

Military rotorcraft: Strongest aero market

MILITARY ROTORCRAFT HAVE ENJOYED strong growth over the past few years, outperforming every other aero market during the 2008-2010 economic downturn. Between 2008 and 2010 deliveries rose 13.5% by value.

For strategic and programmatic reasons, this growth looks sustainable for the next few years, with a high plateau following for most of the rest of the decade. However, there are long-term market and technological challenges that could impact the industry before 2020.

Robust U.S. growth

Three major factors are propelling U.S. market growth. The first is strategic relevance. In a time of shrinking force structures and dwindling budgets, force mobility is more important than ever. This is true for land forces, which need transports to move personnel and equipment and to provide firepower, and for naval forces, which more than ever must rely on shipborne helicopters to patrol larger areas with fewer ships.

Also noteworthy is that rotorcraft are among the very few types of mili-



tary equipment that have strong relevance in all three areas of military force application. A military can be used for traditional warfighting, counterinsurgency, or peacekeeping/nation-building roles. Rotorcraft are essential for all three, unlike, for example, aircraft carriers or main battle tanks.

The second factor is an aging fleet. As a result of strategic requirements, and of the much greater than expected level of current fleet utilization in Iraq, Afghanistan, and elsewhere, hopes that older machines could be gradually replaced have disappeared. The best example of this is that the Marine Corps, arguably the most frequently deployed fighting force in the world today, relies on aging Boeing CH-46 transports for the bulk of its lift requirements. The last of these were built 40 years ago, in 1971.

The third factor is the complete absence of technological substitutes for a major part of the military rotorcraft market. In most other defense market segments, there is the competitive threat posed by alternative means of achieving the same effect. For example, the requirement for traditional tactical combat aircraft can be delayed or reduced with increased use of UAVs. Similarly, the requirement for the manned strategic bomber has been reduced and delayed by the arrival of ICBMs.

By contrast, the key driver behind the military rotorcraft market is the need for transport, for which there is no substitute or replacement in sight. Indeed, military transport (including

the V-22 tilt-rotor) makes up over half the total rotorcraft market by value, and about two-thirds of the military market.

U.S. military procurement remains the big driver behind rotorcraft market growth, and behind the surge in transport requirements in particular. The best example of this is the Army's UH-60M squad transport. The current UH-60A/L fleet is extremely worn out, and the Army plans to buy 1,235 M models as replacements. Sikorsky delivered the 300th UH-60M in July, and has delivered more than 3,000 UH-60s of all variants.

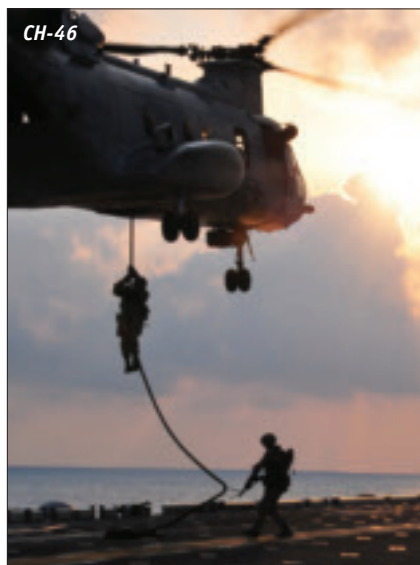
Other key U.S. transport programs include Bell/Boeing's V-22 tilt-rotor (360 planned and 180 delivered to the Marine Corps by mid-2011, with another 50 for Special Operations Command), and Boeing's CH-47F/G (525 new and rebuilt aircraft planned with over 150 delivered by mid-2011).



Key export triumphs

U.S. manufacturers have been further bolstered by a series of very impressive export market victories. The biggest deal, for Saudi Arabia, was first announced in mid-2010. Under current plans, the Saudis will buy about 72 UH-60s, 70 Boeing AH-64D Longbow Apaches, and 36 Boeing/MD Helicopter AH-6 Little Birds. A firm contract signature is expected this year, and in June Saudi Arabia announced that it was actually planning to expand its U.S. weapons acquisition plans.

Second, in April Sikorsky's S-70





(UH-60) won the Turkish Utility Helicopter Program (TUHP), a \$3.5-billion deal for up to 121 helicopters. Agusta-Westland's AW149 was the loser.

The third notable export market win was for the Australian naval helicopter requirement. In June, the Royal Australian Navy signed for 24 MH-60Rs in a \$1.5-billion deal. The losing competitor was the NFH 90. The same month, Taiwan signed the launch order for the Block III iteration of the AH-64D. Covering 30 helicopters, the contract was the largest AH-64 export order in over a decade.

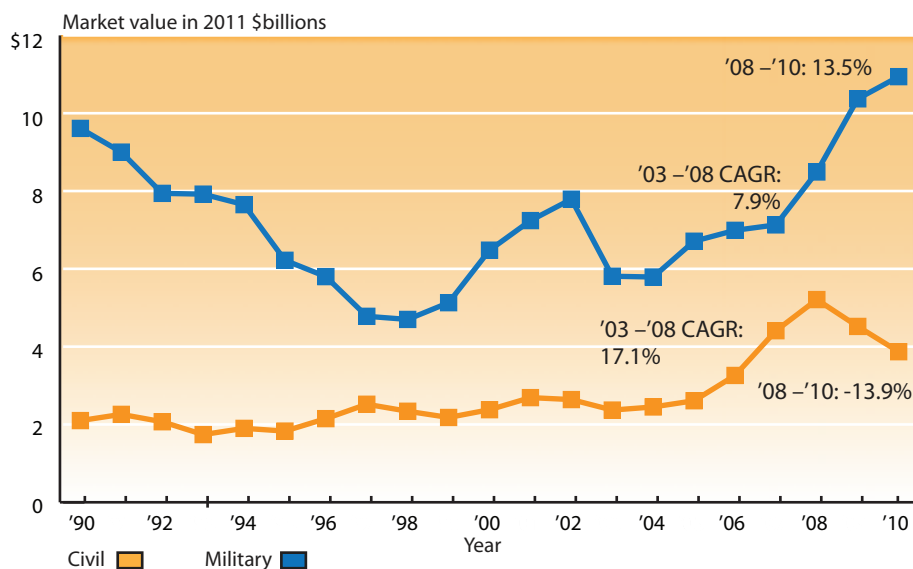
Given the security of U.S. rotorcraft programs, and the strong upgrade road maps that come with them, U.S. export standing looks set to remain high in this market. Another factor that keeps the export market strong is relatively high barriers to entry. Even though many countries have large rotorcraft requirements, only one export market—South Korea—is trying to create a new home-grown industry to meet domestic needs. India, a very large market, has been trying to do this for several decades, but with very limited results.

Long-term threats

The problem with a massive reequipment cycle, in the U.S. and internationally, is that any boom cycle will probably be followed by a bust. What goes up is likely to come down. The military rotorcraft market is no exception.

While times are quite good right now, many of the current programs of record are scheduled to wind down around the end of the decade. Even today, the supplemental spending packages that have boosted U.S. defense

CIVIL AND MILITARY ROTORCRAFT DELIVERIES



budget rotorcraft procurement are tapering off, along with U.S. involvement in Iraq (and probably Afghanistan within a few years). This implies a market bust as militaries complete their reequipment cycles and, possibly, use those fleets at a reduced pace.

Compounding the potential market problem is a lack of R&D funding for new technologies and platforms. Other than Sikorsky's CH-53K transport, due to enter service in 2018, there are basically no new rotorcraft programs nearing fruition, or even in the advanced design phase. All that is on the horizon are requirements concepts, such as the U.S. Joint Multi-Role rotorcraft. JMR may produce a funded research program, but it is not scheduled to reach the engineering and manufacturing development phase until 2030.



To a certain extent, this paucity of new helicopters might not be concerning from a military capabilities standpoint. Much of the innovation in rotorcraft today is happening at the subsystem level, with advances in engines, weapons guidance systems, datalinks, and munitions. Boeing's AH-64 Apache, soon entering its fourth decade in service and being rebuilt in a third incarnation as the AH-64D Block III, shows that a relatively old airframe can retain world-class combat effectiveness through technology insertion. All that is necessary is a prime contractor whose focus is less on new design and more on systems integration.

To retain a new design capability, manufacturers are coping with this R&D downturn by spending their own money on innovative concepts such as Sikorsky's X2 technology demonstrator or Eurocopter's X3 fast hybrid design. However, both of these, like past concept aircraft such as the Bell/AgustaWestland 609 civil tilt-rotor, emphasize speed as their primary design attribute. It is far from clear that military or civil market customers will pay much of a premium for speed.

European challenges and opportunities

European manufacturers will also need to cope with programs that wind down. There are three primary military rotorcraft programs, the Eurocopter/AgustaWestland NH 90/NFH 90 transport and naval helicopter, the Eurocopter Tiger attack helicopter, and the AgustaWestland EH 101 transport and naval helicopter. Of these, only the NH 90 looks set to remain in more than token levels of production beyond 2017.

One key challenge for European helicopter makers is to resume military export market growth. All three of these programs enjoyed notable export success at the start of their production phase. Yet all three are experiencing an export orders drought. The Tiger competes against the very powerful AH-64, and the EH 101 competes in a relatively small market niche. But the NH 90 series should be doing better. As Eurocopter ramps up production, deals with quality issues, and works to reduce costs, it should resume its drive against Sikorsky's H-60 series for transport and naval orders. However, over the past few years Sikorsky has reestablished a very strong export market presence.



Another challenge for European primes is to protect and expand their impressive civil market position. Eurocopter and AgustaWestland now respectively hold the number one and two market positions in the civil segment, displacing Bell. Until as recently as 1997, Bell held the top spot. With limited military market prospects, it is essential that the two European primes continue their strong track record of frequently introducing competitive new civil products.

In addition, European primes need to leverage their civil product offerings to create military platforms. A key part of any helicopter company's strategy is migrating technology between civil and military product lines. European companies have become particularly adept at this, but given the chronic and worsening shortage of R&D funding for military rotorcraft in Europe, they need to increase their efforts.

For an interesting example of aggressive (and perhaps premature) technology migration, consider AgustaWestland's plans for the AW139 family. The 139 has been tremendously successful, largely on the civil market, with well over 500 orders. In 2006 the



company firmed up plans for its AW149, a heavier military derivative of the 139. A multirole battlefield helicopter, the AW149 will carry 12-16 troops and a wide variety of weapons.

However, as noted above the 149 lost the key Turkish TUHP competition to Sikorsky in April, and there are no signs of another 149 sales prospect. Yet this has not stopped AgustaWestland from launching the AW189, a civil derivative of the 149. The 189, announced at the June 2011 Paris Air Show, is therefore a civil derivative of the unlaunched military derivative of the 139.

Access to the U.S. market is a key part of that civil-to-military technology migration challenge. Eurocopter here has scored one big hit in the past few years, winning the Army's Light Utility Helicopter (LUH) competition with its EC 145 civil design. The resulting military version, designated the UH-72, is the best example of the growing popularity of commercial-off-the-shelf (COTS) platforms. However, so far both Eurocopter and AgustaWestland have been stymied in their efforts to compete for further COTS programs, such as the Army's armed reconnaissance helicopter, or the Air Force's CSAR-X or CVLSP.



Despite these challenges, European primes, and their U.S. counterparts, have the luxury of time. The next seven years, at least, look like a high plateau after several years of very strong growth. But in the second half of the decade, the industry will need to deal with the strong likelihood of shrinkage after the current military programs of record start to wind down.

Richard Aboulafia
Teal Group

raboulafia@tealgroup.com

KEY ROTORCRAFT MARKETS

Growth in most segments, especially military transport (2011 \$billions)

