

# **China's airline deregulation since 1997 and the driving forces behind the 2002 airline consolidations**

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## **Abstract:**

This paper seeks to document and describe events in the last decade in China's airline markets, and to clarify some misunderstandings in regard to the 2002 airline consolidations that brought sweeping changes to China's aviation markets. Some possible reasons for the 2002 consolidations are inferred through analysing the numbers and facts of the late 1990s and early 2000s. We conclude that the consolidations may be a natural response to the changes that accompanied airline deregulation in China.

**Keywords:** Deregulation, airline mergers, China

## **1. Introduction**

China's airline markets have attracted the attention of many major international carriers, but have largely failed to attract the attention of academics. Literature on China's airline markets remains relatively sparse, owing to the country's opacity in aviation policies and the limitations of data availability. The dramatic changes that took place in China's airline industry in the past 20 years, from a period of strict regulation and control to being relatively uncontrolled and loosely supervised, resulted in chaotic and unexpected outcomes. Those within the industry had two opposing attitudes towards these changes: some applauded them and called for further reforms, while others resisted and demanded a return to regulation. This is also the case for the 2002 airline consolidations, which were controversial with regard to how to form an airline group and which carriers to include in each group.

The complexity of China's airline markets, increased by the government's sometimes inconsistent policies, is difficult to comprehend for economists and researchers outside the industry. This paper seeks to document and describe events in the last decade in China's airline markets, and to clarify some misunderstandings in regard to the 2002 airline consolidations that brought sweeping changes to China's aviation markets. Some possible reasons for the 2002 consolidations are inferred through analysing the numbers and facts of the late 1990s and early 2000s. We conclude that the consolidations may be a natural response to the changes that accompanied airline deregulation in China.

## **2. China's Civil Aviation History and Deregulation**

The development of China's airline industry can be broken into three stages that accord with the evolution of China's macroeconomic policy and the industry's characteristics. China's civil aviation history in the first two stages and up to the late 1990s has been well documented in Zhang (1998) and Chung (2003). In the following discussion, we will only briefly summarise the main features for these two stages.

### ***2.1. Stage 1: Civil Aviation under Central Planning***

Before 1980 China was politically and economically isolated from the outside world. The airline industry was a semi-military organisation under the dual leadership of the air force

and the State Council,<sup>1</sup> engaging in only limited commercial operations (see *China's Civil Aviation Statistics 1949–2000* (2002)). New routes were launched primarily to suit political activities. The industry experienced losses from 1953 to 1978, even after taking into account the central government's subsidies to the industry (see Zhang 1998, p.157). One reason for the persistent losses was that before 1980 only government officials at a certain high level were eligible to fly. This period is usually regarded as the first stage of the evolution of China's airline industry. In this phase, civil aviation operated under a four-tier administration system:

- The Civil Aviation Administration of China (CAAC) was the head,<sup>2</sup> both as a government department and as an enterprise engaging in aviation business.
- Each of the six regional civil aviation bureaus—Beijing, Shanghai, Shenyang, Guangzhou, Chengdu and Lanzhou (later relocated to Xian)—operated under the leadership of CAAC, which was in charge of and organised the aviation business of each region. Each of these bureaus engaged in airline operations in the name of CAAC in their own regions, which evolved into six trunk airlines.
- Under the regional bureaus there were 23 provincial civil aviation bureaus, mainly engaged in airport management businesses and other local aviation activities.
- 78 civil aviation stations across the country, the fourth tier, were directly controlled by their provincial bureaus.

As with many other industries, this four-tier system was typical during the period of the centrally planned economy, embodying a combination of government and enterprise functions. The market-oriented reforms in the late 1970s sought to separate these two functions, and this policy has guided the industry's evolution since 1978.

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<sup>1</sup> The State Council of China, namely the Central Government, is composed of the premier, vice-premiers, state councillors, ministers in charge of ministries and commissions, the auditor-general and the secretary-general.

<sup>2</sup> CAAC was a government department under the leadership of the State Council, but most of the time it was controlled by the Central Military Committee. CAAC was regarded as an airline operator as well as a regulatory body until the establishment of the six trunk airlines.

## ***2.2. Stage 2: Transition from Central Planning to Market Orientation with ongoing Reforms***

The second stage began in the late 1970s, when China was gradually moving away from its traditional centrally planned system. In the context of the “open door” policy adopted by the Chinese government, the airline industry started to embrace international rules and practices. CAAC was separated from the air force and in 1980 came under the direct supervision of the State Council. Within CAAC, the six regional civil aviation bureaus became “half corporatised” with the aim of making them financially independent.<sup>3</sup>

To encourage operating efficiency and profitability, in 1987 the State Council ratified the “Report on Civil Aviation Reform Measures and Implementation”, and separated CAAC’s government, administrative and regulatory roles from the direct management of the day-to-day operations of commercial airlines and airports. Following the ratification of this report, between 1987 and 1991 six trunk airlines based in the regional capital cities emerged: Air China (Beijing), China Eastern (Shanghai), China Northwest (Xi’an), China Northern (Shenyang), China Southwest (Chengdu) and China Southern (Guangzhou). CAAC was the nominal owner of these airlines, in the name of the state. Accompanying these reforms was growth in the number of regional airlines, which were usually established by local governments or jointly with CAAC in a bid to support the local economy. Most began with only two or three planes and were based in their provincial capitals, from where they provided services to gateway cities such as Beijing, Shanghai and Guangzhou.

Both the regional and trunk airlines were tightly regulated by CAAC in every aspect of air services provision, market entry, route entry, frequency and pricing, with only limited competition between the regional airlines and the trunk airlines on a small number of routes. Until 1996, Chinese airlines competed against each other through standards of service and their safety record, rather than through competitive pricing. In fact, passengers had no strong brand identity awareness before the mid-1990s, as many airlines had only recently been established and were effectively indistinguishable because of the tight regulation by CAAC. In such a controlled environment, it was highly unlikely that competitiveness would be fostered.

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<sup>3</sup> The first step towards a market economy in China in the 1980s was to make the state-owned enterprises “self-responsible for losses and extra-profit retention”, i.e., recording profits and losses independently (see Zhang 1998).

### ***2.3. Stage 3: Deregulation, Privatisation and Consolidation***

The year 1997 marked the start of the third stage of the development of China's airline industry. This stage, which continues to the present, provides a landmark of deregulation, privatisation and consolidation. From 1997 on, airlines experienced a period of unexpected shocks from both home and abroad, with increasing challenges from aggressive international airlines, further deregulation demands from foreign governments, and a worldwide trend towards airline alliances. Passengers with a high level of awareness of their consumer rights demanded better services and prices. Profits were no longer guaranteed and fluctuations in revenue were unavoidable. Government policies on the airline industry in this era were at times inconsistent and promoted controversy, as can be seen in the following sections.

#### **2.3.1. Deregulation in Airfares**

The first sign of price relaxation occurred in 1992, when the State Council allowed the price of airfares to vary within a range of 10% of the set price. However, in practice, all airlines still adopted the same price, and changed their prices simultaneously under the supervision of CAAC. From 1 July 1997, price discrimination on foreign passengers was eliminated and the same price applied to all passengers who purchased their tickets in China. In November 1997, CAAC promulgated the policy of "one class with multiple discounts",<sup>4</sup> encouraging airlines to adopt a price discrimination strategy in an attempt to attract more passengers in order to make full use of their capacity. This policy marked the beginning of the deregulation of air prices. Repeated price wars between airlines followed. To make their load factors look good and to snatch greater market shares, airlines sold their seats at low prices without considering their costs. The destructive dogfight led to a heavy loss of 3.5 billion Chinese yuan (US\$0.44 billion) for the whole industry in 1998 (*International Finance Daily*, 17/04/2003).

On 8 May 1998, CAAC issued "The Decision to Enforce Supervision and Restore Order in the Air Market", prohibiting discounts from falling below 20% of the normal price. As there were no penalties, many airlines disregarded this command and the price wars continued. CAAC's role as a regulator and coordinator, which involved the issuing of policies and pricing, was being severely challenged. Thus, in February 1999 it introduced a stronger policy that had the intent of immediately halting any discounts on any route. It included the

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<sup>4</sup> The airlines used to simply set three classes in their flights: first, business and economy. The adoption of the yield management system allows one class (e.g., economy class) with many sub-classes, offering different discounts to passengers at different time points.

harsh penalty of expulsion from routes where violators discounted airfares. Several violations were detected on some routes and the violators were punished,<sup>5</sup> but when too many airlines continued discounting, CAAC could do nothing because it was too difficult to penalise them all. At the same time, consumers strongly opposed any tightening of control over prices, and the airlines did not want to be deprived of their pricing freedoms once they had been acquired (Li 2001).

“Revenue pooling” was CAAC’s last-ditch attempt to curb destructive competition. From 1 April 2000, CAAC decided that the airlines’ revenues on each of 108 routes where competition had been relatively fierce should be aggregated and reallocated at the settlement centre of CAAC, taking into account each airline’s seats actually offered and passengers actually carried.<sup>6</sup> Airlines that did not want to join this scheme would be expelled from these routes. The 108 routes accounted for 11% of the total domestic routes but carried 50.5% of domestic passengers. Although this remedy could stop the declines in the airlines’ revenues, its defect was obvious: it gave no impetus to airlines to do more to attract passengers. Many people questioned whether this method had violated the existing Price Law by eliminating competition.<sup>7</sup> Criticisms were overwhelming from consumers, who denounced CAAC as a protector of airlines, not a real regulator, as it compromised the interests of both airlines and consumers ((for example, see Huang (2000) questioning this policy in *Beijing Morning News*, 19/04/2000).

Despite CAAC’s efforts, not every airline was satisfied with the revenue-pooling remedy. Ambitious airlines with competitive advantages could gain larger revenues if they were allowed to compete freely. This policy forced all the airlines to work together instead of

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<sup>5</sup> For example, Hainan Airlines was expelled from several routes for one or two scheduled seasons when found to be selling heavily discounted prices on these routes.

<sup>6</sup> Under this policy, each airline was required to put its sales revenue (number of passengers carried times 80% of the normal fares) into a pool for reallocation. Even if an airline sold a ticket at a price of 70% of the normal fare, it had to put an amount of 80% of the normal fare into the revenue pool. In the reallocation, airlines with larger aircraft and thus with more seats could be reallocated more, even if these seats were unsold.

<sup>7</sup> Although price-fixing activities could be caught by the 1997 Price Law which in Section 14 (1) prohibited price collusion, this clause has never been enforced on the airlines in China by price control administrations, in part, we suspect, because Section 18 of the Price Law allows the government to exercise pricing power in certain areas, such as a natural monopoly and public service sectors, although this section is not clearly spelled out.

competing against each other, which meant that the competitive ones had to sacrifice their best interests to accommodate the weaker ones. Another downside of this policy was that undiscounted prices struck a heavy blow to the booming tourism industry, which was especially important for provinces such as Hainan.

CAAC faced a dilemma. At a time when China was ready to step into the World Trade Organisation (WTO) to embrace the market economy, CAAC's re-regulation measure was bound to be short-lived. A mere one month later, CAAC allowed group discounts on tourist routes from Hainan in May 2000. In August of the same year, routes to small communities in regional areas were allowed to apply discounts of not more than 10%. At the beginning of 2001, CAAC permitted flexible prices on more routes, but only if the amount of money actually paid by passengers was entered on the ticket and the discounts were within the range set by CAAC. However, the discount range in most cases was simply ignored. Although the "revenue pooling" agreement was signed again by most of the airlines effective on 112 routes in March 2001, for many airlines, the agreement was only a paper one. Airlines closely matched their rivals' ticket prices, with no reference to CAAC's policy.

After finding that airlines could circumvent the revenue-pooling policy by secretly selling more discount tickets to increase their revenue, CAAC realised that it could no longer exercise any strong influence on pricing. As a result, it formally abandoned its revenue-pooling policy in November 2002. From then it was up to the airlines to decide whether they would pool revenue on any given route bilaterally or multilaterally, or not pool at all.

But as a regulatory body, CAAC was still responsible for regulating air prices. Working with the National Development and Reform Commission, "The Scheme of Domestic Airfare Reform" (2004 Airfare Reform Scheme hereafter) was drafted to set benchmark prices and establish a pricing mechanism. After a hearing on 15 July 2003, which included consumers and airlines as well as other relevant parties, this scheme was finally promulgated in April 2004. The benchmark price in the domestic market was set at 0.75 Chinese yuan (US\$0.094) per kilometre, taking airlines' average cost, market demand and the resources of consumers into account. For the first time airlines were given the right to decide the price at a range 25% higher (price ceiling) and 45% lower than the benchmark price (price floor). Again, the range limit was ignored as 70% discounts on many routes were common both before and after the release of this scheme.

In fact, since the collapse of the revenue-pooling policy, CAAC has accepted a hands-off approach to price regulation and has turned a blind eye to the price wars. All it can do now is remind airlines of the scheme after any price war. The airlines do not strictly abide by regulations that have no clear and effective punishment measures. Thus, it can be seen that the pricing of air fares in China's domestic market has, de facto, been deregulated, without a formal Deregulation Act such as in the US.

Recall the US airline deregulation experience that was detailed by Pickrell (1991), from which we can make an interesting comparison with China's deregulation. Before the formal deregulation marked by the enactment of the 1978 Deregulation Act, the Civil Aeronautic Board (CAB), the regulatory body, like CAAC, was under mounting pressure from academics and the public, who called for relaxation of its controls over fares and airline entry. Restrictions imposed on charter flights were the first to be lifted, enabling them to provide low-fare services from 1975. In response to the threat from charter flights, the regulated airlines successfully applied for permission to discount coach fares up to 45%. Later, a deeper discount (70%) was allowed by CAB. In 1978, before the formal deregulation, virtually all domestic routes experienced discount fares offered by the regulated airlines.

According to Pickrell, due to developments in the policies of fare flexibility, and more liberal entry and exit that had developed over the previous year, the Airline Deregulation Act simply codified them. The Act allowed deregulation measures to be phased in, and as a result airlines had full freedom to enter any market in 1981, and the full freedom to set fares in 1982. It seems that after years of unplanned deregulation before the passage of the Act, US deregulation moved on in a very planned and organised way as a result of the Deregulation Act. In contrast, China's deregulation of airfares under the 2004 Airfare Reform Scheme did not seem to have any intention to codify the de facto airfare flexibility, nor to offer a guideline for the future development of the airline industry. This shows that CAAC was not determined to grant full pricing freedom at this stage.

### **2.3.2. Deregulation of Entry and Exit**

The 1996 "Regulation on Operation of Chinese Civil Aviation Domestic Routes and Flights"<sup>8</sup> requires that an application for entry to and exit from a route, and for an increase in the number of flights on any route, be submitted in advance to CAAC for approval. There are

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<sup>8</sup> This regulation was issued by CAAC on 18/11/1996.

many indications that CAAC has gradually loosened the criteria for entry and exit in the domestic market since 2000. As noted by the deputy director of CAAC in the *Beijing Youth Daily* (2/11/ 2004), it has simplified its approval procedures and frequently encourages the opening of new routes. CAAC used to meet every year to coordinate route entry among airlines, but from 2004 these meetings were cancelled unless necessary, because the applications were rarely rejected. Since 2004, airlines with better safety records, higher on-time performance rates and service quality appraisals have been awarded priority in opening new routes and expanding frequencies. With the purpose of developing hub airports in Beijing, Shanghai and Guangzhou, opening routes to these cities was encouraged. The 1996 regulation allows CAAC to retain the right not to let a carrier stop serving a route, but it seldom uses this right if the airline cannot bear the loss incurred by serving that route.

More freedoms were formally granted to the carriers in the “Regulation on the Operation on the Domestic Routes”, which came into effect from March 2006. According to this regulation, except for some routes with high traffic volume and routes linking the busy airports, airlines may begin and stop services on a route without prior CAAC approval. A simple notification to the regional civil aviation bureau prior to their action is sufficient (called the registry-for-record system). This opens the door for the airlines to enter most domestic markets, without CAAC conducting a case-by-case review of the carriers’ applications. Currently, flights in and out of the eight busiest airports—Beijing, Shanghai’s Pudong and Hongqiao, Shenzhen, Guangzhou, Chengdu, Kunming and Dalian—and flights operating on the top 15 busiest routes in terms of passenger volume, are still under control. Entry and exit to them still needs prior approval.

### **2.3.3. Privatisation**

Because of communist ideology and its traditional conservatism, the airline industry shunned privatisation before the mid-1990s. Foreign investment was not allowed in China’s airline industry until 1994, when CAAC and the Ministry of Foreign Trade and Economic Cooperation issued the “Notice on Policies Concerning Foreign Investment in Civil Aviation”. This policy allowed foreign investors to invest in existing airlines, to construct airports and to establish general aviation enterprises (aviation enterprises that do not carry commercial passengers and cargo) with Chinese partners. The foreign investment in airlines was not allowed to exceed 35% of the registered capital with not more than 25% voting rights, while the cap for foreign investment in airports was 49% of the registered capital. The American Aviation Investment Fund acquired 25% of the total number of shares in Hainan

Airlines in 1995, but CAAC denied that foreign investments would be given a green light to be involved in “core” aviation business (Le 1997). This more or less reflected CAAC’s conservative attitude with regard to the openness of ownership of airlines. In 1997 the listing of China Eastern Airlines Co. Ltd on the New York, Hong Kong and Shanghai stock exchanges marked the first step of privatisation. Direct investment was now allowed in core aviation businesses, suggesting that 1997 could be seen as the start of the new stage.

Lo (2003) documents the lengthy preparation and negotiation process with CAAC and other government agencies over the restructuring issues underlying the public listing of China Eastern. The restructuring to become a listed company required that the assets and liabilities between the new company and the China Eastern Group be defined and assessed. One interviewee told Lo that CAAC did not want China Eastern to be publicly listed as it did not want to lose control over it. Therefore, negotiations with CAAC were very difficult. This is understandable in China’s context, for the central authorities have always sought to control the affairs of local governments and state-owned firms, while the latter use every means to resist in their attempt to gain more independence and self-managing rights. CAAC was no exception. Therefore, CAAC’s gradual loss of control over prices and the airlines’ defiance of its authority from time to time, as mentioned earlier, are not surprising. The interests of the firms and the central government (and also the interests of the local governments and the central government) do not always coincide. Sometimes it was pressure from local governments and enterprises that drove the central government to go further in reforming or adopting a new policy.

But once the tap was turned on, it was impossible to stop. As a capital-intensive industry, China’s airlines have found that the stock market is more cost-effective than bank loans in raising money to buy planes. Loans were previously their only avenue for raising funds, but these were too expensive to allow the purchase of new planes.

The process of privatisation and diversification in ownership of the once strictly state-owned airlines continued after 1997. Several months after the public listing of China Eastern, China Southern Airlines Co. Ltd succeeded in listing its shares on both the New York and Hong Kong stock exchanges. Its shares were also listed on the Shanghai Stock Exchange in 2003. The Southeast Asian financial crisis postponed Air China’s public listing (Zhang 2002), but this flag carrier finally listed its shares in Hong Kong and London at the end of 2004. Before the consolidations in 2002, many regional airlines had been partly privatised, and some, such

as Hainan Airlines, Shanghai Airlines and Shenzhen Airlines, had listed their shares domestically and/or overseas.

Meanwhile, privatisation and more direct foreign investment in other aviation-related areas such as airport infrastructure, aircraft maintenance and ground handling services have gradually restructured China's companies in these areas. One of China's most important gateways—Shanghai—had its airport managing company, Shanghai International Airport Co. Ltd, listed on the Shanghai Stock Exchange in 1998. Many other small airports, such as Xiamen and Shenzhen, followed. Guangzhou Baiyun Airport Co. Ltd also went public in 2003. Since 1989 a number of joint venture facilities in maintenance, repair and overhaul (MRO), such as AMECO,<sup>9</sup> GAMECO,<sup>10</sup> TAECO,<sup>11</sup> STARCO,<sup>12</sup> and many other smaller MRO joint ventures have been established, serving domestic and international airlines. In October 2006, Boeing Shanghai Aviation Services Co. Ltd was established and incorporated by the Boeing Company, Shanghai Airport Co. Ltd. and Shanghai Airlines Co. Ltd, aiming to establish a world-class MRO facility to offer modification, maintenance, repair and overhaul services. In the service area, Beijing Aviation Ground Services Co., Ltd (BGS), owned and controlled by Beijing Capital International Airport Company Limited and Singapore Airport Terminal Services (Private) Limited (SATS), is the first joint venture company to provide ground-handling services for airline clients.

China's accession to the WTO in December 2001 opened a new page in the annals of the airline industry's reform and deregulation. To accelerate and boost the industry's development by creating a greater number of large airline corporations and airports, the "New Regulations for Foreign Investment in the Civil Aviation Industry"<sup>13</sup> came into effect on 1 August 2002, replacing the "Notice on Policies Concerning Foreign Investment in Civil Aviation" (1994). Foreign investment is now encouraged in all domestic airlines

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<sup>9</sup> Aircraft Maintenance and Engineering Corporation (Beijing), established by Air China and Lufthansa Airlines.

<sup>10</sup> Guangzhou Aircraft Maintenance Engineering Co., Ltd, established by China Southern Airlines, South China International Aircraft Engineering Co., Ltd and Hutchinson Aircraft.

<sup>11</sup> Taikoo (Xiamen) Aircraft Engineering Co., Ltd, a subsidiary of Hong Kong Aircraft Engineering (TAECO)

<sup>12</sup> Shanghai Technologies Aerospace Co., Ltd, established by Singapore Technologies Aerospace and China Eastern Airlines.

<sup>13</sup> Jointly promulgated by the General Administration of Civil Aviation, the Ministry of Foreign Trade and Economic Cooperation, and the State Development Planning Commission of the People's Republic of China.

and general aviation enterprises, as well as in air transport-related projects in refuelling, aircraft maintenance, air freight and storage, etc, but not in the air traffic control system or in projects related to national security. The maximum share that can be jointly held by foreigners is limited to 49% in airport investment; this threshold can be lifted if the Chinese investment party dominates.<sup>14</sup> The cap of 35% of registered capital investment from foreign companies in airlines has been raised to 49% in the new regulation. However, no single foreign company can own more than 25%. Despite this, the new ownership regulation is much less restrictive than the regulation in many other countries, including the US and Canada, where there is still a 25% voting right restriction on foreigners.

Meanwhile, the door to domestic private investors has been opened as well, and a regulation allowing such investors to enter the civil aviation industry took effect as of 15 August 2005, with the purpose of achieving a trade-off between the utilisation of foreign capital and domestic capital (*Securities Times*, 02/08/2005). Taking three years to draft, the “Regulation on Domestic Investment on Civil Aviation” (CCAR-209, effective from 15 August 2005) shows the government’s resolve to break the monopoly in this industry. This regulation also imposes restrictions on airport and aviation oil companies in gaining stakes in airlines, as they are still operating as monopolies and such ownership might be likely to result in unfair competition. It also clearly lists the airlines and airports that CAAC will continue to own or hold (a majority stake) and that will therefore be controlled by the state. The big three airlines and provincial capital airports as well as nine coastal airports are on the list.

The relaxation of the regulation on investment in civil aviation has encouraged the establishment of private airlines. More than 10 private airlines have been licensed since 2005. Most of them positioned themselves as low cost airlines. However, they have not posed any serious threat to the existing airlines so far because of their relatively small capacity.

#### ***2.4. Reforms and Deregulation are Still Progressing***

On 3 March 2002, the State Council ratified the “Civil Aviation System Reform Programme”, which has the following main goals:

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<sup>14</sup> For example, foreigners can jointly hold a stake of 60% with no individual more than 40%, and the Chinese party holding the rest (40%) will dominate.

- Restructure of the civil aviation administration system from four tiers to two tiers, i.e., CAAC and seven regional civil aviation bureaus (North China, Northeast China, East China, Central and South China, Southwest China, Northwest China and Xinjiang Urumqi). Provincial civil aviation bureaus were eliminated and replaced by 26 provincial civil aviation safety supervision offices. The role of CAAC and the regional bureaus was clearly defined with a focus on safety management, aviation market management, macro-control,<sup>15</sup> air traffic control management, and foreign relationships, with no interference in transport enterprises' internal affairs.<sup>16</sup>
- Restructure of the airlines and aviation services. Nine airlines were to be regrouped under the big three: Air China Group, China Eastern Group and China Southern Group; the Computer Information Centre and Accounting Centre under CAAC would be merged into a joint aviation information service centre; China Aviation Oil Corp and Aviation Supplies Import and Export Corp would be combined into a supply centre. These groups were established in October 2002 through this reform programme.
- Transfer of the management rights of 93 airports to provincial governments, except for the Beijing Capital and Tibetan airports. Most of these airports were heavily in debt and were subsidised by the central government. After the completion of the transfer, the financial and operational burden passed to the provincial governments. This is one of the main reasons why the new aviation investment regulation encourages more private investment in airports.

The core of this reform is to completely remove the hand of CAAC from the commercial operation of air transport enterprises and aviation-related companies. The major task is airline consolidations. All of these reforms can be regarded as a further move to deregulate the aviation industry. At the end of 2004, CAAC declared completion of all the tasks set by the 2002 Reform Programme.

However, it might take time to judge whether the implementation of these reforms has been successful or not. Reforms have certainly not stopped since 2004. In early 2006, CAAC

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<sup>15</sup> In China, macro-control usually means the use of government influence to contract or expand the rate of growth in the economy.

<sup>16</sup> With the realisation of this goal at the end of 2005, CAAC and the regional bureaus now act purely as a government agency with no authority to intervene in the day-to-day operations of the airlines and airports.

issued “CAAC Guidelines on Deepening the Civil Aviation Reform”, in which some objectives and tasks in the next five years were proposed. Two objectives were noticeable. One is the removal of the control over operation rights on all domestic routes, which means that the registry-for-record system for entry and exit will apply for all the domestic routes by 2010. Domestic airlines will not be required to go through the approval procedure and will only need to report the decision to fly on a certain route to CAAC. Another objective is to remove the price floor set up in the 2004 Airfare Reform Scheme, although this floor has had little effect on airlines’ pricing in reality.

The guidelines also state that the government encourages China’s airline to engage in all forms of cooperation with foreign airlines including joining the international airline alliance. In fact, the codesharing restriction between China and the US has already been removed between China and the US in their 2004 air services agreement. Northwest, American and United Airlines have each operated code share flights with Chinese carriers in China’s domestic markets, extending their route network to Chinese inland cities. At the end of 2007, China Southern became a member of Skyteam, and Air China and Shanghai Airlines joined Star Alliance. This not only implies an expanded network for Chinese airlines, but also means that more Chinese domestic points have been opened to other alliance members through codesharing.

Looking back, CAAC did not function properly, at least to some extent in the first several years after initial deregulation. It has been blamed for the periodic aircraft accidents and the airfare wars because of its conservatism and inconsistent policies. Almost all upper echelon officials and airline managers are air force veterans who have been inculcated with a culture of suppressing innovation. In the past several decades CAAC built up a protective fortress around the airline industry within the ideology of a centrally planned economy. This led at times to blinkered and inconsistent policies. In one period it encouraged flexibility in prices, while in another it tightened price regulation. In one period it freely licensed airlines, while in another it supported the takeover of small airlines that undercut airfares and caused price wars. However, deregulation has been moving on. A clearer deregulation direction has emerged since the implementation of the 2002 Civil Aviation System Reform Programme, especially since the formulation of the 2006 “CAAC Guidelines on Deepening the Civil Aviation Reform”. The series of reforms in the third stage towards privatisation and a more deregulated environment where carriers enjoy more freedom are the result of the following forces.

First, major global economic powers and financial centres such as the US, Britain, Germany, Japan, Hong Kong and Singapore all possess advanced and powerful commercial airline systems to facilitate their economic growth. Given China's rapid growth in GDP, the movement of goods and people needs an efficient air transport system. In turn, economic growth will be accelerated by efficient transport. Deregulation, privatisation and consolidation all came with a common purpose, namely to push the less efficient Chinese airlines to modernise in order to serve the growth economy.

The same reason applies to the local governments that wish to have closer links to the rest of China and the world. They need money from various sources, including the government, and foreign and domestic private investors to upgrade their local airports. A clear-cut law relating to investment in these areas is essential.

Second, in response to the increasing requests from the relatively efficient airlines that want more freedom to access domestic and international routes, simplifying entry and exit procedure is inevitable.

Third, an increase in the power of consumers pushed CAAC to remove the minimum threshold imposed on airfares. As well, public pressure ensured that CAAC took no consistent and effective punishment measures against the carriers that violated the threshold. The benchmark prices that CAAC proposed were questioned by the press with a complaint that the purpose of such prices was to secure profits and that they gave carriers no incentive to lower costs. People were dissatisfied when they found that domestic airfares in countries such as the US were much cheaper over similar distances, even though American airlines have higher labour costs.

Fourth, the emergence of substitute products for scheduled airline services, such as high-speed trains between metropolitan cities, gave a greater choice to passengers. Price then became an important factor in attracting passengers.

Finally, the high level of subsidies resulted in inefficiencies in the airline industry and further forced governments at all levels to inject more money into the industry. Privatisation is likely to ease the government's burden and foster a competitive airline industry without any expense to the taxpayer.

Following the removal of excessive and inappropriate controls by CAAC, an examination of the performance of China's airlines would be an interesting research topic. On the one hand

a more deregulated environment means potentially stronger competition, but on the other hand increased concentration resulting from the 2002 consolidation might pose a threat to competition, especially in the absence of an effective antitrust law. However, this is beyond the scope of this paper. In the following sections, we seek to refute the argument that China's 2002 airline consolidation is an arranged marriage, with CAAC being the controlling partner that has overruled the wishes of the merging parties. Later sections of this paper will show that this argument is not completely true. A careful study of China's civil aviation evolution and the consolidation process demonstrates that consolidation is a natural solution to the problems facing China's airlines, and is not merely a result of government policy.

### **3. Airline Consolidations**

#### ***3.1. Eliminating the Regional Airlines***

China's first airline merger occurred in 1994 when Fujian Airlines, which had been in operation for just one year and operated only a few small Chinese-manufactured Yun-7 aircraft, was taken over by Xiamen Airlines. Because these two airlines were both based in Fujian province, their merger had no real impact on either the China-wide industry or the economy. Several other small airlines that were in severe financial distress were taken over after 1997 with the onset of the Southeast Asian financial crisis. China General Aviation Corporation, headquartered in Taiyuan, Shanxi province, a city in northern China with few potential passengers, was absorbed by China Eastern Airlines. In 1998, China Eastern incorporated China Great Wall Airlines, which was based in Ningbo, a city near Shanghai. It was difficult for these small airlines to survive in the shadow of the trunk airlines, especially those that were based in relatively less-developed cities. Such also was the fate of Wuhan Airlines, which seemed unable to recover from a fatal accident in 2000 and was acquired by China Eastern two years later. In this way, China Eastern extended its base territory from East China to two northern provinces, Shanxi and Hebei, where China General Aviation Corporation was based, and to the central province of Hubei, the home of Wuhan Airlines.

For similar reasons, China Southern acquired Guizhou Airlines and Zhongyuan Airlines in 1998 and 2000 respectively. The home provinces of these two airlines were also the base areas of China Southern. However, other local airlines based in the relatively developed coastal areas were in a better position. Two reasonably efficient regional airlines, Shenzhen Airlines and Hainan Airlines, which compete with China Southern in their overlapped areas, have not been so easy to eliminate. Shanghai Airlines and Shandong Airlines are in the same

situation, challenging the monopoly status of China Eastern within its backyard. The ambitious Hainan Airlines took over Chang'an Airlines and China Xinhua Airlines in 2000 and 2001, enabling it to service a nationwide network.

In fact, the regional airlines generally did not play on a level field with the trunk airlines. Their lifelines were the routes that link Beijing, Shanghai and Guangzhou, which overlap with those of the big three—Air China, China Eastern and China Southern. Their heavy losses that resulted from the cutthroat competition in the price wars could not be constantly funded by their shareholders, mainly the respective local governments. However, the trunk airlines could still operate with the support of the central government that would not let them go bankrupt. In addition, their lack of experience and trained staff forced the regional carriers to consolidate with the trunk airlines. But what will be the fates of the unprofitable trunk airlines such as China Northern and China Northwest? Will the central government continue to pour money into them with no promise of a return? The answer might be to treat them the same as the inefficient regional carriers: eliminate them through mergers.

### ***3.2. Consolidating into the Big Three***

After the signing of an agreement, the merging of groups of China's airlines was declared on 11 October 2002. The merger resulted in three major airline groups, with a few remaining independent airlines (see Table 1). Air China Group was a consolidation of Air China (Beijing), China Southwest (Chengdu) and CNAC.<sup>17</sup> China Southern Group was formed from China Southern Airlines (Guangzhou), China Northern Airlines (Shenyang) and China Xinjiang Airlines (Urumqi). The China Eastern Group included China Eastern Airlines (Shanghai), China Yunnan Airlines (Kunming) and China Northwest Airlines (Xi'an). By the end of 2002, the big three consolidated airlines—China Southern Group, China Eastern Group and Air China Group—commanded 34%, 24% and 21% of the passenger market, and 29%, 24% and 28% of the cargo market, respectively (international traffic included). After taking over several regional airlines such as Chang'an, Xinhua and Shanxi, Hainan Airline Group ranked fourth, with 8% of the passenger market and 4% of the cargo market by the end of 2002 (Source: *China Civil Aviation Statistics* 2003). Table 1 lists the airlines left in

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<sup>17</sup> CNAC: China National Aviation Corporation, owned by CAAC and based in Hong Kong (but not directly providing air services to and from Hong Kong), was a major shareholder of Dragon Air and Air Macau, with a small subsidiary, Zhejiang Airlines, providing services to and from Zhejiang province.

China's domestic market after the mergers, and their headquarters. The carrier code for each airline is given in parentheses following the airline's name.

There was much speculation about possible mergers before the consolidations were announced. *China Economic Times* (11/09/2000) and *Southern Metropolis Daily* (29/09/2000) reported that Air China and China Southern Airlines had signed an intention-to-merge agreement, but that this was vetoed by CAAC in early 1999, even though this voluntary consolidation was acceptable to the State Council (Yu and Yuan 2002). Yu and Yuan also claim that China Eastern proposed that if Air China and China Southern's plan was allowed, it would seek to ally itself with three other trunk airlines (China Northern, China Northwest and China Southwest). Although these actions have been circulated and discussed within the industry,<sup>18</sup> CAAC has never formally confirmed them.

It is highly possible that Air China and China Southern did have this intention, given that they have compatible aircraft fleets (mainly Boeing aircraft), and Air China has a competitive advantage in the international market while China Southern owns the most extensive domestic network. Their proposals might have been rejected because, with their supplementary advantages, the merged airlines would have been too dominant in China's airline industry. Objections from other airlines might also be a major reason. Whatever the reason, this shows that after two years of price wars the trunk airlines themselves considered merging, rather than, as some people believed, that CAAC forced them to do so. At this point the only question for each airline was, who would be their most suitable partner?

It was CAAC that exercised its authority by deciding that Air China, China Eastern and China Southern should remain after the mergers. This is not surprising as these three were in many respects the top performers among the trunk airlines: financial status, reputation, management skill and, possibly most importantly, each was headquartered at one of China's most important cities—Beijing, Shanghai and Guangzhou, respectively. However, CAAC could not arrange everything because its authority was weakened when it lost control over airfares. For example, which airline was to join which group was largely left to the airlines through discussions and bargaining. The negotiations, as reported by Xiao (2001), usually followed the pattern of CAAC making suggestions first, and then the particular individual carriers discussing and assessing the feasibility of the suggestions. Any disagreements were aired until a compromise solution, still subject to the approval of the State Council, was

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<sup>18</sup> The corresponding author heard this rumour when he was working at Shanghai Airport in 2000.

formulated. Therefore, China's airline consolidations were more than an arranged marriage. In fact, although it cannot be denied that CAAC played an important role in the process of consolidation, CAAC has repeatedly claimed that the mergers between the airlines followed the wills of the individual companies, with only guidance coming from the government (Wang and Cheng 2001).

Even after CAAC had decided that the major three airlines would remain as the cornerstones of the aviation industry, lengthy negotiations took place among the airlines to decide which carriers should be included in each group. It can be imagined that there were many stories behind this lengthy process. People immediately connected the arranged code-share agreement between China Southern and Yunnan Airlines, on the route from Guangzhou to Kunming from 1 March 2001, to the approaching consolidation (Li 2001). Because it had been profitable for many years, Yunnan Airlines was a welcome partner because of its monopoly status within Yunnan province. In contrast, the heavily indebted China Northwest was not regarded as a suitable partner. The final result—combining China Eastern, Yunnan Airlines and China Northwest, thus selling a good with a bad—was obviously a compromise reached behind closed doors. Possibly for a similar reason, China Southern, Xinjiang, a monopolist within Xinjiang province, and China Northern, an ill-managed airline with many old MD aircraft, were grouped together through the negotiation. This arrangement ensured that neither group had an absolute advantage over the other following the mergers, which seems to be an acceptable outcome for all parties. As mentioned earlier, CNAC only had a small subsidiary, Zhejiang Airlines, providing services in the domestic market, which is small in scale. Therefore, compared with the other two groups, the Air China group had a relatively small presence in domestic markets. However, considering that Air China, the flag carrier with the most extensive international networks, has the highest reputation in many respects, the overall competitiveness of the Air China Group can provide a competitively effective constraint on the other two groups.

The three newly established groups are not only balanced in size and capacity, but are also spatially balanced with respect to geographical space. The home cities of group members in all three groups form an interesting triangle in the map of China. For example, in the Air China Group, the home bases of the three members lie in the north (Beijing), east (Hangzhou) and southwest (Chengdu), respectively; in the China Eastern Group, Shanghai, Xi'an and Kunming are located in China's east, northwest and southwest, respectively; the China Southern Group includes a base in the northeast (Shenyang), northwest (Urumqi) and

south (Guangzhou), respectively. Each group possesses a gateway city and inland hubs, giving them enough space to expand, and equal opportunity to redesign their operational networks to build up competitiveness. The spatial balance implies that a direct consequence of the mergers would be greatly enhanced multimarket contacts among each group. The big three airlines would compete in a much broader market than ever before.

The declaration of the mergers on 11 October 2002 was only the beginning of a long and tortuous integration process. It is difficult to pinpoint when the full integration of each airline group in terms of their schedules, service, assets and manpower coordination was achieved. It likely did not take long for the airlines in a group to jointly set fares and schedules and jointly share airport facilities and maintenance services. For example, the carrier codes and logos were unified at the beginning of 2003 for each group. The ticketing offices and airport staff across the country of each group gradually merged from the second half of 2003. Merging the assets of the airlines into the publicly listed China Eastern and China Southern took much longer and was not accomplished until mid-2005.<sup>19</sup> After consolidating the assets of the acquired airlines, Air China listed its shares on the Hong Kong Stock Exchange and the London Stock Exchange on 15 December, 2004.

#### **4. Forces Driving the Consolidations**

##### ***4.1. A General Overview of the reasons for Mergers and Acquisitions***

There are three types of mergers: horizontal, vertical and conglomerate (Asch 1983). When one company merges all or part of the stock or assets of another company that directly competes against the acquirer in the same product line or in the same geographic area, the merger is horizontal; a vertical merger occurs when the participating companies are in a supplier–customer relationship; a merger that does not fall into these two categories and that is usually associated with market extension or product extension activities is conglomerate. The China airline mergers are mainly horizontal mergers, but they are also associated with extended networks after the mergers, which have some elements of conglomerate mergers.

Each merger case has its own motives. A complex pattern of motives might exist for a single merger case. However, there are some general motives that most mergers and acquisitions

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<sup>19</sup> Before the asset integration, China Eastern, China Yunnan and China Northwest, which became the China Eastern Group, were financially independent. This was also the case for the members of the other two airline groups.

have, and after a discussion of these we will move on to the facts and numbers to infer the motives of China's airline consolidations.

The managerial literature has voluminous discussions of the motives for mergers and acquisitions. Trautwein (1990) surveys the theories of merger motives. Seven groups of motives are established: efficiency or synergy theory, monopoly theory, valuation theory, empire-building theory, process theory, raider theory, and disturbance theory.

Similar types of motives were summarised by Bekovitch and Narayanan (1993): the synergy motive, the agency motive, and hubris. Other motives, such as diversification and tax considerations, are also possible. However, Mukherjee et al. (2004), by conducting direct investigations among the decision makers, find that the usual primary motivation for mergers and acquisitions is to achieve operating synergies. Andrade et al. (2001) provide a possible motive that is highly relevant to our case. They contend that deregulation and the resulting industry shock that it caused became a dominant factor in merger activity in the US in the 1990s.

Apart from the above motives, researchers into airline consolidations, notably the airline alliances, have identified a series of particular benefits that may become the dominant motives for merging airlines: greater ability to overcome regulating restrictions; cost reductions and economies of scale, scope and density; coordinated schedules and prices to optimise the demand for each flight with improved service quality; and opportunities to reshape industry structure and to raise barriers against new entrants (Oum and Park 1997; Oum et al. 2000; Goh and Uncles 2003).

In a previous section, we described the "chaos" in airline markets (so-called by many airline people) in terms of the repeated irrational pricing behaviour.<sup>20</sup> Being unable to re-regulate pricing, CAAC resorted to guiding the airlines into consolidation. The desire of the government constituted one of the many forces that drove the mergers. However, it was not only the wish of CAAC to end the "unnecessary" competition. Airlines also sought the consolidations because, as will be seen shortly through figures and facts, outside pressure together with financial difficulties had forced them to consider mergers. Seeking synergies or market power might have also been a motive, but it should be understood that the motives

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<sup>20</sup> A referee pointed out that the pricing behaviour of airlines may seem irrational, but it may well be consistent with the nature of the markets in which they operate. It could be that the institutional structure of the markets is irrational, rather than the behaviour of the airlines.

inferred by outsiders, or even the real motives of the participants, may not be necessarily realised and become the anticipated results.

#### ***4.2. A World Trend—Airline Mergers and Airline Alliances***

In the US from 1966 to 1980, horizontal mergers were not usually permitted if the resulting firm would control more than 15% of the market (Shepherd and Shepherd 2004). The Reagan administration then loosened this antitrust policy as long as the merger would lead to improved efficiency, unleashing a spate of mergers in the 1980s. In fact, economic history shows that mergers and acquisitions occur in waves (Mitchell and Mulherin 1996). Also in the late 1980s, in Canada six carriers merged into Canadian Airlines, creating a duopolistic domestic market with Air Canada. The late 1990s and early 2000s saw an additional wave of consolidations, between, for example, Air Canada and Canadian Airlines, American Airlines and TWA, and Japan Airlines and Japan Air Systems. More recently, a cross-border acquisition occurred between Air France and KLM.

China's airline mergers took place in the setting of this new wave of international consolidation. In addition, the international competitive advantages of the US carriers had been strengthened by the mergers. Clougherty (2000) argues that domestic airline mergers increase international efficiency via the enhancement of domestic networks and via the elimination of domestic competition. Therefore, international competitive incentives can be an additional spur to domestic airline mergers. To gain a similar international competitive advantage was one of the main driving forces behind the Chinese government's airline consolidation policy. The merging parties believed that they were participating in a worldwide trend and hoped that consolidation would rapidly increase their efficiency, improving their ability to counter their foreign rivals.

#### ***4.3. The Formation of Hub-and-Spoke Networks to achieve Cost Savings***

Although China's total air traffic ranked at number four in the world measured in passenger-km terms and number five in tonne-km terms in 2002, compared with other major international airlines, the scale of China's three main airlines is still small, whether in terms of the size of the fleet, passenger-km or tonne-km (data source: *China Civil Aviation Statistics* (2003)). No Chinese airline appeared in the top 30 lists before 2002. Thus, economies of scale, scope and density most likely were not achieved prior to the consolidations.

China faces the problem of how to develop a hub-and-spoke system in place of the “linear” point-to-point structure, thereby creating a wave of arrivals followed by a wave of departures at a hub for the connecting passengers, which were well developed in the US following airline deregulation. More than 20 years after China opened its door to the outside world, many overseas Chinese and foreigners still found it inconvenient to fly on to inland cities from Beijing, Shanghai or Guangzhou because of the lack of suitable connecting flights. Also, according to the then airline timetables, passengers travelling between the two medium-sized cities of Zhengzhou and Qingdao, which in 2002 were connected by only five flights a week, had to travel by train or bus between the two cities if they missed their flight and did not want to wait for the next flight on another day. However, now, by carefully designing their flight schedules, this inconvenience can be avoided. Schedules permit international and domestic passengers to seamlessly travel to their final destinations via the hubs without the need to change to another carrier or a lengthy wait in the transfer lounge. Airline schedules also allow passengers to travel between Zhengzhou and Qingdao via a transfer at one of the hub cities, say, Beijing or Shanghai, where there are many flights each day to these two medium-sized cities.

In fact, building a hub-and-spoke network is not only a supplier-driven strategy to maximise capacity to accommodate more passengers so as to achieve economies of scope and density. It is also driven by the needs of consumers. In general, an airline becomes more attractive to frequent flyers if it serves a large number of destinations. Consolidation has made this possible. Each of the three groups forms a big triangle, which gives them the opportunity to change the ways that they provide services.

#### ***4.4. The Search for Improved Financial Performance***

Nearly all the major US airlines experienced substantial change from a position of high profit to heavy losses in their financial performance in the three years following the passage of the 1978 Airline Deregulation Act (Williams 1994). This led to the development of a series of activities in a bid to increase competitiveness, including the development of computer reservation systems, frequent flyer programmes, code-sharing alliances, and even mergers. An amazingly similar story was repeated in China following the relaxation of

airfares in 1997, including consolidation, which was a strategy that the Chinese airlines were compelled to take when facing financial difficulties.<sup>21</sup>

We first provide some informative data that gives an overview of China's air transport development since China opened its door. Table 2 reports data on air traffic volume over the period 1980–2002 in the domestic market. The data from the mid-1980s suggest that the government's policies and reform measures in the second stage had a strong impact on industry growth. After the rapid growth in the first half of the 1990s, with an average annual increase of 27%, the late 1990s saw a slowdown in passenger traffic growth. Growth then accelerated from 2000, with a growth rate of more than 10% each year. It is worth noting that cargo and mail traffic kept growing at a fast pace, with an annual growth rate not less than 15% between 1990 and 2000. It seems that China's airlines performed very well if we look only at the traffic that they carried, reflecting the strong growth in the economy in China since the 1980s. However, these indicators of traffic volume reveal nothing about the profitability of the airlines.

Table 3 shows that the total revenue of the whole industry greatly increased during the past two decades. Narrowing the focus to the most recent decade shows that 1997 is a turning point. With the relaxed control over airfares in 1997, total revenue from all civil aviation immediately dropped by 10% in 1997 from 48 billion Chinese yuan (US\$6 billion) in 1997 to 43 billion (US\$5.4 billion) in 1998, though Table 2 suggests that total traffic turnover increased by 12.6% (in tonne–km) in this period. The revenue from international markets slid (by 15%) more than that from the domestic market (by 6.2%), indicating mounting pressure from international rivals. The decrease in revenue led to the call for price re-regulation in 1999, as mentioned earlier. As a result of ensuing intervention, civil aviation revenues from the domestic market saw a moderate increase, by 6.6% in 1999 and 9.3% in 2000.

A bigger increase in 2001 and 2002 from the domestic market might suggest the success of the “revenue pooling” scheme. However, it should be understood that this only indicates

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<sup>21</sup> However, without rigorous analysis of relevant data, it should not be concluded that deregulation directly contributed to the financial losses. In the US, the relationship between deregulation and airline profitability has been studied, with no firm conclusions being reached. Brenner et al. (1985) find that immediately after deregulation, airline profits reached their lowest level. However, Gomez-Ibanez et al. (1983) and Van Scyoc (1989) find that the fall in airline profits had nothing to do with deregulation.

success for the whole industry, not for every individual airline. Also, it only suggests a win in the short run, not necessarily being in the best interests of the industry in the long run, as all of China was undergoing the transformation towards a market economy, in which every industry had to be prepared to embrace a new free market sooner or later. This scheme was eventually abandoned when CAAC realised that this was not the right way to keep this industry profitable. However, after abandoning the scheme and with no other effective remedies that could satisfy all the relevant parties, consolidation seemed to be a natural choice. Consolidation may bring about some harmful effects, but they are not so immediate and in many cases not so controversial.

China's airline industry had a notorious safety record in the 1990s.<sup>22</sup> Yet, for the state-owned airlines, safety rather than profit had been the main concern. The US experience has demonstrated that neither deregulation nor the increased financial hazards has had an effect on the safety of airline travel (Rose 1989; Foreman 1993; Adrangi et al. 1997). In China, there has been a decline in air traffic accidents since deregulation. However, many people in China's airline industry still have the same perception as described in Adrangi et al. (1997) for the US case, namely that the eroded profits following deregulation will force airlines to scrimp on aircraft maintenance and air crew training. There was also concern about overuse of the airlines' resources (e.g., overtime for aircrew) by increasing the frequency of flights and operating new routes with no oversight when route entry and exit has been liberalised. For these reasons, China's aviation authority was wary of every step of reform, and tended to be conservative and indecisive at times. For many years the question, "which should be put first, safety or profit" was undebatable for many government officials, who undoubtedly put safety first. Therefore, it is not surprising that airlines were not being pushed too much for profits and as a result subsidies had to be paid to the state-owned airlines whenever they made losses. However, with the ongoing privatisation of many once wholly state-owned airlines and decreased subsidies from the government, pursuit of profits to maximise the market value of the company has become the ultimate goal. However, at the

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<sup>22</sup> Fatal accidents since 1990 include crashes at Guangzhou in 1990, Guilin 1992, Yinchuan 1993, Fuzhou 1993, Urumqi 1993, Xiamen 1994, Shenzhen 1997, Wenzhou 1999, Wuhan 2000, Pusan 2002, Dalian 2002 and Baotou 2004.

same time, safety should not be compromised. In these circumstances, consolidation seems to be a promising means through which the carriers can achieve both goals.<sup>23</sup>

Another performance indicator is the load factor, which measures the percentage of available seating capacity that is filled with passengers. Looking at Tables 4 to 6, both the passenger load factor and the weight load factor of the whole industry decreased greatly after 1997. The individual airline data demonstrate the same result for all the trunk airlines and most of the regional airlines. Tables 4–6 give rise to the question, why did the load factors not improve after the airlines were allowed to sell discount tickets?

Table 7 may in part answer this question. It illustrates that there was a jump in the total number of aircraft from 1991 to 1993, mainly resulting from purchases by the newly established regional airlines. The main type of aircraft purchased by these small airlines was the Boeing 737 series. While it seems that from 1993 to 1997 the total number of aircraft remained relatively steady, during this period, many Russian- and Chinese-made small aircraft were retired. The major airlines introduced large aircraft with more than 200 seats that were generally considered much safer. This may be the principal reason for the decrease in load factors since 1997, leading to strong competition to fill up the aircraft and eventually to the heavy losses in their financial reports.

The Chinese government has the final say in purchasing aircraft from Boeing, Airbus and other manufacturers, and for political reasons, aircraft purchases must be balanced between the two major manufacturers. Because of this, many of China's airlines have a very diverse fleet, which increases their training and maintenance costs. A merger can enable members of one group to better deploy their aircraft because of a more extensive network. Some surplus or unsuitable planes for one member of the group may be better utilised by another member on another route. Thus, both members operate more efficiently and higher load factors may be achieved. Aircraft utilisation is also likely to be increased.

It should be noted that most of the empirical studies have shown that horizontal mergers on average are not associated with higher profitability (see the survey by Jacquemin and Slade 1989), but this presumption still remains in favour of many mergers, especially for firms that are faced with financial difficulties. Empirical evidence suggests that poorly run firms are seen as takeover targets as they wish to avoid bankruptcy (De Bondt and Thompson 1992;

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<sup>23</sup> The poor management of some acquired airlines may be a potential threat to safety. However, the application of a better-performing carrier's standards after the mergers may help improve their safety records.

Matsusaka 1993). Shrieves and Stevens (1979) argue that some failing firms find the cost of merging less than the cost of bankruptcy. Porter (1990) regarded alliances as a transitional device and as a response to uncertainty about the future, especially for firms experiencing structural change or facing unprecedented competition. Doganis (2006) also holds this view and contends that more large international airline alliances or mergers will be created in the coming years as a result. For example, a cross-country airline alliance (joint venture) occurred in 1993 when KLM acquired Northwest Airlines, which was in financial trouble (Tully 1996). The proposed strategic alliance between Qantas and Air New Zealand, and the acquisition of a substantial equity investment by Qantas in Air New Zealand also came at a time of poor performance by Air New Zealand.<sup>24</sup> All these facts indicate that it was an appropriate time for the poorly performing Chinese airlines to consolidate.

#### **4.5. *Outside Shocks***

Outside shocks might have prompted the airline mergers. There is no doubt that the onset of the Southeast Asian financial crisis in 1997 (see Chin et al. 1999 for discussion) and the September 11 tragedy in the US had a profound influence on the airline industry (see Ito and Lee 2005 for an assessment). As a result of the sharp decrease in demand in the international market after these events, the airlines had to curtail their international flights and transfer capacity to the domestic market. This consequently intensified domestic competition, which called for restructuring in the airline industry.

### **5. Conclusion**

This paper has discussed the evolution of China's airline industry with an emphasis on the deregulation stage after which the airline consolidations occurred, and the reasons why they happened. In spite of a chequered process in deregulation, further deregulation has since been pushed forward in China's airline industry with further privatisation, easier entry and exit, and easier investment into aviation businesses.

With a brief review of the theories and empirical findings relating to the motives for mergers and acquisitions, and a discussion of the facts of China's airline industry following the airfare deregulation in 1997, we have sought to establish the most likely reasons for China's airline consolidations. Although the results of the existing empirical work are largely

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<sup>24</sup> See Australian Competition Tribunal decision, Qantas Airways Limited (2004) ACompT 9, available on ACT website <http://www.act.gov.au>.

inconclusive owing to the simultaneous existence of multiple motives, as noted by Berkovitch and Narayanan (1993), it seems that a worldwide consolidating trend, outside pressure posed by competitive foreign airlines, the pursuit of cost savings through a large network, and the financial difficulties facing the carriers, might be the primary drivers that led to the 2002 consolidations of China's airlines.

Worldwide, airlines have been constantly adjusting to the ever-changing and deregulated environment. Fundamental changes have also taken place in China since 1997 when deregulation started. The evolution of China's airline industry in the post-deregulation period appears to have much in common with the US, where lower airfares immediately followed deregulation, a spate of mergers occurred in the years after deregulation, and hub-and-spoke networks quickly developed to achieve the greater efficiency required to meet the stronger competition brought about by deregulation.

Also similar is that almost all the airline mergers in the US in the 1980s were allowed to go ahead without serious opposition from the US antitrust authorities. China's airline consolidation also occurred without any antitrust challenge owing to the lack of effective antitrust laws. However, one difference is that there has been much literature examining almost every aspect of the evolution of the US airline industry after deregulation, including the actual effects of the 1980s mergers, while only a few serious academic studies have been carried out on the evolution of China's airline industry, not to mention the assessment of their possible anticompetitive effects. This should be a future research area.

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Table 1

Airlines remaining in China's domestic market after 2003<sup>a</sup>

Airlines (or groups) remaining in the domestic market	Group members and merger time	Headquarters
Air China Group (CNAC Holdings)	Air China (CA) 10/2002	Beijing
	China Southwest (SZ) 10/2002	Chengdu
	CNAC (F6) 10/2002	Hangzhou
China Eastern Group (China Eastern Holdings)	China Eastern (MU) 10/2002	Shanghai
	China Northwest (WH) 10/2002	Xi'an
	China Yunnan (3Q) 10/2002	Kunming
	Wuhan Airlines (WU) 08/2002	Wuhan
China Southern Group (China Southern Holdings) <sup>b</sup>	China Southern (CZ) 10/2002	Guangzhou
	China Northern (CJ) 10/2002	Shenyang
	China Xinjiang (XO) 10/2002	Urumqi
Hainan Group (or Hainan Holdings)	Hainan Airlines (HU)	Haikou
	China Xinhua (X2) 02/2001	Tianjin & Beijing

	Chang'an Airlines (2Z) 08/2000	Xi'an
	Shan'xi Airlines (8C) 07/2001	
Shanghai Airlines (FM)		Shanghai
Xiamen Airlines (MF)		Xiamen
Sichuan Airlines (3U)		Chengdu
Shenzhen Airlines (ZH)		Shenzhen
Shandong Airlines (SC)		Jinan & Qingdao

<sup>a</sup>This Table does not contain the low-cost airlines, which were established after 2005. Nor does it contain the airlines that had been taken over before 2000.

<sup>b</sup> Although China Southern has investments in Xiamen Airlines (MF) and Sichuan Airlines (3U), it does not appear to intervene in their internal affairs to any great extent. The two airlines have formed their own identities and images. Passengers generally do not regard them as members of China Southern Group.

Table 2

Traffic volume in China's domestic airline market, 1980–2002

Year	Passenger Traffic (10,000)	Turnover Volume of Passenger (10,000–km)	Cargo and Mail Traffic (tonne)	Turnover Volume of Cargo & Mail (10,000 tonne–km)	Total Traffic Turnover (10,000 tonne–km)
1980	293	280,904	68,591	7,395	27,671
1985	595	706,212	134,242	16,405	67,423
1986	831	1,000,899	155,809	19,611	91,901
1987	1,109	1,327,026	211,557	26,836	122,382
1988	1,171	1,431,733	225,987	29,841	132,926
1989	1,052	1,271,092	207,446	27,989	119,506
1990	1,346	1,576,561	239,467	31,646	145,157
1991	1,797	2,117,406	288,961	37,803	190,329
1992	2,394	2,944,009	369,681	49,504	260,459
1993	2,805	3,517,912	441,896	60,606	312,621
1994	3,445	4,193,544	565,202	77,515	377,595
1995	4,419	5,287,232	702,557	96,604	474,660
1996	4,782	5,731,759	821,556	114,190	540,717
<b>1997<sup>a,b</sup></b>	<b>5,112</b>	<b>6,088,820</b>	<b>953,870</b>	<b>134,759</b>	<b>587,698</b>

<b>1998</b>	<b>5,204</b>	<b>6,228,104</b>	<b>1,081,655</b>	<b>153,684</b>	<b>661,686</b>
<b>1999</b>	<b>5,463</b>	<b>6,516,727</b>	<b>1,280,552</b>	<b>182,033</b>	<b>666,638</b>
<b>2000</b>	<b>6,031</b>	<b>7,377,283</b>	<b>1,474,767</b>	<b>211,133</b>	<b>759,818</b>
<b>2001</b>	<b>6,832</b>	<b>8,463,034</b>	<b>1,354,019</b>	<b>196,090</b>	<b>951,550</b>
<b>2002</b>	<b>7,756</b>	<b>9,719,845</b>	<b>1,595,299</b>	<b>232,451</b>	<b>1,100,647</b>

<sup>a</sup> Hong Kong included since 1997, Macau included since 1999.

<sup>b</sup> 1997 onwards is regarded as a deregulated period and therefore is highlighted in bold.

Source: *China Civil Aviation Statistics* (2003).

Table 3

Revenue of China's airline industry, 1980–2002 (in 10,000 yuan)

Year	Revenue of Civil Aviation			General Aviation Revenue	Airport Service Revenue	Other Revenue	Total Revenue Per ton-km	Total Revenue
	International Market Revenue	Domestic Market Revenue	Total					
1980	11,524.00	25,502.00	37,026.00	3,936.00	3,908.00	0.84	178.00	45,049.00
1981	19,058.00	27,760.00	46,817.00	3,562.00	4,186.00	0.87	1,628.00	56,194.00
1982	25,319.00	30,754.00	56,072.00	4,034.00	5,104.00	0.88	1,691.00	66,900.00
1983	47,585.00	30,858.00	78,443.00	5,473.00	6,329.00	1.18	2,719.00	92,964.00
1984	66,746.00	46,402.00	113,148.00	7,867.00	7,458.00	1.23	2,166.00	130,632.00
1985	112,629.00	72,531.00	185,160.00	7,506.00	8,451.00	1.48	15,539.00	209,150.00
1986	152,818.00	102,968.00	255,786.00	5,982.00	11,861.00	1.77	14,833.00	282,435.00
1987	208,493.00	156,189.00	364,682.00	6,562.00	43,907.00	1.97	18,331.00	426,920.00
1988	265,198.00	222,136.00	487,334.00	6,518.00	60,801.00	2.23	18,863.00	566,998.00
1989	233,960.00	263,526.00	497,486.00	6,448.00	71,291.00	2.46	22,322.00	591,099.00
1990	368,698.00	407,720.00	776,418.00	7,302.00	54,831.00	3.16	13,434.00	844,683.00
1991	513,521.00	552,533.00	1,066,054.00	6,806.00	94,201.00	3.42	17,312.00	1,177,567.00
1992	661,093.00	841,658.00	1,502,751.00	7,448.00	156,045.00	3.58	15,474.00	1,681,718.00
1993	851,285.00	1,100,163.00	1,951,448.00	8,908.00	195,193.00	4.04	152,279.00	2,307,828.00
1994	1,360,199.00	1,698,156.00	3,058,355.00	12,359.00	212,233.00	5.54	220,395.00	3,278,750.00
1995	1,570,542.00	2,231,150.00	3,856,006.00	16,183.00	284,530.00	5.63	192,860.00	4,349,579.00
1996	1,637,253.00	2,782,793.00	4,476,927.00	16,175.00	328,747.00	5.66	230,695.00	5,052,544.00
1997	1,840,748.00	2,930,331.00	4,817,399.00	15,224.00	371,182.00	6.57	322,400.00	5,526,205.00
1998	1,556,411.00	2,747,524.00	4,338,815.00	8,493.00	420,249.00	5.70	316,258.00	5,083,815.00
1999	1,841,205.00	2,928,206.00	4,805,867.00	10,053.00	443,639.00	5.75	1,046,750.00	6,306,309.00
2000	2,045,159.00	3,200,603.00	5,281,285.00	10,212.00	526,063.00	5.48	1,287,721.00	7,105,282.00
2001	2,058,981.00	3,572,549.00	5,666,683.00	12,508.00	685,724.00	5.50	2,414,361.00	8,779,275.00
2002	2,646,919.00	5,680,933.00	8,368,058.00	13,265.00	1,925,805.00	5.08	1,186,741.00	11,493,868.00

Source: *China's Civil Aviation Statistics (1949–2000)* (2002) and Hong Kong CEIC Data Company Ltd.

Table 4

## Passenger load factors and weight load factors

Year	Passenger load factors				Weight load factors			
	Average %	Domestic Routes %	Hong Kong & Macau Routes %	Int'l routes %	Average %	Domestic Routes %	Hong Kong & Macau Routes %	Int'l routes %
1986	78.1	89.7	67.1	60	64.5	72.3	59.3	55.4
1987	78.2	89.5	68.3	59.6	66.1	74.7	59.7	56.5
1988	79.6	89.2	72.4	64.4	67.2	75.7	60.5	58.3
1989	68.1	78.5	62.9	51.4	59.5	67.4	56.8	50.7
1990	68.9	76.9	68.1	54	59.3	63.1	56.8	52.4
1991	77	84.8	74.2	61.3	64.5	70.6	61.3	56.9
1992	78.4	87.1	78.3	59.3	64.6	69.6	60.4	57.9
1993	71.8	76.6	69.2	57.5	58.4	59.9	52.4	56.8
1994	69	73.5	56.3	57.3	56.8	58.4	44.9	55.9
1995	71.5	75.9	57.8	59.6	58.8	59.9	45.6	59.2
1996	69.3	72.4	57	61.7	59.2	60.1	45.2	59.7
1997 <sup>a</sup>	65	66.4	41.2	60.9	57.1	55.5	34.4	61
1998	59.3	60.1	58.2	56.5	53.3	51.4	48	57.5
1999	58.6	57.6	61.7	56.3	55.6	51.3	64.6	49.6

<sup>a</sup> Hong Kong routes included in domestic routes after 1997, Macau routes included in domestic routes after 1999.

Source: *China's Civil Aviation Statistics (1949–2000)* (2002).

Table 5

## Passenger load factors of trunk airlines

Year	Air China	China Southern Airlines	China Eastern Airlines	China Northern Airlines	China Southwest Airline	China Northwest Airline	Yunnan Airlines	Xinjiang Airlines
	%	%	%	%	%	%	%	%
1985	68.3	90.7	76.3	92.6	88.9	91.7		
1986	76.4	91.7	73.4	89.8	87.4	90.2		85.6
1987	68.2	91.6	77.6	91.7	89.4	86.4		79.7
1988	70.2	89.6	82.2	89.5	87.7	85.6	95.3	93.4
1989	56.9	78	71.3	78.6	73.6	74.2	84.3	82.2
1990	58.9	78.7	73.3	71.5	74.1	72.4	89.4	75.5
1991	66.9	84.4	80.3	80.4	82.6	81.9	87.9	88.4
1992	71.3	86.3	71.3	84.7	83.9	82.7	88.4	86.4
1993	64.7	75.8	73.9	73.3	74.6	71.5	79.3	74.8
1994	63.4	70.4	69.1	70.6	72.6	65.5	83.7	76.0
1995	65.4	72.5	69.5	76.5	76	65.1	84.3	76.9
1996	66	70.9	65.8	73.6	69.6	65.5	77.4	72.7
1997	64.2	64.2	64.4	66.1	65.6	61.6	66.1	66.9
1998	59.6	60.9	58.8	55.1	57.6	54.1	61.8	58.4
1999	61.4	58.5	58.9	54.9	56.1	56.9	65.6	58.3
2000	64.1	60.4	62.4	59.5	56.4	62.3	56.5	59.9
2001	63.9	62.3	61.5	59.9	56.6	58.9	59.5	58.3
2002	68.2	65.4	65.0	60.3	59.7	57.0	60.8	45.8
2003	65.9	63.6	59.5	65.3				64.6

Source: *China's Civil Aviation Statistics (1949–2000)* (2002); data after 1999 from Hong Kong CEIC Data Company

Ltd.

Table 6

## Passenger load factors of regional airlines

Year	Shanghai Airlines	Hainan Airlines	Sichuan Airlines	Shenzhen Airlines	Xinhua Airlines <sup>a</sup>	Shandong Airlines
	%	%	%	%	%	%
1993	73.7	76.4	71.1	63.5	32.6	
1994	67.7	73.3	67.1	64.7	56.0	
1995	73.4	77.4	72.2	72.3	70.4	18.9
1996	70.9	71.0	67.3	77.2	70.0	69.6
1997	64.8	72.7	66.7	71.5	61.8	71.5
1998	63.0	67.1	62.3	67.7	55.2	63.1
1999	58.0	60.6	56.5	56.9	55.3	65.0
2000	62.5	66.5	60.9	57.8	57.3	67.4
2001	65.3	70.8	67.3	63.5	57.8	66.6
2002	65.2	72.5	66.9	65.0	63.0	72.2
2003	61.7	69.1	65.8	76.0	69.4	75.0

<sup>a</sup>Xinhua Airlines was taken over by Hainan in 2001, but the statistic here was calculated separately.

Source: *China's Civil Aviation Statistics (1949–2000)* (2002); data after 1999 from Hong Kong CEIC Data Company Ltd.

Table 7

## Aircraft owned by airlines

Year	Total	Air China	China Southern	China Eastern	China Southwest	China Northwest	China Northern	Others
1991	417	50	80	68	23	31	86	79
1992	602	58	89	66	33	42	92	222
1993	710	61	101	67	35	42	87	317
1994	719	64	100	64	41	40	85	325
1995	722	60	99	69	42	39	92	321
1996	745	61	95	71	39	34	93	352
1997	770	66	96	67	39	38	91	373
1998	778	65	111	103	42	34	77	346
1999	795	59	113	83	36	33	82	389
2000	795	65	117	80	33	34	76	390
2001	n/a	69	125	92	37	29	69	n/a

Source: *China's Civil Aviation Statistics (1949–2000)* (2002); data for 2001 from *China Civil Aviation Statistics* (2002).