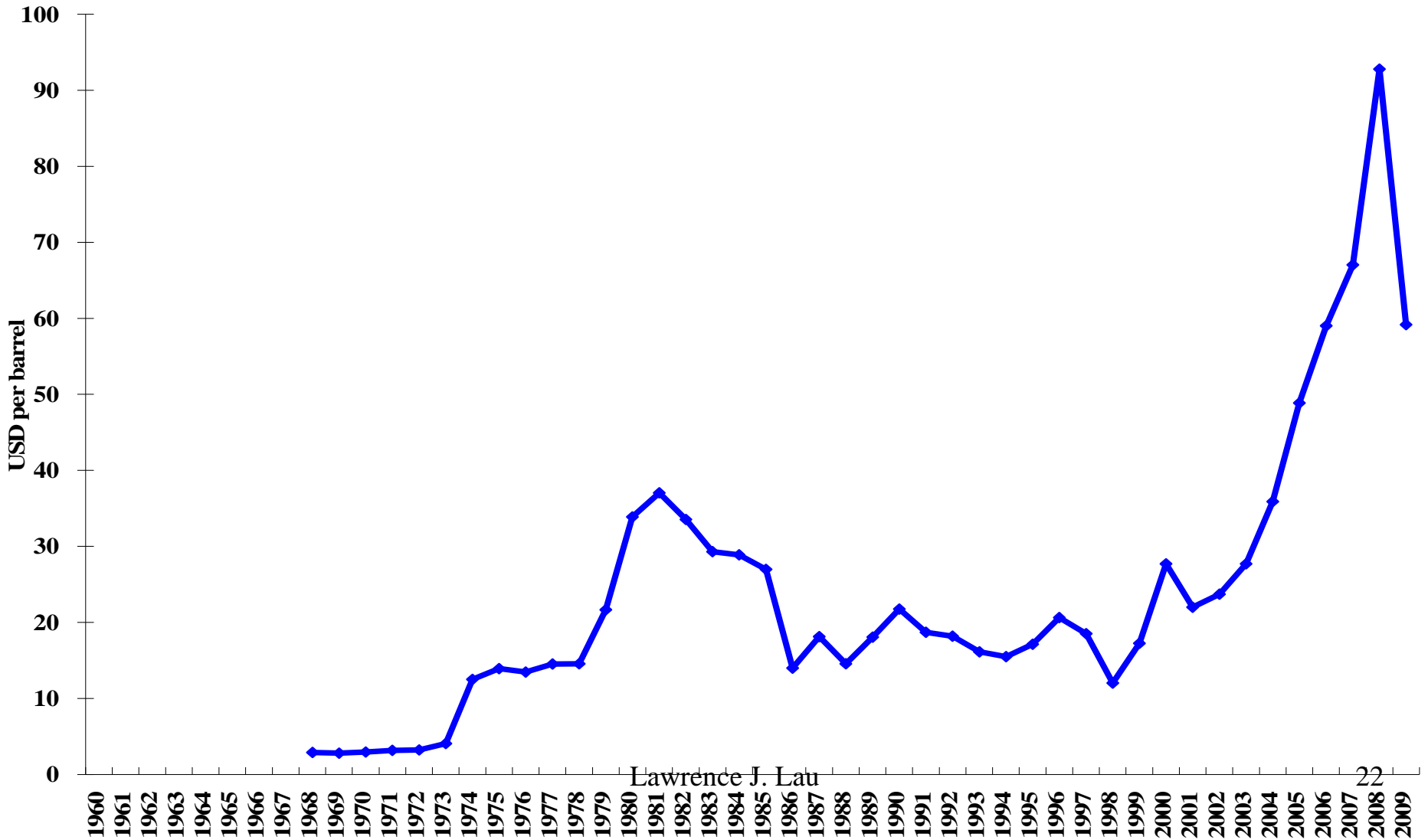


# Private Domestic Residential Real Estate Price Index, Hong Kong, 1999=100



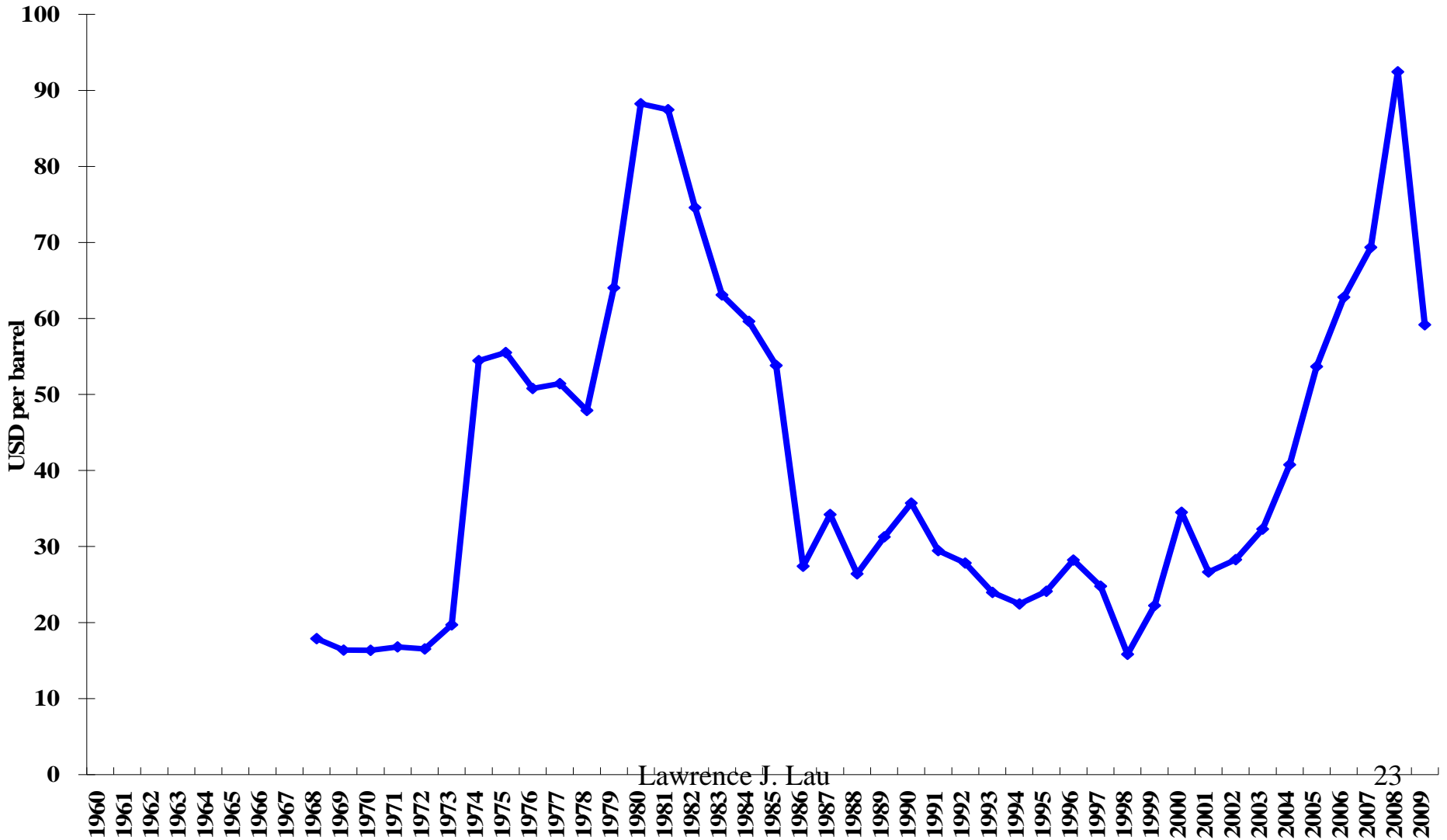
# Annual Average Price of Oil, US\$

Annual Average Price of Oil, in USD



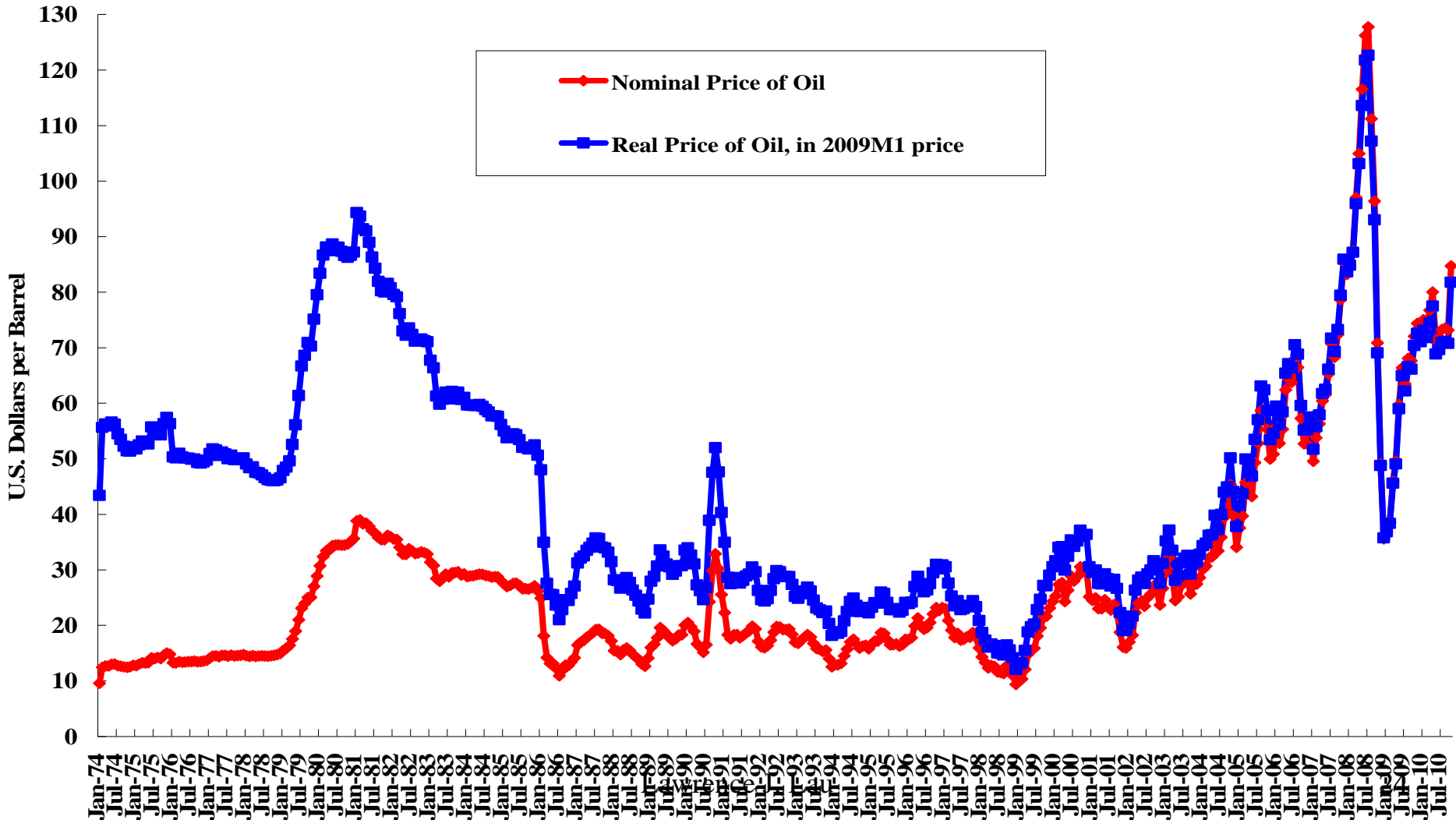
# Annual Average Real Price of Oil, US\$ (2009 Prices)\_

Annual Average Real Price of Oil, in 2009 USD



# The Nominal and Real World Prices of Oil (2009 prices)

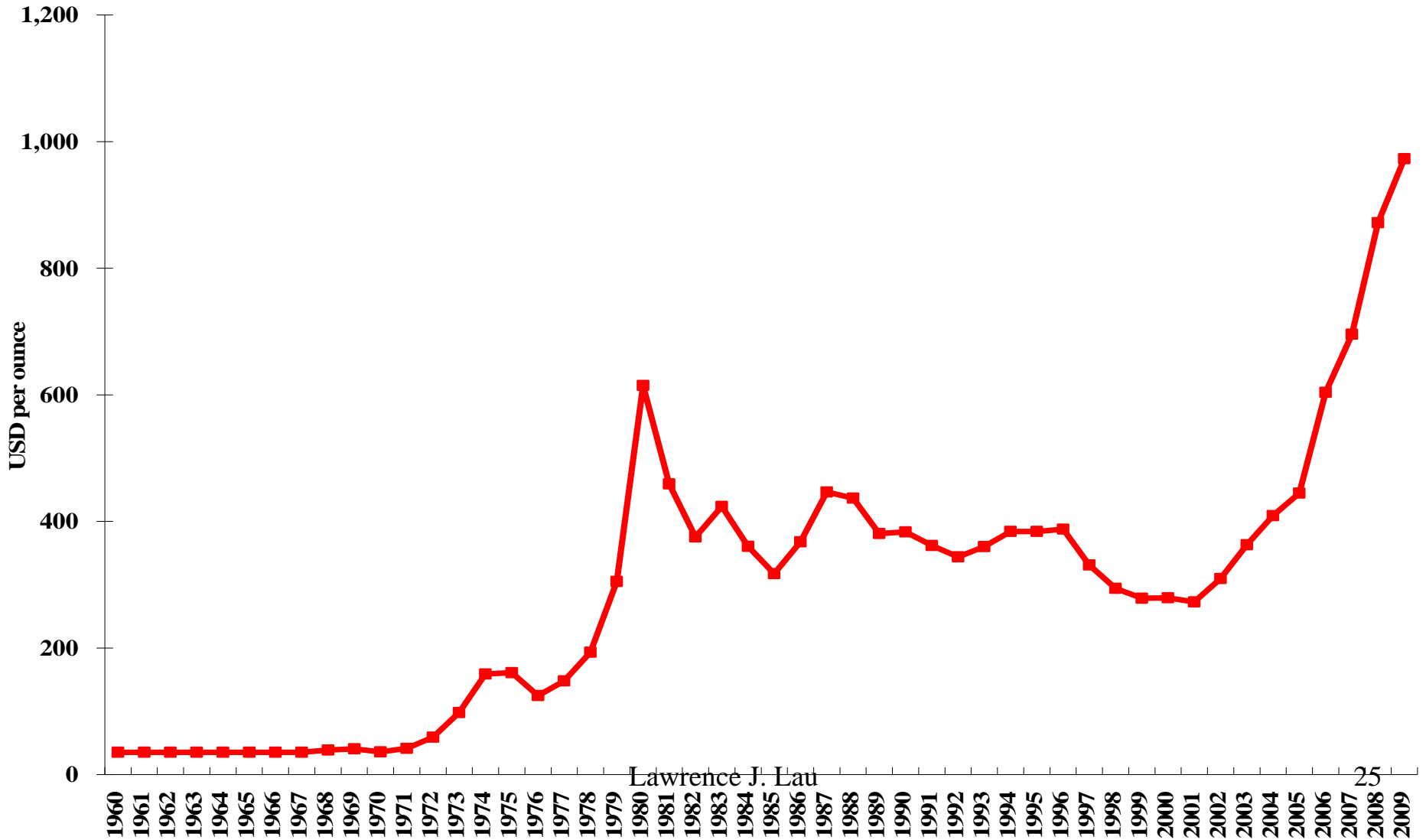
The Nominal and Real World Prices of Oil





# Annual Average Price of Gold, US\$

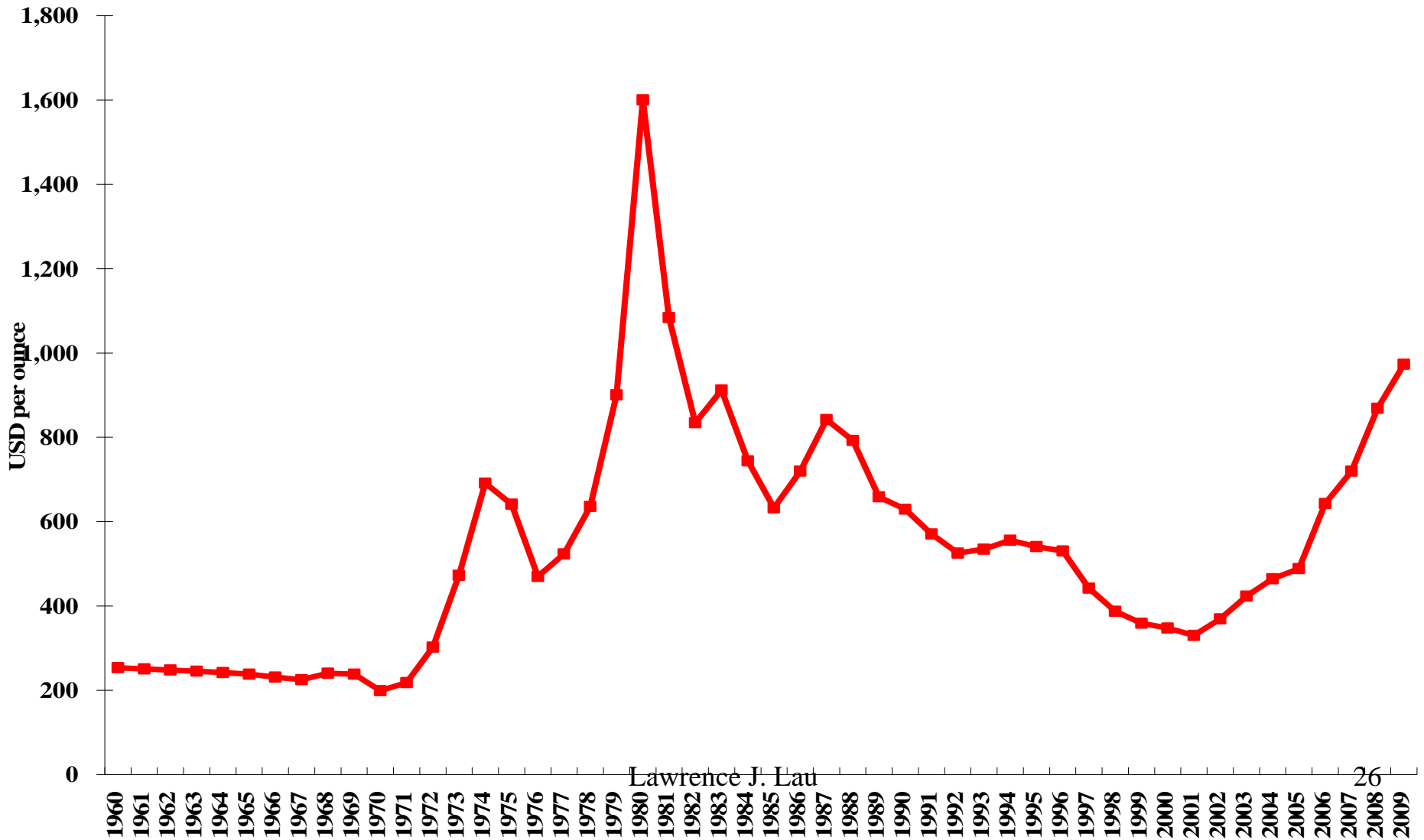
Annual Average Price of Gold, in USD



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# Annual Average Real Price of Gold, US\$ (2009 Prices)\_

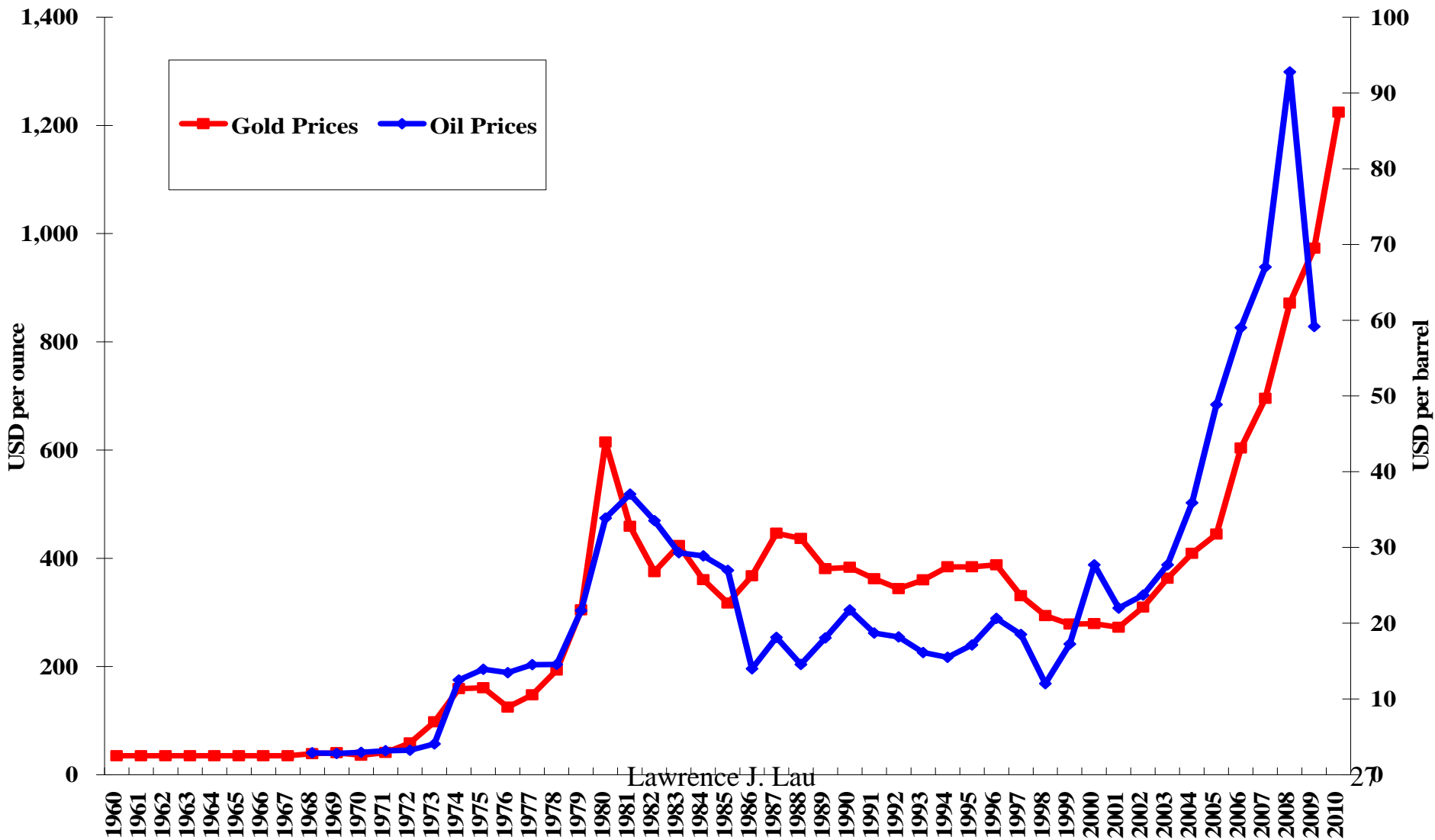
Annual Average Real Price of Gold, in 2009 USD



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# Annual Average Prices of Gold and Oil, US\$

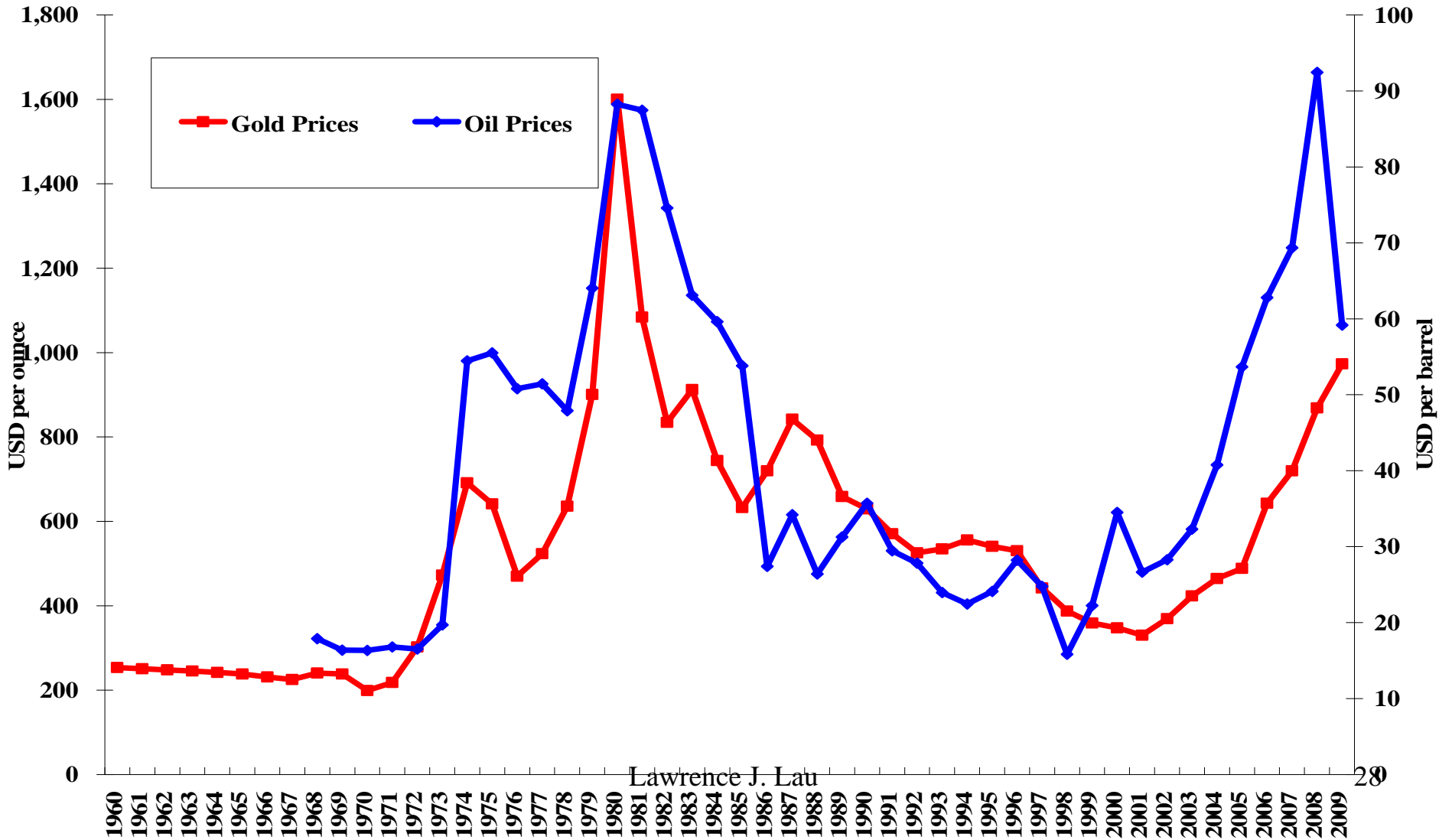
Annual Average Prices of Gold and Oil



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# Annual Average Real Prices of Gold and Oil, US\$ (2009 Prices)\_

Annual Average Real Prices of Gold and Oil, in 2009 USD



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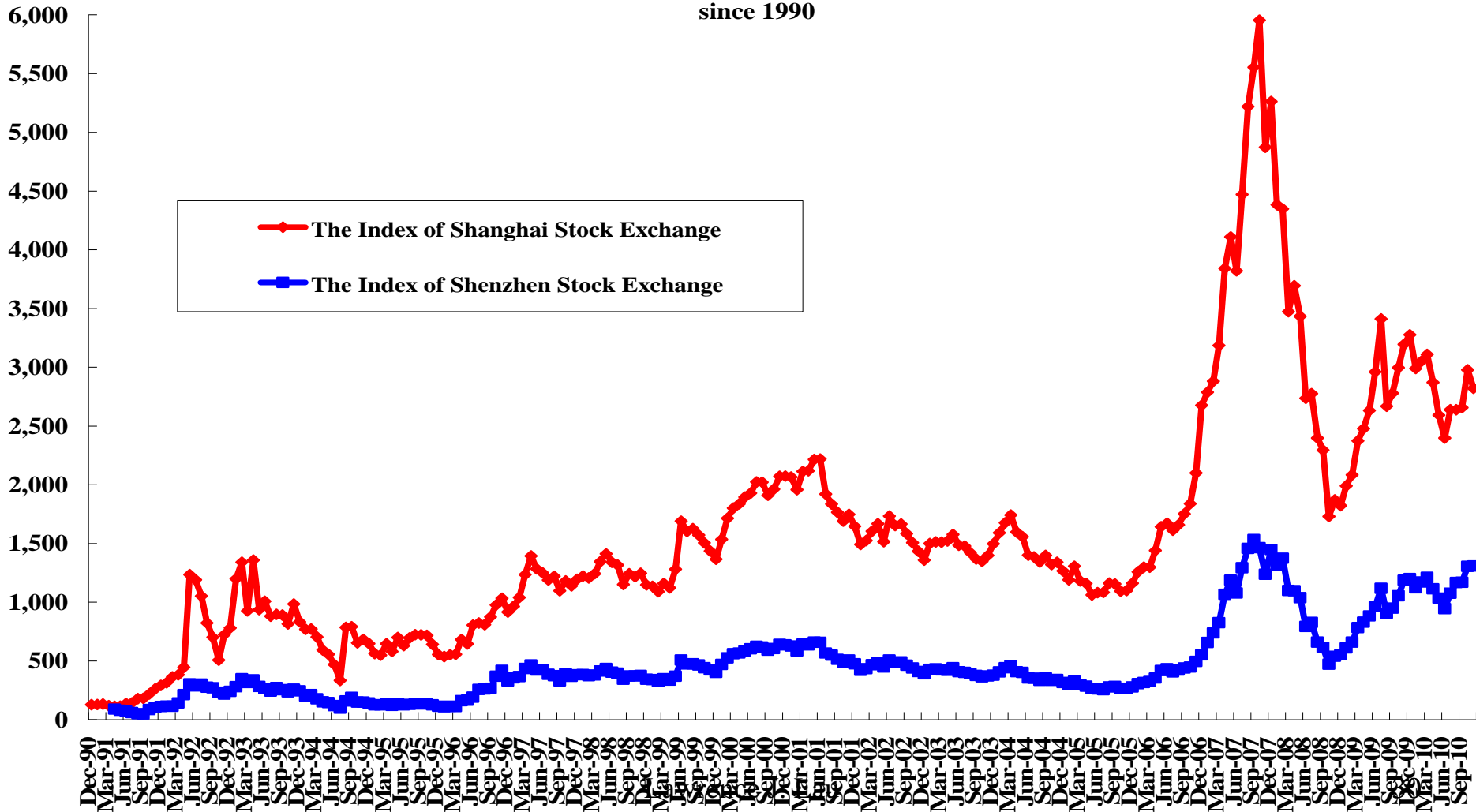
# The Hang Seng Stock Price Index of Hong Kong Stock Exchange since 1986

Hang Seng Index



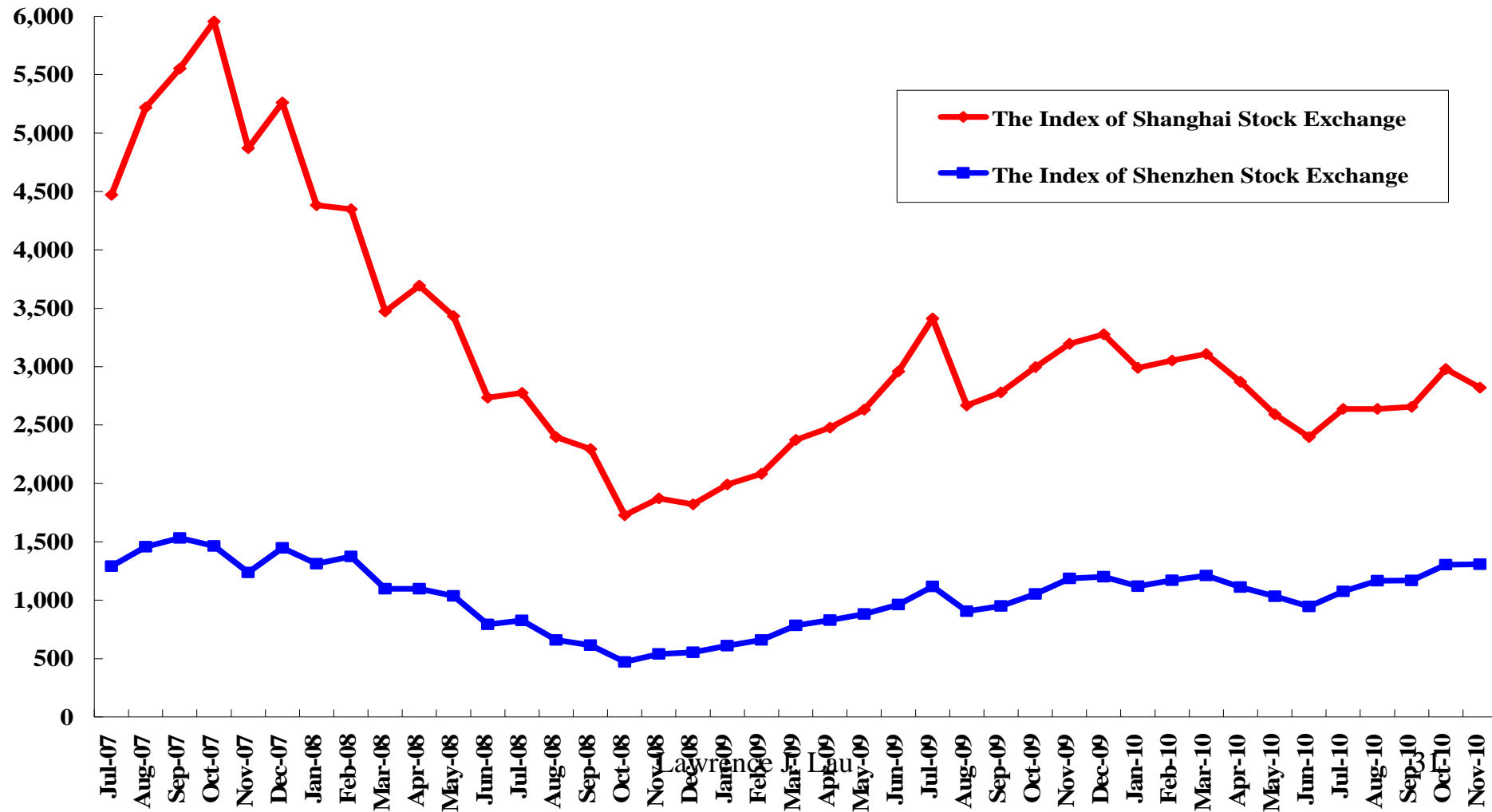
# The Stock Price Indexes of Chinese Stock Exchanges since 1990

The Stock Price Indexes of Shanghai and Shenzhen Stock Exchanges at the End of the Month since 1990



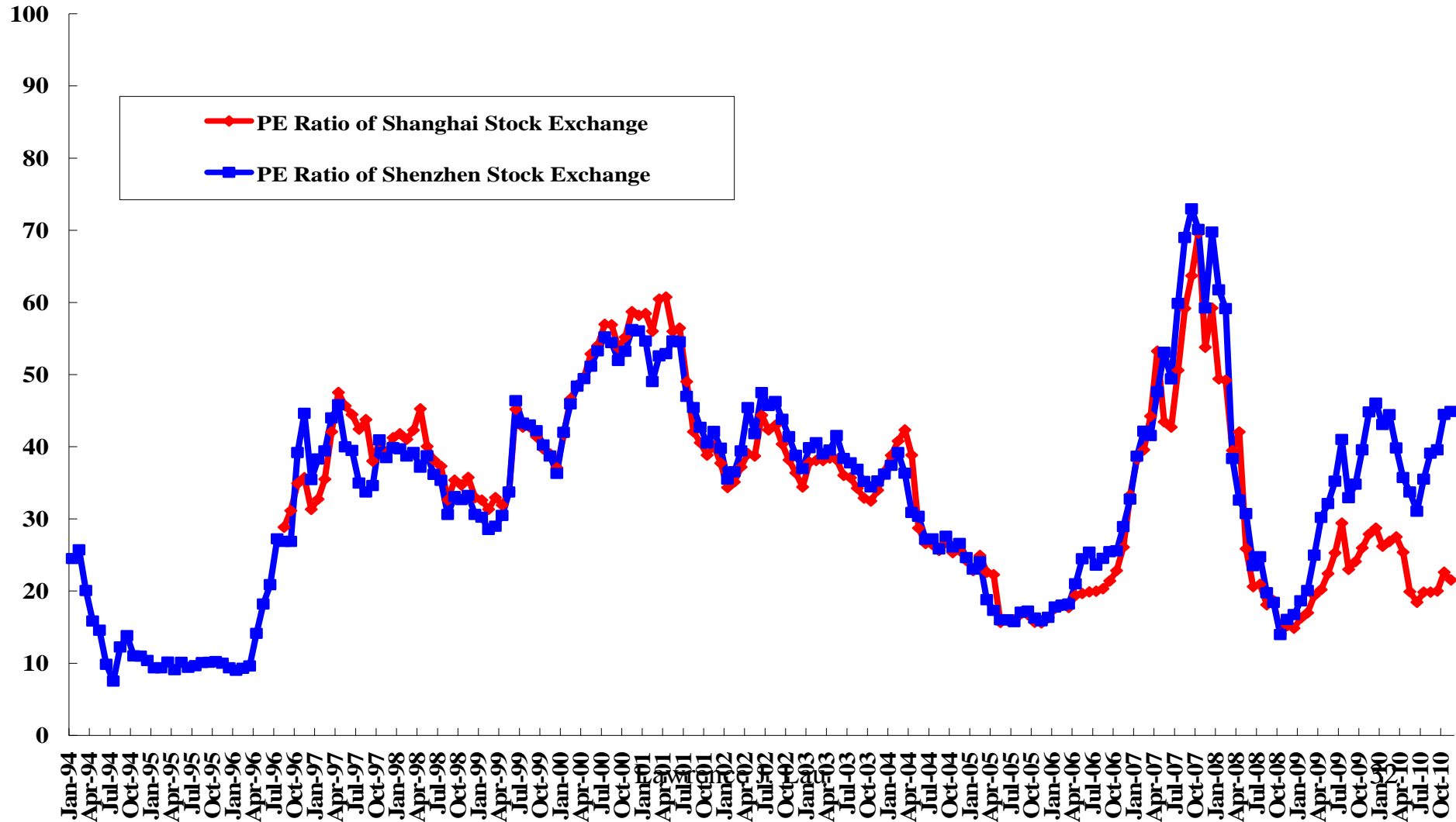
# The Stock Price Indexes of Chinese Stock Exchanges since 2007M7

The Stock Price Indexes of Shanghai and Shenzhen Stock Exchanges at the End of the Month since July 2007



# The Price/Earning Ratios of Chinese Stock Exchanges, End of the Month, 1994-2010

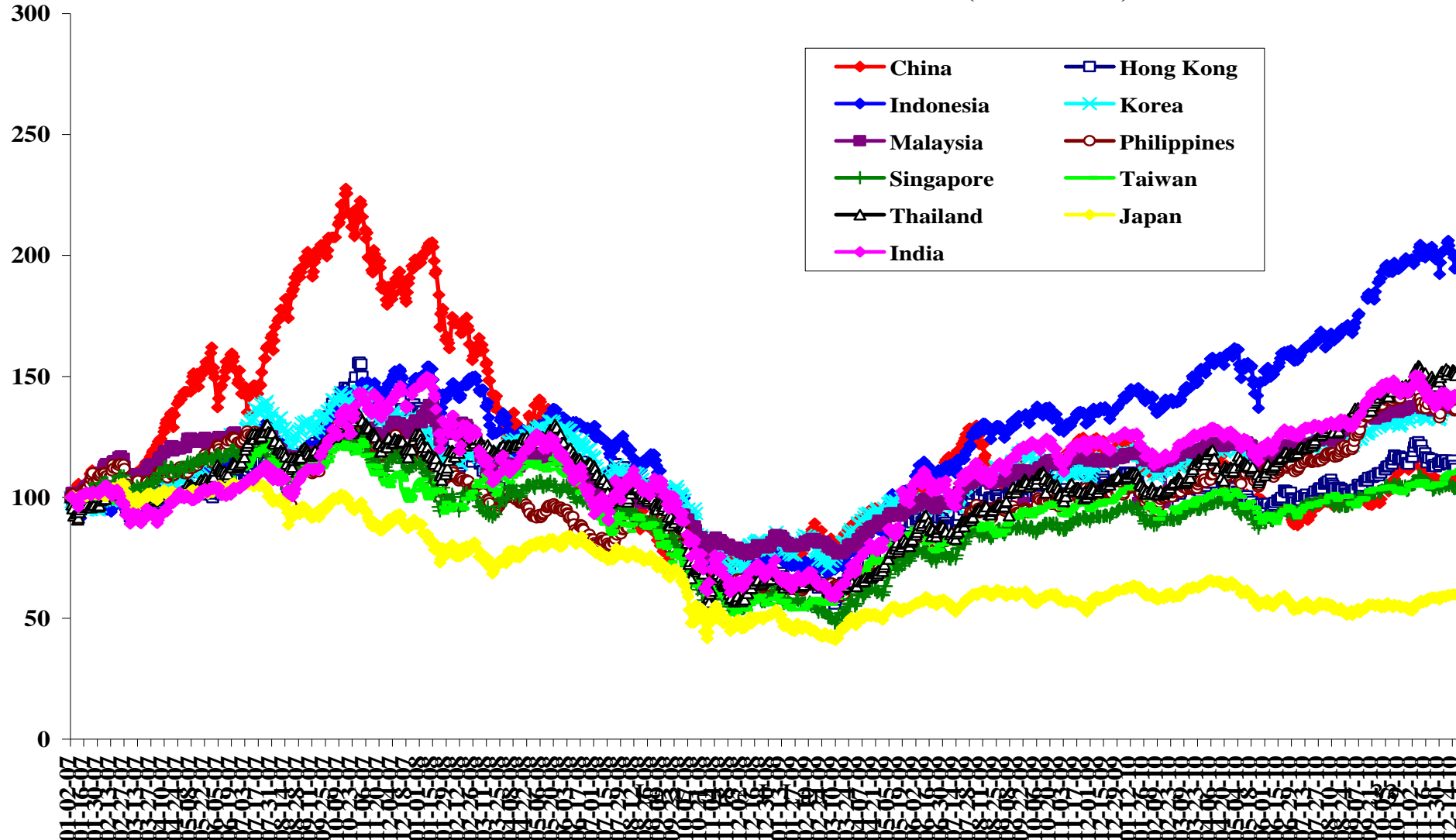
The Price/Earnings Ratios of Shanghai and Shenzhen Stock Exchanges at the End of the Month





# Stock Market Indexes of Selected East Asian Economies (1/2/2007=100)

Stock Market Index of Selected East Asian Economies (1/2/2007=100)



# Controlling Asset Price Bubbles

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- ◆ Why should the government try to control asset price bubbles since they all burst on their own eventually? The objective is not so much to prevent asset price bubbles, which is probably not possible, but to prevent asset price bubbles from becoming too big. To be able to do this, one must try to identify asset price bubbles early.
- ◆ Asset price bubbles may also be related to fraud—false accounts, inadequate disclosure, fraudulent connected transactions, misinformation, market manipulation, etc.
- ◆ Asset price bubbles may also have a crowding out effect on other productive investments.
- ◆ However, the most important, and the most (and in my opinion the only) compelling reason for controlling price bubbles is that they generate negative externalities when they burst. If investors use leverage heavily to buy the assets in the first place, the soundness of the lending financial institutions will be adversely affected with the bursting of the bubble, which may have a negative systemic effect on the entire economy. (Japan has still not recovered fully from its real estate price bubble of 1990.)

# Controlling Asset Price Bubbles

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- ◆ Even if no margin trading is allowed, that is, the investors must finance 100% of the equity themselves, so that the bursting of the bubble has no direct effect on the financial institutions, there may still be other negative externalities. Suppliers and contractors to the firms going bankrupt will be affected adversely, especially in the case of a real estate price bubble. Workers will become unemployed. And small shareholders may suffer, leading to possibly social unrest. For example, small shareholders might have put their entire retirement fund into the market and would now need public assistance. Another example, closer to home, is the Lehman mini-bond saga in Hong Kong, in which many small investors have been affected.

# Controlling Asset Price Bubbles by Controlling Moral Hazard

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- ◆ Restricting the degree of leverage on the part of the investors will help control the asset price bubble. Other ways of controlling moral hazard can also work. For example, the recent real estate price bubble in the U.S. might have been avoided, or significantly reduced in terms of its impact, if the originating lenders of the sub-prime mortgages had been required to retain a part, say 10%, of each of the mortgage loan themselves for the life of the loan. The bubble could also have been reduced in size if there were financial penalties on rating agencies for mis-rating securities. If credit default swaps were available for purchase only by owners of the underlying bonds, in accordance with well-established insurance principles, perhaps the impact of the collapse of Lehman Brothers (a negative bubble in my view) on the rest of the economy (on AIG in particular) could be substantially reduced as far fewer investors would then benefit from a collapse of Lehman Brothers.

# Controlling Asset Price Bubbles by Reducing Information Asymmetry

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- ◆ Asset price bubbles are frequently assisted by hype, rumour, and manipulated information. Rules for ensuring the correct and timely information in the financial accounts, for enforcing the real time disclosure of the beneficial ownership and trading of significant shareholders and insiders, and for requiring trading on an open exchange are therefore essential. These rules will not prevent asset price bubbles, but hopefully will reduce the entry of uninformed investors, who are most likely to be hurt when the asset price bubble bursts, and will help contain the asset price bubble to a relatively manageable size so that when it bursts it will not cause too much damage.

# Concluding Remarks

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- ◆ It is sometimes necessary to control asset price bubbles (“irrational exuberance”) because of their potential negative externalities. Asset price bubbles can be controlled, for example, by increasing the equity or margin requirement on the purchase of certain classes of assets. (One can impose this requirement only on new, or marginal, purchases so as to avoid penalising investors who already hold such assets). In controlling asset price bubbles, it is also important to avoid creating an unnecessary panic.