The Czech Experience with Asset Bubbles and Financial Crises

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Transition and bubbles: introductory questions

Financial crises are nothing new in the history of economics. It has often been said that every crisis has specific features that make it different from previous experiences. It is a challenging task to outline the important features of the Czech experience with asset bubbles and financial crises, since most work done in the past has attempted to explain Czech economic developments from a "transitional" perspective.

It is a well-known fact that at the beginning of transition, the Czech economy was at a very good starting position in comparison to other transitional economies. The Czech Republic was expected to quickly implement reforms and, within a very short period of time, join the world of developed economies. A decade later, it was apparent that actual economic achievements did not correspond to the initial optimism. A lot of attention was paid to the low performance of the Czech economy, and the current outlook on the Czech economy has taken an even more pessimistic character. Policy debate usually concentrates on demand management and the speed of reform steps.

The question of whether there were some asset bubbles that could have contributed to such a shift in the evaluation of the Czech perspective is not often asked. This conference, therefore, is a good opportunity to examine this particular issue in more detail. As a starting point, several key questions should be investigated:

—Can we say which factors make a transitional economy vulnerable to financial crisis and which ones to asset bubbles?

—Are some of these factors specific to Czech transition?

—Can we derive some useful policy lessons from the Czech experience?

The sections to follow lay the groundwork for answering these questions. In the concluding section, the specific answers to these questions are presented and put into a practical framework for discussion.

The rise and fall of the Czech economy

The Czech experience with financial crisis is a very recent one. In late spring of 1997, when emerging markets were hit by the aftereffects of the Asian crisis, the Czech koruna was exposed to exchange-rate turbulence and, subsequently, left to the mercies of free floating. In comparison to the Asian crisis, the immediate effects of koruna turbulence were not that damaging. However, two years later, GDP growth is still in the red and some symptoms of financial crisis prevail in the domestic economy. Specifically, bank portfolios are burdened with a significant volume of bad loans.

Table 1 shows that after the dissolution of Czechoslovakia in 1992, GDP growth recovered and, subsequently, a period of boom had begun. It was a period of overall optimism, with large wage increases and a boom in consumption and investment. Excessive demand produced an increasing trade deficit and persistent inflation. In 1996, the external imbalance reached an alarming level, and public budgets were leaning toward deficit.

During this period of Czech economic expansion, the koruna was pegged to a basket of currencies.[1] Due to the inflation differential, nominal interest rates remained higher than in developed countries. Capital inflows were on a massive scale. The koruna market was characterized by excess demand, prompting the central bank to build up its reserves. Banks went through a period of credit expansion, and the

Table 1
Rise of the Czech Economy

Indicator (%)	1994	1995	1996
Real Economy			
GDP growth	X	6.4	3.9
Final consumption	X	4.2	6.2
Investment	X	23.1	13.0
Public budgets (to GDP)	.5	.2	-1.4
Trade balance (to GDP)	-3.1	-7.1	-10.3
Nominal wage increases	18.5	18.5	18.4
Inflation (CPI)	10.0	9.1	8.8
Financial Indicators			
Interest rate (3M)	12.65	10.93	12.67
Financial account (to GDP)	8.4	16.2	7.6
Increase in FX reserves to GDP	5.9	14.7	-1.4
M2 growth	19.9	19.8	9.2
Credit growth	14.6	13.7	10.8
Nominal exchange rate index appreciation	0	0	2.3
CNB 120-index (PSE)	993	697	789
Growth in average price of newly finished housing*	52.72	28.77	23.84
Banking Sector			
Net profit/assets (banks)	X	.71	.60
Capital adequacy (banks with valid licenses)	X	10.21	9.81

Data source: Annual Reports, Czech National Bank. Bulletins, Czech Statistical Office.

* In 1990 6.65 percent, 1991 16.10 percent, 1992 37.42 percent, and 1993 34.70 percent.

money supply grew rapidly. On the newly established stock market, [2] prices of shares had recovered after a drop in 1995, and there was a boom in real estate trading.

One outcome of these imbalances was appreciation of the koruna in 1995 (against 1993) by 20 percent in real terms. In 1995, foreign indebtedness increased to 40 percent of GDP, from 25 percent in 1993.

The ratio of classified credits to total credit volume was around 30 percent. Banking sector profits and capital adequacy started decreasing. By the end of 1996, these symptoms had attracted the attention of many Czech as well as foreign economists. The vision of a smooth and successful transition had begun to be chiseled away by flaws.

A policy-oriented debate took place in spring 1997. Specifically, the fiscal adjustment was used as the demand-management tool, and a cut in minimum reserve requirements was used to support the financial system. A more pessimistic mood prevailed among foreign investors as well. Table 2 shows that short-term capital was beginning to leak out of the country and was not being replaced by other forms of financing. The credit boom stopped, and prices of various assets, such as equities, real estate, or even the exchange rate had altered the growth pattern.[3] News on extortion and fraud reduced the credibility of the domestic financial sector.

On May 15, 1997, a sharp drop in the exchange rate threw the koruna into a cycle of turbulence and uncertainty. In the early morning hours, the exchange rate plunged briefly to 5 percent below parity. Due to several triggering impulses, the impact of the 1997 policies came too late to prevent currency turbulence. The vulnerability of the Czech economy in the area of external relations became more visible due to extensive coverage in the Czech media. The first government "package" reacting to the problems of the external imbalance was not well received by the financial markets and was viewed as an inadequate assessment of the situation. Uneasiness on financial markets was supported by political unrest.

There was also an important external impulse. An exchange rate crisis broke out in Thailand where the currency provided foreign investors with a rate of return strongly correlated to the return on the koruna. Indicating possible investment risk for other emerging markets, contagion effects from this crisis began to spread. It was the Asian crisis that increased the speed with which foreign investors were re-evaluating available information on emerging markets. Suddenly, much more emphasis was put on warning indicators such as the current account deficit or classified credits. During this period of distress, residents

Table 2
Fall of the Czech Economy

Indicator (%)	1994	1995	1996	1997	1998
Real Economy					
GDP growth	X	6.4	3.9	1.0	-2.7
Final consumption	X	4.2	6.2	.6	-1.4
Investment	X	23.1	13.0	-2.2	-6.6
Public budgets (to GDP)	.5	.2	-1.4	-1.7	-1.6
Trade balance (to GDP)	-3.1	-7.1	-10.3	-8.4	-4.5
Nominal wage increases	18.5	18.5	18.4	10.5	9.3
Inflation (CPI)	10.0	9.1	8.8	8.5	10.7
Financial Indicators					
Interest rate (3M)	12.65	10.93	12.67	17.50	10.08
Financial account (to GDP)	8.4	16.2	7.6	2.1	4.5
Increase in FX reserves to GDP	5.9	14.7	-1.4	-3.4	3.5
M2 growth	19.9	19.8	9.2	10.1	5.2
Credit growth	14.6	13.7	10.8	10.4	-1.5
Nominal exchange rate index appreciation	.0	.0	2.3	-16.0	11.4
CNB 120-index (PSE)	993	697	789	756	631
Growth in average price of newly finished housing*	52.72	28.77	23.84	20.41	7.52
Banking Sector					
Net profit/assets (banks)	X	.71	.60	-.18	-.39
Capital adequacy (banks with valid licenses)	X	10.21	9.81	9.51	11.96

In 1990 6.5 percent, 1991 16.10 percent, 1992 37.42 percent, and 1993 34.70 percent.
Data source: Annual Reports, Czech National Bank. Bulletins, Czech Statistical Office.

followed the lead of foreign investors and left the koruna market. As a result, the currency temporarily lost credibility. On the evening of May 26, 1997, the koruna was allowed to float by a collective decision of the central bank and the government.

After the 1997 crisis, the period of Czech economic decline continued. There was an additional economic slowdown in 1998, mainly due to a fall in investment demand. The public budget was in deficit. Although the external imbalance was corrected, the financial sector did not recover. Credits stopped growing, and banks were in the red. Hence, some conditions of successful economic recovery were missing.

Transitional features

What was behind the Czech experience of economic boom and downturn described above? It was not just an economic cycle. There were other factors involved as well. Let us first concentrate on those problematic features that are common to all transitional countries. First of all, transitional economies inherit a lot of distortions. A large adjustment is necessary in ownership structure, relative prices, and openness. Consequently, structural changes occur in wealth as well as output and demand. Specifically, trading partners change, and there is demand for newly available goods.

Secondly, transitional economies go through a period of large adjustment with embryonic markets. Many important market institutions are completely absent at the beginning of transition. Specifically, financial markets such as the money market or capital market do not exist prior to transition. As transition proceeds, some of them develop quickly, but some of them may remain in an embryonic stage for a long time. On one hand, there is a need for large structural changes. Nonetheless, there are also a lot of constraints that reduce the possibility of making adjustments efficiently. Because of market weaknesses, economic agents are unable to get all necessary information to evaluate available information correctly and to react adequately in cases where information is correctly evaluated.

Ex post, the scope of adjustment illustrated by the Czech experience is remarkable (and few could claim that they had been able to predict it correctly). Table 3 demonstrates that the ownership structure changed significantly. In comparison with the initial stage of transition where virtually all companies were in the hands of the government, the role

Table 3
Adjustment: Ownership Structure,
Relative Prices and Openness

Indicator (%)	1994	1995	1996	1997	1998
Ownership structure (number of companies in public ownership)	16.5	13.1	11.1	9.7	X
Ownership structure (number of companies in foreign ownership)	14.7	18.1	20.3	21.6	X
CPI inflation	10.0	9.1	8.8	8.5	10.7
Inflation in the segment of regulated prices	9.0	9.7	11.2	19.7	20.7
Examples of equities divergence: Energy/textile industry**	1.19	1.47	2.20	4.41	4.23
Export to developed economies/Total export	64.5	66.0	63.6	65.2	69.1

Data source: Annual Reports, Czech National Bank.

** In 1993, both indices were equal to 1,000. In 1998, the textile index was equal to 200 in textiles and energy index to 846.

of public ownership weakened dramatically in the period up to 1997. At the same time, foreign ownership grew from not existing at all to a share of more than 20 percent of the companies in 1997.

Similarly, the corrections of relative prices on goods as well as financial markets were large in the last decade. Although the major price corrections on the goods market took place in 1990 and 1991, CPI inflation and inflation in the segment of regulated prices were still divergent even in 1998. This implies that relative prices of consumer goods were not adjusted after eight years of transition. Financial markets were subject to similar adjustment. Specifically, due to a complete absence of a capital market, initial relative prices of equities could not reflect the expected returns on investment in alternative sectors. Hence, relative prices, for the most part, were initially set by the

Table 4
Embryonic Financial Markets

Indicator (%)	1994	1995	1996	1997	1998
Vouchers to nominal GDP*	22.7	21.0	18.5	15.5	13.5
Government bonds in banks portfolio to GDP	2.3	3.6	5.9	4.0	6.0
M2/GDP	73.6	75.1	72.2	73.8	72.1
CNB bonds to GNP**	7.4	10.2	7.4	9.1	14.1

Data source: Annual Reports, Czech National Bank.

*Own estimate. There were no vouchers in 1993.

** There were no bonds in 1993.

bidding process of households in the voucher privatization scheme.[4] In subsequent years, one could observe a striking divergence in sector indexes on the Prague Stock Exchange.

Trade liberalization increases the openness of a domestic economy during transition, mainly toward developed economies. In the beginning of transition, the ratio of export to developed economies to total export was 55 percent. It converged to 70 percent in 1998 and is estimated to be 90 percent in a few years.

Table 4 shows the relative importance of financial markets in the Czech economy in order to demonstrate that some markets are thin during transition, and this can have constraints on economic decisions. Due to its embryonic stage of development,[5] the capital market could not fulfill its basic role of providing a financing alternative to bank credits. As a consequence, the money to GDP ratio did not fall, and the Czech economy remained heavily dependent on the situation in the banking sector. Interestingly, in the Czech case, the bond market remained thin as well.

Specific Czech features

The focus now will be on three categories of issues that were specific to the Czech case because they were linked to the Czech approach to transition. First of all, the privatization strategy increased the vulnerability of the Czech economy. The initial prices of voucher shares reflected both the demand of households and investment funds for equities, as well as the nominal value of assets of privatized enterprises that reflected their performance under a planned economy. This implied the inevitability of a period during which the prices of equities would change in order to reflect the profitability of enterprises under a market economy—a period of "irrational prices." It is important to note that other transitional countries that put more emphasis on direct privatization methods did not encounter this problem on such an enormous scale.

Secondly, in the Czech case, little emphasis was put on creating an institutional framework. Specifically, some important laws (e.g. bankruptcy law) were introduced at a very late stage in the transition process, as were some important regulatory bodies (e.g. the capital market commission).[6] As a consequence, mechanisms that would have brought the initial relative prices of financial assets into accord with their returns were not efficient, and the period of irrational prices markets was much longer than necessary. Again, other transitional countries introduced important laws and regulations at earlier stages of transition, and so adjustment of irrational prices was not postponed for such a long time.

Thirdly, due to fast liberalization of financial flows, the financial openness of the Czech economy increased and, consequently, interaction between international and domestic players had an important impact on the economy. It is worth noting that this was not the case for all transitional countries. Some introduced convertibility of the domestic currency at a much slower rate and were not subject to massive capital flows.

Let's have a closer look at the specific features of Czech transition that increased the vulnerability of the Czech economy. As was mentioned already, the combination of privatization strategy with slow institutional reform created the problem of irrational prices of equities that was both significant and long lasting. As a consequence, other asset prices also could not adjust. Specifically, due to transitional uncertainty, banks gave credits to either well-known clients or to those who were able to offer collateral. However, the collateral market did not work through its embryonic stage. Low liquidity of collateral and irrational prices distorted the evaluation of returns on credits, and bank portfolios deteriorated. Moreover, banks were not able to compensate by investing in government bonds, because the bond market was thin due a low level of official government debt.[7] Once banks started adjustment of their portfolios, funds were no longer available to investment projects, which had a much higher impact on the real economy than it would have in other transitional countries due to credit dependency (See Table 4).

Households were subject to voucher illusion. The scale of wealth transfer was difficult to estimate. Hence, households assumed that a promise of investment funds (to buy voucher shares at a price ten times higher than the initial one) was an enforceable contract reflecting insider information on the profitability of privatized enterprises. To a large extent, the 1994-95 consumption boom was a consequence of voucher illusion. It is worth recalling that the ratio of voucher equities held by households to GDP was zero in 1993, and it jumped to more than 20 percent in 1994, while decreasing after that. Because economic agents considered irrational asset prices when making their consumption decisions, their demand was excessive, and there was a spillover effect into the goods market and into the real estate market. Demand on both markets was excessive also due to a lack of experience with a market economy. For example, until 1997, the Czech unemployment rate was below 3.5 percent.[8] Households did not see any need for precautionary savings. Instead of saving financial income received during voucher privatization for worse times, they opted for spending.

It is often questioned whether the foreign players such as hedge funds could produce a financial crisis. The Czech experience showed that international players expanded the domestic boom as well as the subsequent distress to a large extent after financial liberalization had been introduced. Although international players increased the efficiency of Czech financial markets and brought necessary funding, their presence was costly in terms of volatility.

The demand of international players for domestic assets was very large with respect to domestic markets. They stepped in during a time of domestic boom. Privatization, together with high nominal interest rates, under the control of a peg, created interesting investment opportunities. International players increased their demand for various domestic assets such as deposits, voucher shares, and real estate. Domestic policies were unable to offset the impact of capital inflow on the money market. Monetary conditions eased excessively, even during massive sterilization.

The Czech experience showed that the second important characteristic of international players was that they moved much faster than domestic players, because they had seen similar situations many times. Domestic players, on the other hand, lacked experience with a market economy. Hence, international players shortened the period between boom and crisis while the time lags for policy response stayed the same.

It was also true that international players based their decisions on a broader set of information that was different from that used by domestic players. They compared relative returns between emerging markets and drew international parallels.[9] As a result, there was a contagion in 1997 since international players re-evaluated the risk premium of lending to emerging markets.

Lessons from the Czech experience

The first lesson to be learned from the Czech experience with transition is that transition from a planned economy to a market economy has several inevitable features that make the economy vulnerable to financial crisis. The first feature can be referred to as a transitional wave. In transition, demand for both goods and assets has a specific pattern of development due to the necessity of structural adjustment in ownership structure, relative prices, and openness.

For example, at the initial stage of transition, trade flows are liberalized. This is the first opportunity for domestic consumers to buy imported goods that were not available for forty years or were available only at a shadow price on the black market. A similar case can be seen with investment demand for newly available technology booms. Another demand wave comes with privatization, which removes the liquidity constraint of some sectors. In the Czech case, consumption grew rapidly when households cashed in their voucher shares.

Transitional waves are fully rational, and they are common to all transitional countries. Although they increase efficiency and are beneficial in the long run, their existence is a serious problem for policy-makers. Waves interact with economic cycles and asset bubbles. They increase volatility, since they have similar consequences to economic boom, such as a large trade deficit. Hence, the probability of financial crisis is higher in a transitional economy than in a developed market economy due to these waves.

The second important feature common to transitional countries is transitional uncertainty. During transition, economic decisions are made under much higher uncertainty than in a developed market economy. A transitional economy does not move smoothly from one equilibrium to another. It can change the whole trajectory after each reform step. The scope, as well as consequences of transitional adjustments, is difficult to predict.[10] Moreover, domestic agents lack experience with market economies. Hence, they tend to underestimate various risks.

Transitional uncertainty has an impact on all sectors. However, the financial sector is hit significantly. At the initial stage of transition, not only do domestic banks lack the know-how to assess and manage their portfolios, but it is also very difficult to make economic projections and to recognize profitable investment projects due to transitional uncertainty. Consequently, the vulnerability of the banking sector is much higher than in market economies.

The third feature common to all transitional countries is embryonic financial markets. Due to their embryonic stage, financial markets fail to give right incentives for economic decisions, and they do not provide mechanisms necessary for avoiding costly financial crisis, such as shortening of the period of irrational prices. Specifically, an embryonic capital market cannot facilitate a rapid change in ownership structure, neither can it help reduce transitional uncertainty by providing some additional information on project profitability.

The second lesson is that there are some features of transition that are reform specific. The Czech experience shows that these features tend to increase the vulnerability of the domestic economy to asset bubbles. It is worth stressing that while reform inevitably creates transitional waves, vulnerability to asset bubbles is linked rather to specific features of Czech transition. This implies that some asset bubbles can be avoided if a different approach to important reform steps such as liberalization or privatization is applied.

As was already stated, the privatization method itself can create a bubble on the capital market. If institutions are weak, the period of irrational prices can be relatively long, and bubbles can crop up in other markets with both goods and financial assets. In addition, the privatization method can induce an additional moral hazard. In the Czech case, large banks were relying to some extent on their "too big to fail" position, and to complicate the issue even more, one of their biggest shareholders was the National Property Fund. As a result, banks got involved in strategic trading with voucher equities and took excessive risk in order to gain positions on the emerging capital market.

The Czech voucher privatization scheme is also a good example to illustrate that the transitional period makes it very difficult to distinguish bubbles from consequences of structural adjustment. Because of transitional uncertainty, it was very difficult to predict after the first wave of the voucher scheme that the majority of prices were overvalued, although it was clear that relative prices should adjust. On the other hand, that uncertainty is much higher in a transitional economy than in a market economy was a well-known fact *ex ante*. Hence, it was irrational to underestimate risks in equity investment.

Financial openness in the Czech economy was high due to the reform approach to capital restrictions. Without large international players interacting with investment funds and banks during privatization, asset bubbles on the capital market would have been much smaller and more easily managed by domestic policies. Also, the spillover into the exchange-rate market would have been less damaging.

The third lesson is that policy-makers should watch carefully for interaction between economic cycles, transitional waves and asset bubbles during transition and be aware that reform steps codetermine the vulnerability of the economy to asset bubbles and financial crisis. Policy-makers face a real challenge here. There is a need to establish a history with a stable economic environment – a need for macroeconomic stabilization. Hence, it is important to react to bubbles as soon as they emerge. However, during transition, "bubble symptoms" are very difficult to distinguish from transitional waves that do not increase vulnerability directly. The policy response to bubbles should, therefore, be different from the policy response to transitional waves.

In order to compensate for an increase in vulnerability that is inevitable due to necessary adjustments, policy-makers should design reforms so that transitional uncertainty can be reduced. Some adjustment processes are gradual and market driven, such as a change in trading partners. However, some of them are more extensive in nature and are designed, in particular, by the government. The medium-term fiscal plan that includes the strategy of price corrections, fiscal targets, and privatization plans can be very helpful. Institutional reform is crucial. Specifically, legislation reform should ensure that the value of financial assets is not reduced due to missing rules, such as how to deal with collateral. Domestic rating agencies can increase the transparency of corporate finance as well as substitute for the role of minority shareholders when evaluating the performance of banks.

The fourth lesson from the Czech experience is that an impulse to major asset bubbles was sent by the privatization method used in the early 1990s when institutional reform was very slow. Hence, some factors that caused the shift from boom to slowdown were unique, since institutional reform in the late 1990s proceeded further and a direct method was used for privatizing banks.

Endnotes

[1] After major devaluation in 1990 and 1991, the koruna was pegged the basket of DEM and USD with no change in central parity despite fluctuations in DEM/USD rate until May 1997. The approximate weight of the DEM was 65 percent. The USD was 35 percent of the basket. The band around parity was broadened from $\pm$0.5 percent to $\pm$7.5 percent in February 1996.

[2] The institutional framework for the newly established capital market was created by the Securities Act, the Societies and Investment Funds Act and the Stock Exchange Act in 1992. The Prague Stock Exchange (PSE), the over-the-counter system (RM-S) and the Securities Center (SC) for direct trading with shares were funded.

[3] For many markets, the break in the pattern had shown up at different intervals. For example, growth in real estate prices slowed downed significantly in 1995. The koruna started depreciating at the end of 1996. The PSE index started falling in 1997.

[4] The voucher privatization scheme was based on a transfer of vouchers from the hands of the Czech government to the hands of households. Those citizens who wanted to participate paid a registration fee of CZK 1,000 (Czech koruna) in order to obtain a voucher booklet. Then, they could bid either directly or indirectly via investment funds for voucher shares. The book value of vouchers in one booklet was more than thirty times higher than the actual fee. The bidding process was used to overcome zero information on share prices. In the first wave, in December 1992, households that invested indirectly (through the investment privatization funds) in voucher privatization were given advanced payments for their vouchers since the funds competed for new customers. In June 1993, households that invested directly (by bidding with vouchers for shares of enterprises in several rounds), obtained their shares. In January 1994, households that invested indirectly received their shares of investment funds. A similar scenario held for the second wave of the voucher privatization.

[5] Not only did the capital market go through a period of significant adjustment in share prices, there was also the problem of a lack of regulation and rules of the game. For example, a lot of strategic trading took place directly. Hence, the PSE index did not reflect major transactions, and important information on the supply and demand of shares was missing.

[6] Two important laws were adopted as late as April 1998: the Act on Bankruptcy and Settlement and the Act on the Securities Commission, which functions as a regulatory body for the capital market.

[7] There are two types of public debt during transition. Official debt arises from public deficit. Hidden debt reflects non-standard fiscal transactions not covered from regular revenues. For example, support of the banking sector or large state enterprises can be financed from privatization revenues or indirectly via state-owned banks. In the Czech case, the hidden debt is approximately the same size as the official one. Consequently, the volume of bonds traded on the market was artificially low.

[8] The unemployment rate was 3.2 percent in 1994, 2.9 percent in 1995, 3.5 percent in 1996, 5.2 percent in 1997, and 7.5 percent in 1998.

[9] Some of the parallels being very interesting, such as the correlation between the return on the koruna and the Thai currency.

[10] However, timing is also difficult to estimate. For example, price corrections depend on the transitional strategy of the government in office, and the strategy can be subject to large changes after elections.